Version 1 Release 1

IBM Cloud Tape Connector for z/OS User's Guide

SC27-8734-02

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Third Edition (July 2018)

This edition applies to Version 1 Release 1 of IBM Cloud Tape Connector for z/OS (product number 5698-ABD) and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this information

This guide provides instructions for configuring IBM Cloud Tape Connector for z/OS, and describes how to use it.

The typical user of this product is a systems programmer or administrator who understands the issues relating to tape, DASD, and cloud storage. This person must be familiar with z/OS and its conventions. The information in this document is designed to help data processing professionals perform these tasks:

- Establish parameters to define locations of cloud servers and tape drives.
- Specify criteria for determining which data sets to save to the cloud, and how long to keep the data before deleting it.
- Establish procedures for daily updates and maintenance.
- Use commands to restore data from cloud storage to tape or DASD.

Where to find support and product information

The IBM Knowledge Center provides current support information and product documentation that you can view, print, and download. To locate publications with the most up-to-date information, refer to the following Web page:

http://www-01.ibm.com/support/knowledgecenter.

For product support, refer to the following Web page:

http://www.ibm.com/support.

Accessibility features

The accessibility features in this product enable users to perform the following activities:

- Use assistive technologies such as screen readers and screen magnifier software. Consult the assistive technology documentation for specific information when using it to access z/OS® interfaces.
- Customize display attributes such as color, contrast, and font size.
- Operate specific or equivalent features by using only the keyboard. Refer to the following publications for information about accessing ISPF interfaces:
  - *z/OS ISPF User's Guide, Volume 1*, SC34-4822
  - *z/OS TSO/E Primer*, SA22-7787
  - *z/OS TSO/E User's Guide*, SA22-7794

  These guides describe how to use ISPF, including the use of keyboard shortcuts or function keys (PF keys), include the default settings for the PF keys, and explain how to modify their functions.

Summary of changes

This section summarizes the significant improvements or enhancements for IBM Cloud Tape Connector for z/OS V1.0 and refers you to relevant sections of this book for more information. Minor changes to the text are not listed.

SC27-8734-02

The following changes were made to the documentation in this release:

- *New option on Main Menu.* A new option, **Active Tasks**, has been added to the Main Menu. This option allows you to view the status of tasks, such as Cloud Copy and Restore tasks, that match your selection criteria. See "Cloud Connector Main Menu" on page 17 or Chapter 6, "Active Tasks," on page 99 for more information.
- *New field when saving Parmlib member.* A new field, **Encrypt Cloud Definitions**, has been added to the "Save/Update Parmlib Member" window. You can choose to encrypt the cloud server definitions in the Parmlib so that the information is not printed, displayed, or sent as WTO's at startup. See "Save parameter member" on page 48 for more information.
- *Additional optional parameters.* Two new optional parameters, **THREAD(x)** and **SERVERENCRYPT**, are available when setting up a cloud connection with an Amazon Simple Storage Service (S3) cloud. The **THREAD(x)** parameter can also be used with a Cleversafe cloud. See "Specifying an S3 cloud" on page 38 or "Specifying a Cleversafe cloud" on page 26 for more information.
- *New parameter for "General" settings.* A new field, **Reserve Repository in ENQ**, has been added to the "Parmlib General Options" screen to support sharing the Repository in Sysplex and Non-Sysplex environments. See "General Options" on page 20 for more information.
- *New parameter for generation data group.* A new parameter, **Roll into GDG Base**, has been added to the Restore options. This option allows you to restore active or deferred generation data group files, and also to force the restoration of a GDS data set, if the situation requires it. See "Considerations for restoring GDG's" on page 70 for more information.
- *New messages.* A few new messages have been added. See Chapter 9, "Messages," on page 115 for more information about a specific message.

SC27-8734-01

The following changes were made to the documentation in this release:

- *New Optional Parameters field.* When defining a connection to a cloud server, you can now specify additional parameters to help connect to the cloud server, such as the port number, the number and frequency of connection attempts, compression of data prior to transfer, and part size. See "Cloud Server Options" on page 23 for more information.
- *New Volume Count field.* When staging data to the cloud or restoring data from the cloud, you can specify how many volumes will be needed. This is especially useful for large data sets that use multiple volumes. See "Staging Options" on page 22 and "Data Restore Options" on page 47 for more information.
- *New LOGMSG DD statement.* A new DD statement, LOGMSG, can be allocated to write error information and other informational messages related to the transfer

of data to and from a cloud server, to a log file. See “Diagnostic log files” on page 77 for write diagnostic and error information.

- *New Batch Restore job.* A new batch job offers an alternative method for restoring data sets from the cloud, without using the ISPF interface. A sample job is provided for you to modify. See “Sample Job for Batch Restore” on page 107 for more information.
- *New information on scroll commands.* An appendix has been added that describes all of the commands that enable you to find information, navigate panels, modify the display of data, and print information. See “Primary commands” on page 51 for more information.
- *New IBM VTFM support.* The IBM Virtual Tape Facility for Mainframe (VTFM) saves virtual tape data to disk, also referred to as "vaulting." Through module CUZ#APIB, VTFM can save data to and retrieve data from any cloud defined in Cloud Connector. See Appendix B, “Using the Cloud Connector batch API,” on page 185 for more information about CUZ#APIB and the commands used for various function calls.
- *New Catalog to Cloud feature.* Cloud Tape Connector now supports cataloging a data set to the cloud. See “Catalog Support” on page 89 for more information.
- *Additional information on the Repository.* An appendix has been added that provides more details about the records and keys used in the Cloud Tape Connector repository. See Chapter 8, “Cloud Connector Repository,” on page 113 for more information.
- *New messages.* Many new messages have been added. See Chapter 9, “Messages,” on page 115 for more information about a specific message.

Chapter 1. Introduction to Cloud Tape Connector

With the virtually unlimited storage available on private and public clouds, copying data to a cloud is an easy solution for companies who need a lot of space to store valuable data. By having copies in different storage locations, tape/disk and cloud, you can easily retrieve data that is lost, damaged, or unavailable. Conversely, if you need to restore data from the cloud, but the cloud is inaccessible due to connectivity issues, you can easily retrieve the data from backup tapes or DASD. With different storage options, you no longer have to worry about data getting lost or destroyed, and you have multiple methods for backing up and retrieving your data.

IBM Cloud Tape Connector for z/OS is designed to quickly and efficiently allow you to write sequential files concurrently to tape/disk and to a cloud repository, without having to run additional backup utilities. This product can be used in any supported z/OS environment. When you have a copy of your data saved to the cloud, you can recover data at a disaster recovery site without having the tape backups physically present. You can also restore data from the cloud if a tape has expired, has errors, or has been damaged in some way.

IBM Cloud Tape Connector for z/OS addresses several problems that are common to disaster recovery processes: delays in retrieving tapes, retrieving data from an expired tape, and retrieving data from a problem tape. Each of these problems is solved by saving the data on a cloud:

- You can recover your cloud data at a disaster recovery site without having to wait for tapes to be delivered or when tapes are otherwise not available. Cloud Connector will connect to the cloud and retrieve all backups.
- You can recover your cloud data from a backup if a tape has expired and has been released back to the scratch pool.
- You can recover your cloud data if you receive an I/O error on the physical tape.

By specifying cloud storage, the data is copied from tape or disk to a cloud repository, providing two backup resources for your data and giving you peace of mind that your data is secure and accessible whenever you need it. You can specify several cloud locations and criteria to filter which data is selected for backup processing, so you only save the data you really need.

Cloud Connector Processing

Cloud Connector (CUZ) backs up any sequential data from tape or disk to the cloud and also restores it to DASD or tape. You define the cloud servers, staging options, backup filter criteria, data restore settings, and other general options in a parameter member. Cloud Connector uses the options in the parameter member to connect to the cloud servers that you specified. You can set up staging options so that the data is copied ("staged") to DASD before going to the cloud. This ensures that a copy of the data exists in case there is a connection issue with the cloud.

The data sets selected by your backup filter criteria will be saved to the cloud. You can set a retention period to determine how long the data sets will be stored in the cloud. You can display a list of the data sets that have been written to the cloud and can filter by data set name or cloud server.

When you restore a data set from the cloud, it will be written to either DASD or tape, based on the restore options you specify. Data sets with block sizes over 32K must be restored to tape.

There are two methods for backing up data to the cloud:

- *Capture data while it is being written to tape or DASD and copy to the cloud.* This is done through filter criteria defined in the parameter member, CUZ#PARM. You can filter by data set name, esoteric unit, or SMS storage class.
- *Create a list of existing data sets (history data sets) to copy directly to the cloud.* This method allows you to locate already existing sequential files and copy them directly to the cloud. The pre-existing data sets are identified by name in parameter member, CUZ#INEX.

Cloud Connector provides two methods, described below, for capturing data:

- *Staging data to DASD*. This option will quickly save the data to a DASD data set called a *staging file*. After the batch job has completed, the contents of the staging file are written to the cloud by the Cloud Connector Started Task. This method is recommended for two reasons:
  - Writing data directly to the cloud requires an uninterrupted transmission via a stable network connection to the cloud. If there is any interruption in that transmission, the data will not be written to the cloud.
  - If the data is staged to DASD, and the network connection is interrupted, the process to copy that data to the cloud will continue to restart until the data has been completely written to the cloud.
- *Writing data directly to the cloud*. This option will capture a copy of the data you are writing and send it to the cloud concurrently while the batch job executes. This option works best when transmission is uninterrupted and a stable network connection to the cloud is available. Writing data directly to the cloud could, in some cases, increase the elapsed times of your batch jobs if there is network delay.

We recommend using the staging method due to the ability to restart the copy process. If the staging method is used, the data will be written to the cloud even if the copy process must be restarted to accomplish this task. If the "Direct Cloud Write" method is used, any interruptions in transmission will result in failure to write the data to the cloud.

Cloud Connector has a started task with the default name of CUZCLOUD, which coordinates the movement of files to the cloud. Parameter member CUZ#PARM enables you to define the files you want to copy to the cloud based on data set name, esoteric unit, or SMS storage class. Another parameter member, CUZ#INEX, enables you to copy pre-existing files ("history files") to the cloud based on data set name.

The CUZCLOUD started task accesses one or more parameter data sets that contain the CUZ#PARM member (for the filter criteria and cloud definitions), and the CUZ#INEX member (for the data set names or masks for pre-existing files). The CUZCLOUD started task must be active in order for data sets to be written to or restored from the cloud.

Chapter 2. Configuring Cloud Tape Connector

After you install Cloud Tape Connector using the installation instructions provided in the *IBM Cloud Tape Connector for z/OS Program Directory* that is included with the product, you must configure Cloud Tape Connector for your environment.

Choosing Cloud Connector configuration options

In order to determine the best configuration options for Cloud Connector in your environment, three possible methods for moving data to a cloud server are described below. Review this information first, then configure the product using one of the methods described.

For a list of the steps to configure Cloud Connector, refer to “Configuration Summary” on page 9. An optional process to perform comparison testing is also provided by following the directions outlined in “Comparing the options” on page 6.

Method 1: Write directly to cloud

This method will intercept the data while it is being written to tape or DASD and write it to a cloud server within the same job step.

To write data directly to a cloud server, filter criteria must be specified to inform Cloud Connector which cloud to use to back up this data. From the Main Menu, a filter can be defined through Option 1 (Cloud Connector Settings – Parmlib Options), then by choosing Option 4 (Backup Filter Criteria). Filter criteria can be defined based on a data set name, esoteric unit or SMS storage class.

This method may cause your production batch process to be elongated while waiting for cloud writes to occur, depending on your cloud transmission speeds. Clouds defined within your data center (private clouds) will generally be very fast, and external clouds (public clouds requiring transmissions outside your data center) may be slow.

The one drawback to this method is that if the cloud server transmission is interrupted in any way, Cloud Connector has no way of restarting the "cloud write" function. If Cloud Connector detects a transmission error, one of these actions will occur:

- If the "Abend on Errors" option is set to YES, the job will abend.
- If the "Abend on Errors" option is set to NO, the job will continue with no data written to the cloud.

Method 2: Staging data to DASD

The staging method will intercept the data while it is being copied and save it to a DASD file very quickly. Once the data has been written to DASD, a copy process will be scheduled under the Cloud Connector started task to copy the staging data set to the cloud.

This method is recommended because if the transmission to the cloud server is interrupted, the data has already been saved to DASD, and the "cloud copy"

function will retry until the data set has been successfully written to the cloud. To use this method, the following items are required:

- Filter criteria must be specified to inform Cloud Connector which cloud to use to back up this data. From the Main Menu, a filter can be defined through Option 1 (Cloud Connector Settings – Parmlib Options), then by choosing Option 4 (Backup Filter Criteria).
- A unique high-level alias (also known as the "staging" alias) must be created using the `DEFINE ALIAS` command in IDCAMS, and it will be used as the staging alias in Cloud Connector. An example of how to define an alias using IDCAMS is shown below:

  ```
  DEFIINE ALIAS
    (NAME(CUZSTAGE)-
    RELATE(MY.USER.CATALOG))-
    CATALOG(MY.MASTER_CATALOG)
  ```

  From the Main Menu, a staging alias can be specified through Option 1 (Cloud Connector Settings – Parmlib Options), then by choosing Option 2 (Staging Options).
- Sufficient DASD must be available to hold the staged copy of the data until the data set has been successfully written to the cloud. This DASD must be able to contain all of the data that is being asynchronously written to the cloud. A staging file is created at the time the data set to be written to the cloud is opened, and will be deleted after the data set has been written to the cloud.

Cloud Connector "retry" logic occurs in two ways. The first is internal to the cloud copy function running under the Cloud Connector started task. On the Staging Options screen, which you can access from the Main Menu by choosing Option 1 (Cloud Connector Settings (Parmlib Options), then by choosing Option 2 (Staging Options), you may set values for the Error Retry Count parameter and the Error Retry Interval Seconds parameter.

- The Error Retry Count parameter determines the number of times Cloud Connector will attempt to copy the data set from the staging file to the cloud.
- The Error Retry Interval Seconds parameter specifies the amount of time (in seconds) that Cloud Connector will wait between each attempt to copy data.

If the retry count has been exhausted, the staging file will remain on DASD until the next Repository backup interval is triggered. This interval is based on the amount of time specified for the "Auto Bkup Repository Min" parameter, which you can access from the Main Menu by choosing Option 1 (Cloud Connector Settings - Parmlib Options), then by choosing Option 1 (General Options). In addition to backing up the Cloud Connector Repository, the Repository backup function restarts any cloud copy functions that have previously failed.

Method 3: History Processing

This method allows you to copy existing sequential data sets (referred to as “history data sets") to the cloud. History processing supports sequential data sets on both DASD and tape.

In order to copy existing sequential data sets to the cloud, you must create a History Include/Exclude list. This can be accomplished from the Main Menu by choosing Option 4 (Backup History Datasets).

History processing is the only method available to copy existing data sets to the cloud. Methods 1 and 2 above capture the data as it is being written. If the data set

has already been created and you want the data copied to the cloud, it must be specified in the History Include/Exclude list.

The History Include/Exclude list is processed when the auto-backup repository interval expires. This interval is based on the amount of time specified for the "Auto Bkup Repository Min" parameter, which you can access from the Main Menu by choosing Option 1 (Cloud Connector Settings - Parmlib Options), then choosing Option 1 (General Options). The History Include/Exclude list is also processed 15 seconds after the Cloud Connector started task has started .

The History Include/Exclude list is processed to schedule data sets to be copied to the cloud. A data set will be scheduled only if the data set does not already exist in the cloud. Since the History Include/Exclude list supports the use of "wildcard" characters when specifying data sets, it can be used to pick up newly created data sets, without recopying previously copied data sets. If the History Include/Exclude list is replaced, the updates will take effect during the next interval.

If you want to copy *new* backups to the cloud, without staging the data or writing directly to the cloud, you can use this history processing method. The only drawback is that the backup tape will be mounted twice: once to create the tape backup and the second time to read the tape to copy the data set to the cloud. This method is useful if you have a very short production batch window or you do not have the DASD storage available that is required to stage the data.

Another consideration to keep in mind is that history processing supports only one generation of the data set to be copied to the cloud. Filtering (Methods 1 and 2) allows up to 10 generations.

Determining which cloud copy method is best for your installation

Several parameters must be defined when using any of the cloud copy methods. Testing each method is also helpful in determining which cloud copy method is best for your installation.

Before testing the three methods to write to the cloud, the Cloud Connector installation must be complete and the parameter library must be in place before starting the Cloud Connector started task. It is recommended to use the Cloud Connector ISPF (Main Menu), specifically Option 1 and sub-options 1 through 5, to build and configure the parameter library.

Note: Manually changing the parameter members via ISPF Edit is not recommended because the Cloud Connector ISPF processing edits and validates every field.

The parameter library contains the general options (abend on errors, debugging info, auto-backup minutes, and cell pool size), staging options, cloud server definitions, filter criteria, and restore options. The Cloud Connector started task requires that the parameters are error free before it will start. It also requires that at least one cloud server is properly defined and available for use.

Both the direct cloud write (Method 1) and the staging (Method 2) methods use 64-bit memory cell pool services to transfer data from the channel processor to the cloud writer or staging module. Certain conditions may occur that can cause auxiliary storage in the system to be exhausted. Parmlib general options (Cloud Connector ISPF Option 1.1) allows you to set the cell pool size and the number of

memory cells that can be obtained for each data set being captured. If the memory cells are full, processing is suspended to prevent auxiliary storage shortages. Adjust the number of memory cells as needed.

Running DFSMSdss full volume backups with a block size greater than 32,768 may cause auxiliary storage shortages. We recommend re-blocking these data sets in the batch job to a value less than 32K when the staging method is used.

Comparing the options

In the following examples, the following assumptions are made:

- The Cloud Connector started task name is CUZCLOUD.
- The parameter member name is CUZ#PARM.
- The History Include/Exclude member name is CUZ#INEX.

Run the same type of jobs that will be used in the production environment. Run as many jobs as you want to simulate a real production environment. Also run the same jobs for both direct cloud write and staging cloud copy so that you can compare the different methods.

Ensure that the parameter options have valid cloud server definitions and filter criteria set up so that Cloud Connector knows to process the data sets used in these test jobs.

In order to have benchmark timings for comparison with the results of the various cloud options, it is recommended that you first run your test jobs without an active Cloud Connector started task.

Method 1: Testing Direct Cloud Write

In order to enable direct cloud write, staging must be turned off. From the Main Menu, choose Option 1 (Parmlib Options) and then Option 2 (Staging Options) and set the "Stage Data on DASD" parameter to No. Save the parameters (Option 1.6) or press PF3 to exit the parameter options screens. You will be prompted to save the parameters if any changes were made.

1. Start the Cloud Connector started task. If the Cloud Connector started task is not running, start it using the following operator command:

   ```
   S CUZCLOUD
   ```

   If the Cloud Connector started task is already active, refresh the active parameters by issuing the following operator command:

   ```
   F CUZCLOUD,REFRESH MBR=CUZ#PARM
   ```

2. Verify that there were no parameter errors, and that the cloud server has made a successful connection (check the CUZOUT DD output in the Cloud Connector started task job log).
3. Run your test job(s). After these jobs end, the data has been written to the cloud.
4. Verify that the data sets are on the cloud by using the Cloud Connector ISPF (Main Menu) Option 3. Scroll right to see the cloud data set name, which uses a naming convention of:

   ```
   STAGEALIAS.JOBNAME.JOBID.DDNAME.RANDOM#
   ```

   The Cloud Connector started task must be active in order to view the data sets that have been backed up on the cloud.

Method 2: Staging

In order to enable staging, the staging parameter option must be active. On the Cloud Connector ISPF (Main Menu), choose Option 1 (Parmlib Options) then Option 2 (Staging Options), and set the "Stage Data on DASD" parameter to Yes.

Set the values for the allocation units large enough to save your largest file. Some staging data sets may appear larger than a real backup data set would be on DASD. Some backup utilities, such as DFSMSdss, write 256K blocks to tape. In those situations, Cloud Connector divides the 256K block into 32K blocks in the staging file.

Save the parameters (Option 1.6) or press PF3 to exit the parameter options screens. You will be prompted to save the parameters if any changes were made.

1. Start the Cloud Connector started task. If the started task is not running, start it using the following operator command:

   ```
   S CUZCLOUD
   ```

   If the Cloud Connector started task is already active, refresh the active parameters by issuing the following operator command:

   ```
   F CUZCLOUD,REFRESH MBR=CUZ#PARM
   ```

2. Verify that there were no parameter errors, and that the cloud server has made a successful connection (check the CUZOUT DD output in the Cloud Connector started task job log).
3. Run your test job(s).
4. After these jobs end, the data sets have been staged to DASD. The Cloud Connector started task will immediately schedule them to be copied to the cloud. Data sets to be staged use a naming convention of:

   ```
   STAGEALIAS.JOBNAME.JOBID.DDNAME.RANDOM#
   ```

5. When the staging data set has been deleted from DASD, the data has been successfully written to the cloud. Use the Cloud Connector ISPF (Main Menu) Option 3 to view the names of the data sets which have been backed up. Scroll right one screen to see the corresponding data set name used on the cloud. The Cloud Connector started task must be active to view the data sets that have been backed up on the cloud.

Method 3: History processing

To test History processing, you will back up the same data sets that were copied to the cloud in the other two tests. History processing will only backup data sets to the cloud that currently do not exist in the cloud.

1. If you are going to use the same data set names as in the earlier tests, you will need to delete the backups from the cloud that were created in previous tests.
   a. On the Cloud Connector Main Menu, choose Option 3 (Cloud Datasets).
   b. Delete the backups by placing a “D” line command next to each one.

   You will need to do this for all of the data sets that were created in the previous two tests.
2. After the cloud data sets have been deleted, you will need to create a History Include/Exclude list.
   a. Exit Option 3 (Cloud Datasets).
   b. On the Cloud Connector Main Menu, choose Option 4 (Backup History Datasets).

c. On this screen, enter the data set masks for the data sets to be included in the copy to the cloud, and any to be excluded from the cloud.

   The data set masks entered on this screen support "*" and "%" wildcard masking for both included and excluded data sets. As an example, assume that two DFSMSdss full volume backup copies are created in one job, where one copy is kept locally and the other is sent offsite. If these data sets are named `MY.WEEKLY.VOLSER.BACKUP.LOC(+1)` and `MY.WEEKLY.VOLSER.BACKUP.OFF(+1)`, and you wanted to send only the local copy to the cloud, you would enter the mask of `MY.WEEKLY.*` on the include, and `MY.WEEKLY.*.OFF` on the exclude.

3. Each line to be included must point to a cloud server definition defined in the parameter member (Option 1.3). A retention period is also required for all included lines that identifies how long the data set should reside on the cloud before expiration. This retention period has no relationship to the retention period of the actual data set or the expiration date in the tape management system.
4. Save the changes to the History Include/Exclude list by pressing PF3. This will prompt for the location to save the list. The data set where this list is saved must be the same data set as the one specified on the `CUZ#INEX DD` in the Cloud Connector started task. The member name must be the same as the member name specified in the "Copy Past History Parm Mbr" parameter (Option 1.1).
5. After saving this member, stop and restart the Cloud Connector started task.
   a. To stop the Cloud Cloud Connector started task, use the "P CUZCLOUD" operator command.
   b. To start the Cloud Connector started task, use the "S CUZCLOUD" operator command.

Note: Refreshing the Cloud Cloud Connector parameters will not initiate the History Processor task. History processing is triggered only on time intervals or through the use of the CUZJINCL job. If changes are made to the existing History Include/Exclude list while the Cloud Connector started task is active and it is not restarted, the new list will be picked up when the next Auto Backup Repository interval is triggered.

The first Auto Backup Repository cycle is triggered 15 seconds after the Cloud Connector started task has been started. At that time, messages will be written to indicate that data sets are being copied to the cloud. The information from the History Include/Exclude list can be seen in the output associated with the CUZOUT DD in the Cloud Connector started task job log. All data sets scheduled to be copied to the cloud will be listed.

The number of data sets being copied to the cloud asynchronously is controlled by the parameter general option "Max Backup History Tasks" (Option 1.1). This parameter is used to govern the maximum number of tape drives that Cloud Connector can utilize at one time.

If you wish to copy an existing sequential data set to the cloud without making changes to the History Include/Exclude list, you can copy and tailor the sample JCL member, CUZJINCL, provided in the SCUZSAMP data set. This job will initiate a process to immediately copy the identified data sets to the cloud without the need to wait for the next Auto Backup Repository cycle. This job enables you to process data sets one time only, while the History Include/Exclude used by the Cloud Connector started task is processed repeatedly on the specified interval to

locate and copy data sets to the cloud which have been created since the last execution.

Compare your results

After running the benchmark test without the use of Cloud Connector, and the tests using the three different methods for writing to the cloud, you can compare the elapsed times of all of the jobs to determine which will be optimal for your environment.

Configuration Summary

This table summarizes the steps that are required to configure Cloud Tape Connector. Some of these steps are optional and may not apply to your environment.

Table 1. Summary of Configuration Steps

Step	Description
1	"Step 1: Create runtime libraries"
2	"Step 2: Create user parameter library" on page 10
3	"Step 3: Security Considerations" on page 10
4	"Step 4: Define access to the update dynamic LPA facility" on page 11
5	"Step 5: APF authorize SCUZLOAD on all systems" on page 11
6	"Step 6: Authorize TSO functions" on page 12
7	"Step 7: Create staging and restore aliases and define SMS information (Optional)" on page 12
8	"Step 8: Copy ISPF members to a system CLIST library" on page 13
9	"Step 9: Customize ISPF CLIST" on page 13
10	"Step 11: Customize history include list" on page 13
11	"Step 10: Customize parmlib options via ISPF" on page 13
12	"Step 12: Define a z/OS repository file" on page 14
13	"Step 13: Copy and customize started task JCL" on page 14
14	"Step 14: Define the started task to your security system" on page 14
15	"Step 15: (Optional) Customize SSL/TLS security" on page 14
16	"Step 16: Start the started task" on page 16

Step 1: Create runtime libraries

JCL member CUZJRUNL will create a set of runtime libraries using the SMP/E target libraries as the source. CUZJRUNL is located in `hlq.SCUZSAMP`. To edit the JCL and submit the job, perform the following steps:

1. Provide a valid job card statement.
2. Change the `PPFX=PPFX` on the `//CUZJRUNL` statement to `PPFX=desired.runtime.hlq.`
3. Change the `TGTHLQ=TGTHLQ` on the `//CUZJRUNL` statement to `TGTHLQ=smpe.target.hlq`.
4. Submit the job. Ensure that it ends with a completion code of 0 before proceeding to the next task.

Step 2: Create user parameter library

Two parameter members need to be copied from SCUZSAMP to the stand-alone parameter library/libraries: CUZ#PARM and CUZ#INEX.

- Member CUZ#PARM contains the parameters for configuring the product. This member contains general options, staging options, restore options, filtering criteria, and all of the cloud server definitions, including cloud sign-on information. This sign-on information will include the server locations, user IDs and passwords, and must be secured. Establishing security will be performed in "Step 3: Security Considerations."
- Member CUZ#INEX contains filtering criteria for copying pre-existing sequential data sets, also known as the History Include/Exclude list, to the cloud. Member CUZ#INEX may not need the same level of security as member CUZ#PARM.

The CUZ#PARM parameter member contains sensitive information on accessing cloud servers, and access to the library in which this member resides needs to be limited to only those administrators who will be controlling cloud access.

The CUZ#INEX parameter member contains the names of pre-existing data sets to be copied to the cloud, and may need to be updated by a broader set of administrators.

There are two options for copying these members. One option is to copy each member to its own data set and the other option is to copy both members into the same data set. Using two different parameter libraries is recommended.

- *Different data sets.* If you choose to copy each member to its own data set, tailor and submit the JCL in member CUZJINEX from the SCUZSAMP library. This member will perform the following steps:
  1. Create the SCUZPARM data set.
  2. Copy member CUZ#PARM into the SCUZPARM data set.
  3. Create the SCUZINEX data set.
  4. Copy member CUZ#INEX into the SCUZINEX data set.
- *Same data set*. If you choose to copy both members into a single data set, tailor and submit the JCL in member CUZJSAMP from the SCUZSAMP library. This JCL member will perform the following steps:
  1. Create the SCUZPARM data set.
  2. Copy members CUZ#PARM and CUZ#INEX into the SCUZPARM data set.

Choose only one of the jobs, CUZJINEX or CUZJSAMP, to execute. It is recommended that these members should not be edited via ISPF edit, but rather be configured via the Cloud Connector ISPF interface. The steps for configuring these members are described later in this chapter.

Step 3: Security Considerations

When configuring Cloud Connector, security issues must be thought through before any commands are issued. Review the topics below for security considerations.

Parameter Library Security

Because server locations, user IDs and passwords are required in the CUZ#PARM member, it is strongly recommended that the data set containing CUZ#PARM

created in "Step 2: Create user parameter library" on page 10 be protected through SAF. The necessary authorizations are described below:

- The Universal Access for the SCUZPARM data set should be NONE.
  - The appropriate cloud administrators who will be defining the cloud servers and filter criteria must have UPDATE access.
  - The Cloud Connector started task CUZCLOUD must have READ access.
- If the CUZ#INEX member was copied to the SCUZINEX data set, the Universal Access should be READ.
  - Users who are allowed to change the Include/Exclude History data set masking must have UPDATE access.
  - The Cloud Connector started task must have READ access.

Restore security

Restore requests execute as subtasks of the Cloud Connector address space CUZCLOUD. As such, this address space needs the authority necessary to allocate and update any data set name that can potentially describe the target of a Restore request. Define CUZCLOUD to your SAF and give it the authority to perform Restore processing.

Step 4: Define access to the update dynamic LPA facility

Cloud Connector uses the dynamic LPA facility, and the CUZ#MAIN program must be given SAF authorization to the `CSVDYLPA FACILITY` class.

To establish a RACF profile, allowing you to add and delete a module, issue an RDEFINE command, such as the following:

```
RDEFINE FACILITY CSVDYLPA.ADD.modname UACC(NONE)
RDEFINE FACILITY CSVDYLPA.DELETE.modname UACC(NONE)
```

Another option is to create a generic profile:

```
RDEFINE FACILITY CSVDYLPA.ADD.** UACC(NONE)
RDEFINE FACILITY CSVDYLPA.DELETE.** UACC(NONE)
```

To permit a user (in this case the CUZCLOUD started task) to add and delete module CUZ#MAIN to the LPA, issue the following command:

```
PERMIT CSVDYLPA.ADD.CUZ#MAIN CLASS(FACILITY) ID(CUZCLOUD) ACCESS(UPDATE)
PERMIT CSVDYLPA.DELETE.CUZ#MAIN CLASS(FACILITY) ID(CUZCLOUD) ACCESS(UPDATE)
```

Optionally, a RACF-defined group profile that is associated with the CUZCLOUD started task may be given access instead of the started task user ID.

Step 5: APF authorize SCUZLOAD on all systems

The SCUZLOAD data set needs to be added to the APF Authorization (Auth) list that is executed at the time of IPL. You can also enter the following console command:

```
SETPROG APF,ADD,DSN=MY.SCUZLOAD,SMS
```

If you need assistance, consult your systems administrator to have the SCUZLOAD library for Cloud Connector added into the APF list and ensure appropriate access controls have been established.

Step 6: Authorize TSO functions

Consult your systems administrator to have the following changes made to the noted sections for the list of authorized commands and programs in the system PARMLIB member, IKJTSO*nn*.

```
AUTHCMD NAMES(          /* Authorized Commands      */ +
   CUZ$TSOC             /* Cloud Connector          */ +
       )                /* End of AUTHCMD           */

AUTHPGM NAMES(          /* Authorized Programs      */ +
   CUZ$TSOC             /* Cloud Connector          */ +
              )         /* End of AUTHPGM           */
```

After the member IKJTSO*nn* has been modified, activate the changes by using the `TSO PARMLIB` command.

Step 7: Create staging and restore aliases and define SMS information (Optional)

The following steps are required unless marked as optional. The optional steps are strongly recommended:

1. You must create a new high-level alias (Staging Alias) in order to create repository backups. If you plan to use the recommended method of staging the data to DASD, this will also require the use of the Staging Alias so that the only data sets being considered as candidates intended for the cloud will be the ones using this high-level name. The default value for the staging alias is CUZSTAGE.

   Note: If the data sets associated with this alias will be going to SMS-managed DASD, add this alias to an existing SMS storage class or create a new SMS storage class.
2. (Optional) Cloud Connector is shipped with a tape compare program, which allows you to compare the data contents of the original backup on tape with the data contents of the restored data set on tape. For testing purposes, you may wish to define a unique alias to be used when restoring data sets. You can also optionally override the entire data set name at the time you request it to be restored.
   - Define a high-level alias for restored data sets. The default alias for restoring data sets is CUZRESTR. The alias used for restoring data sets cannot be the same as the staging alias (default CUZSTAGE).
   - If the data sets associated with this alias will be going to SMS-managed DASD then add this alias to an existing SMS storage class or create a new SMS storage class. Adding this alias to the same storage class as the staging alias is allowed.
3. (Optional) Create an SMS storage group with enough volumes to handle the largest amount of data to be written to the cloud at one time. When the data has been successfully written to the cloud, the staging data set is deleted. If your transmission is interrupted or down at the time of the backups, these staging files will reside on these volumes until the cloud write function has successfully completed.

   If you are planning to copy a large amount of data, such as full-volume dumps to the cloud, you will need to have an identical number of DASD volumes available for staging those files.

Step 8: Copy ISPF members to a system CLIST library

Copy members CUZVP11, CUZVP110 and CUZTSOC to a system CLIST library allocated to SYSPROC.

Step 9: Customize ISPF CLIST

In member CUZVP11, change the data set name for the CUZVP11 file to the data set name of the system CLIST library these members were copied to by tailoring and entering the following command:

```
CHANGE '#MY.CLIST.LIB#' 'your.clist.library'
```

Edit member CUZVP110 and update the appropriate PROC statement variables. The steps are listed below.

1. CUZLVL – Change `#HIGHLVL#` to the high-level target data sets created in "Step 1: Create runtime libraries" on page 9.
2. CUZLOAD – Change `#CUZ.RUNTIME.LOADLIB#` to the Cloud Connector load library.
3. PARMLDSN – Change `#PARM.LIB.DSN#` to the parameter library data set created in "Step 2: Create user parameter library" on page 10.
4. PARMLMBR – Change `#PARMLBR#` to the parameter member copied in "Step 2: Create user parameter library" on page 10. The default parameter is CUZ#PARM.
5. INEXDSN – Change `#PARM.LIB.DSN#` to the History Include/Exclude Data Set created in "Step 2: Create user parameter library" on page 10.
6. INEXMBR – Change `#INEXMBR#` to the History Include/Exclude Member copied in "Step 2: Create user parameter library" on page 10. The default parameter is CUZ#INEX.

Step 10: Customize parmlib options via ISPF

Once you have customized the CLIST members and placed them into a system CLIST library, you can invoke the Cloud Connector ISPF interface by executing the command `%CUZVP11` or defining an option through the ISPF panels.

On the Cloud Connector Main Menu, choose Option 1, Cloud Connector Settings (Parmlib Options), to select the SCUZPARM data set you created in "Step 2: Create user parameter library" on page 10. You can customize the CUZ#PARM parameter member with your cloud definition information. For complete information on how to customize the parameter member, refer to "Cloud Connector Settings (Parmlib Options)" on page 19.

Step 11: Customize history include list

This customization will allow you to copy pre-existing backups or other sequential data sets to the cloud. These pre-existing data sets can be on DASD or tape.

Currently, the product only supports capturing backups on demand at the time the backup is being written to tape. In order to support copying pre-existing DASD or tape data sets to the cloud, these data sets must be identified in the history include lists, which are in member CUZ#INEX . Edit this member using Option 4, Backup History Datasets, from the Cloud Connector Main Menu. Refer to Chapter 5, "Backing up existing data sets," on page 95 for instructions on how to customize these entries.

Step 12: Define a z/OS repository file

The JCL member, CUZJDEFR, in the SCUZSAMP library will allocate the Cloud Connector z/OS repository which will contain all of the information on data in the cloud.

Step 13: Copy and customize started task JCL

Copy member CUZCLOUD from the SCUZSAMP runtime library into a system procedure library, such as `SYS1.PROCLIB`.

You must customize the CUZCLOUD member to meet your installation requirements. Change `#HIGHLVL#` to the high-level qualifier you used for your runtime libraries, and verify that all data set names are correct.

Verify that the STEPLIB, CUZ#PARM, and CUZ#INEX DD statements contain the correct data set names created in prior steps.

Ensure that the member listed in the statement below is the correct name of the parameter member you plan to use.

```
PARM='MBR=CUZ#PARM'
```

Note: At least one cloud server must be defined for use by Cloud Connector before the CUZCLOUD started task will start. For information on defining a cloud, refer to "Create a cloud server definition" on page 26.

Step 14: Define the started task to your security system

Consult your systems administrator to define the CUZCLOUD started task to your security system. CUZCLOUD also requires a valid OMVS segment for the userid assigned to the started task. No special privileges are required.

Step 15: (Optional) Customize SSL/TLS security

Cloud Tape Connector uses Application Transparent Transport Layer Security (AT-TLS) to secure transmissions between the mainframe and cloud providers. Configuring and running AT-TLS enables SSL encryption to be performed on the TCP traffic coming from, and going to, Cloud Tape Connector. To set up AT-TLS, the steps below will describe the process.

Preparing to use AT-TLS

Note: Other SSL/TLS automatic configuration solutions exist. If you are not using RACF, consult the documentation for your security management software.

The steps for setting up AT-TLS for use with Cloud Tape Connector are listed below, along with the corresponding section to refer to for more detailed information.

1. Configure AT-TLS to ensure a valid certificate is installed for each cloud provider. See "Step 1: Configuring AT-TLS" on page 15.
2. Verify that policy-based networking (PAGENT) is enabled. See "Step 2: Enabling PAGENT" on page 16.
3. Establish rules for determining which traffic will be encrypted. See "Step 3: Defining encryption rules" on page 16.

4. Refresh the PAGENT started task to ensure all changes are included. See "Step 4: Refreshing PAGENT" on page 16.

Step 1: Configuring AT-TLS

If you would like to enable encryption for your cloud transfers, AT-TLS needs to be properly configured. For each cloud provider that you plan to use with Cloud Tape Connector, a valid certificate needs to be installed. Certificates for each cloud provider can be found from their respective SSL certificate provider, acting as a Root Certificate Authority (i.e., Geotrust, Digicert, etc).

1. Use a web browser to retrieve valid certificates using either of these methods:
   - For each cloud provider that you intend to use to store data, retrieve a certificate from a Secure Socket Layer (SSL) certificate provider (Geotrust, Digicert, etc.), acting as a Root Certificate Authority.
   - Alternatively, in the web browser's location field, type the URL for the cloud provider and then use the browser's certificate export feature to export the certificate into a file that can then be uploaded. You must export the Root CA.
2. Upload each certificate to its own variable block flat file on the mainframe. If you are uploading more than one certificate, each certificate must be uploaded to a different file.
3. For each certificate, issue a command to define the certificate to your security management software. To add a certificate to RACF, issue the following command:

   ```
   RACDCERT ADD('CERT.DATASET.NAME') CERTAUTH TRUST WITHLABEL('LABELNAME')
   ```

   Where:

   CERT.DATASET.NAME
   Indicates the name of the data set that contains the uploaded certificate.

   LABELNAME
   Indicates the label you want to use to help identify the certificate in RACF.
4. Identify the keyring that will house all of the certificates in a single addressable entity. You can either add the cloud certificates to an existing keyring, or create a new keyring. If you choose to create a new keyring, issue the appropriate command for your security management software.

   For RACF, use the following command:

   ```
   RACDCERT ADDRING (RINGNAME)
   ```

   Where:

   RINGNAME
   Indicates the name of the keyring you want to define to RACF. This name can be any name you choose.
5. Connect the certificates to the keyring. For each certificate, issue the appropriate command for your security management software.

   For RACF, use the following command:

   ```
   RACDCERT ID(SAFID) CONNECT(CERTAUTH LABEL('LABELNAME') RING(RINGNAME) USAGE(CERTAUTH))
   ```

   Where:

   SAFID
   Indicates the name of a SAF ID that was used to add the certificate.

   LABELNAME
   Indicates the label that was used to add the certificate in RACF.

RINGNAME
Indicates the name of the existing keyring or the name of the new keyring that you created and added to RACF in Step 4 (above).

6. Finally, issue the appropriate refresh command for your security management software. For RACF, use the following command:

```
SETROPTS RACLIST(DIGTRING) REFRESH
```

Step 2: Enabling PAGENT

AT-TLS requires policy-based networking (PAGENT) to be enabled. If you do not already have this enabled, please see the "Policy-based networking" chapter of the *IBM z/OS Communications Server: IP Configuration Guide* (SC27-3650).

Step 3: Defining encryption rules

AT-TLS uses rules to determine which traffic to encrypt. Encryption of Cloud Tape Connector traffic requires a valid encryption rule. Be aware that most cloud providers use port 80 for unencrypted HTTP traffic and port 443 for encrypted SSL/TLS traffic.

If you do not already have an AT-TLS rules data set in place, refer to the "AT-TLS policy configuration" section of the *IBM z/OS Communications Server: IP Configuration Guide* (SC27-3650).

Define a valid encryption rule for Cloud Tape Connector using the information in Appendix A, “Example of AT-TLS parameter setup,” on page 183 as an example and a guideline.

As you define your encryption rule, keep the following general recommendations in mind:

- AT-TLS is invoked only if all conditions of a rule are met. Therefore, it is recommended that you define the encryption rule to be as minimally restrictive as necessary.
- It is recommended that you use USERID as the primary method for determine which traffic AT-TLS encrypts. The USERID in your AT-TLS rule should be the SAF user ID of the Cloud Tape Connector started task (CUZCLOUD).

Step 4: Refreshing PAGENT

After the AT-TLS encryption rules are in place, you must refresh the PAGENT started task to pick up any changes. Issue the following modify command:

```
F PAGENT,REFRESH
```

Where:

PAGENT
Indicates the name of the PAGENT started task.

Step 16: Start the started task

To run Cloud Connector, you must start the CUZCLOUD started task. You should add the start-up of this address space into your automated IPL procedures.

Chapter 3. Using the Cloud Tape Connector ISPF interface

You can specify parameter values by choosing Option 1, `Cloud Connector Settings (Parmlib Options)`, on the Main Menu. The values you enter in the fields on the ISPF screens will be saved in the SCUZPARM member, CUZ#PARM. The sample member as shipped contains several parameters that affect how Cloud Tape Connector will work, such as the cloud locations and the criteria for selecting the data that you want to save on the cloud.

Cloud Connector Main Menu

Invoke the Cloud Connector ISPF interface by executing the command `%CUZVP11` in ISPF option 6, or by selecting the ISPF panel option you previously defined. After you launch the Cloud Connector ISPF interface, the Main Menu displays. The options listed on the Main Menu are briefly described below.

```
CUZ$MAIN V1R1 ------------ IBM Cloud Tape Connector for z/OS       -----------
Option  ===> ____________________________________________________________

                                                 2018/03/21  12:10:08
                                                 User: USERID  - CUZ
--------------------------------------------------------------------------------

 Cloud Connector Started Task Status:  Active

--------------------------------------------------------------------------------

     1. Cloud Connector Settings (Parmlib Options)

     2. Cloud Servers Status

     3. Cloud Datasets

     4. Backup History Datasets

     5. Active Tasks

     X. Exit
```

Figure 1. Main Menu

To choose an option, type that number on the Option line at the top of the screen.

1. **Cloud Connector Settings (Parmlib Options)**, Option 1, allows you to make changes to the CUZ#PARM member by making entries in the fields. Use this option to do the following:
   - Set general options for handling errors and WTO messages, debugging options, and memory cell values.
   - Specify staging options for backing up the data sets to DASD before copying the data sets to the cloud.
   - Define the cloud servers that will be used for backups.
   - Establish filter criteria for cloud backups.
   - Specify values for restoring data from the cloud.
   - Save or update the CUZ#PARM member.
2. **Cloud Servers Status**, Option 2, allows you to view a list of the cloud servers you defined in Option 1 and their connection status.

3. **Cloud Datasets**, Option 3, enables you to view the list of data sets that have been saved to the cloud. You can delete a cloud backup or restore a cloud data set to DASD or tape, depending on the blocksize.
4. **Backup History Datasets**, Option 4, is used to create the list of pre-existing data sets to be copied directly to the cloud. You can include or exclude data sets as needed.
5. **Active Tasks**, Option 5, displays the tasks that are active. You can use selection criteria to narrow the list by job name, data set name, or cloud name. The tasks are highlighted in different colors based on the type of activity, such as Filter Capture, Cloud Copy, Restore, History Queue, and Restore Queue.

Specify Parmlib and Member

When you choose Option 1, **Cloud Connector Settings**, on the Main Menu, a window displays. You must specify the **Parmlib Dataset** and the name of the **Parmlib Member** that you configured earlier.

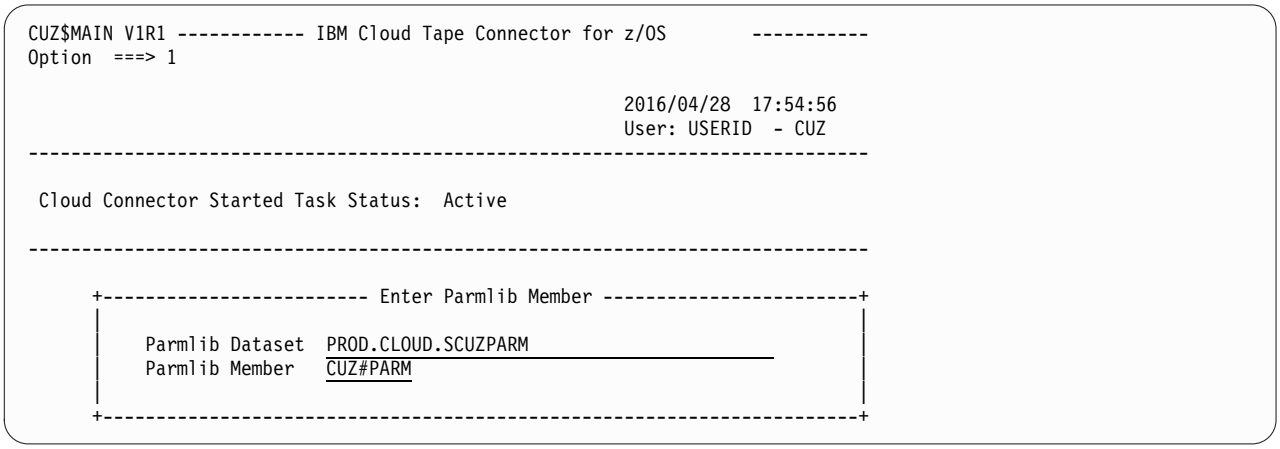

Figure 2. Enter Parmlib Member window

To view the product settings, you must specify the **Parmlib Dataset** and the name of the **Parmlib Member**.

Parmlib Dataset

Type the name of the data set that holds the Parmlib Member. The initial contents of the CUZ#PARM member will be copied from the sample provided in SCUZPARM. However, you may have specified a different data set name when you configured this product in "Step 2: Create user parameter library" on page 10.

Parmlib Member

Type the one- to eight-character name for the parameter member. The default member name is CUZ#PARM. This member will be initially populated with parameters from the sample in SCUZSAMP after the customization job from "Step 2: Create user parameter library" on page 10 has been run.

Cloud Connector Settings (Parmlib Options)

After you choose Option 1, **Cloud Connector Settings (Parmlib Options)**, on the Main Menu and specify the **Parmlib Dataset** and **Parmlib Member** to use, the **Parmlib Options Main Menu** displays. Several types of options are available for you to customize Cloud Connector in your environment.

```
CUZ$PRML V1R1 -------------------- Parmlib Options Main Menu ------------------
Option  ===>

                                                        2018/03/21  18:12:30
                                                        User: USERID  - CUZ
--------------------------------------------------------------------------------
 Parmlib Dataset: PROD.CLOUD.SCUZPARM
 Parmlib Member : CUZ#PARM
--------------------------------------------------------------------------------

     1. General Options

     2. Staging Options

     3. Cloud Servers

     4. Backup Filter Criteria

     5. Data Restore Options

     6. Save / Save As

     X. Exit
```

Figure 3. Parmlib Options Main Menu

Type the number of the menu option you want in the Option line at the top of the screen. The menu options are briefly described below.

General Options
Set values for handling errors and WTO messages, debugging options, and memory cell values.

Staging Options
Specify options for creating a copy of the data sets to DASD before creating a backup on the cloud.

Cloud Servers
Define the cloud servers that will be used for backups.

Backup Filter Criteria
Establish filtering criteria for cloud backups. Only the data sets that match the criteria will be saved to the cloud.

Data Restore Options
Specify values for restoring data from the cloud back to z/OS. Data can be restored to tape or to DASD.

Save/Save As
Save or update the Parmlib Member.

General Options

The values you set under **General Options** cover several different areas including how to handle abends, old backups, WTO messages, and backup generations, and how to set up memory cell pools. The default values are displayed on the screen, but you can change those values to suit your environment.

```
CUZ$PRMG V1R1 -------------------- Parmlib General Options  -------------------
Option  ===>

                                                      2018/03/21  12:21:37
                                                      User: USERID  - CUZ
--------------------------------------------------------------------------------
 Parmlib Dataset: PROD.CLOUD.SCUZPARM
 Parmlib Member : CUZ#PARM
--------------------------------------------------------------------------------

     Abend on Errors . . . . . .   N           (Yes / No)
     User Abend Return Code. . . .  08         (01 to 99)
     Copy Past History Parm Mbr. .  CUZ#INEX   (Parmlib Mbr with INCL/EXCL)
     Debug Mode. . . . . . . . . .  N          (None / All / Job)
     Debug Jobname . . . . . . . .  MYJOB*     (Jobname Like)
     Write to Operator Msgs. . . .  N          (Yes / No)
     Max Cloud Backup Gens . . . .  5          (1 to 10)
     Max Backup History Tasks. . .  5          (1 to 99)
     Auto Bkup Repository Min. . .  60         (5 to 9999)
     Memory Cell Pool Size . . . .  55242880   (2560000 to 99999999)
     Memory Primary Cells. . . . .  250        (10 to 9999)
     Reserve Repository on ENQ . .  N          (Yes / No)
```

Figure 4. Parmlib General Options screen

The General Options are described below.

Abend on Errors
Indicate what to do if an error occurs.

- Y -- Force the utility program to end prematurely (abend) if any errors are encountered.
- N -- Do not force an abend if an error occurs. Allow the utility program to continue. (Default)

User Abend Return Code
Type a number between 01 and 99 to indicate the code you want to have returned when an error occurs. The default is 08.

Copy Past History Parm Mbr
Specify an eight-character name for the parameter member that will be used by the **Backup History Datasets** option. The default is CUZ#INEX. This is the History Include/Exclude data set member created during product configuration, which contains a list of data sets that are to be copied to the cloud. For configuration information for this member, refer to "Step 2: Create user parameter library" on page 10 and to "Step 11: Customize history include list" on page 13.

Debug Mode
Specify a debugging mode. Valid values are:

- N -- None. Do not debug any jobs.
- A-- All jobs. Debug all of the jobs.
- J -- Job name. Only debug the jobs matching a specific job name.

Debug Jobname
If you type a "J" in the **Debug Mode** field, you must type a job name to indicate which job(s) to debug. You can also specify a "J" and a partial job name followed by an asterisk (*) to indicate "any character". For example, TEST* indicates to debug all job names that begin with "TEST".

Note: While it is possible to specify a "J" and only an asterisk as the job name, it is better to specify an "A" in the **Debug Mode** field to display debugging information for All Jobs.

Write to Operator Msgs
Indicate whether you want messages sent to a computer operator. Valid values are:

- Y -- Send the messages to the operator's console.
- N -- Send the messages to a file, but not to the operator's console. (Default)

It is recommended to specify an "N" in this field due to the significantly large number of messages that could be sent to the console (flooding).

Max Cloud Backup Gens
Type a number between 1 - 10 to indicate the maximum number of generations you want to save to a cloud backup.

Max Backup History Tasks
Type a number from 1 - 99 to indicate the maximum number of tape drives that can be allocated at the same time to backup previously created data sets. This parameter will prevent Cloud Tape Connector from utilizing all of the tape units in your system.

Auto Backup Repository Minutes
Type a number between 05 and 9999 for the number of minutes to wait between automatic backups of the cloud repository. The default is 60.

Note: If you specify a value in the **Auto Bkup Repository Min** field, you must create a Repository Backup filter to specify where to save a backup of the entire repository. To create a Repository Backup filter, choose the **Cloud Connector Settings (Parmlib Options)** option on the Main Menu, then choose the **Backup Filter Criteria** option.

Memory Cell Pool Size
Type a number between 2560000 to 99999999 for the size of each cell pool. The default is 55242880.

Memory Primary Cells
Type a number between 10 and 9999 for the maximum number of primary cells in a pool that you want to define for storage. The default is 250.

Reserve Repository on ENQ
Indicate whether you want Reserves issued for the volume containing the repository. ENQs are issued against the repository to maintain integrity when sharing MVS images in a sysplex. Reserves are needed when the MVS images sharing the repository are in a non-sysplex environment. Valid values are Y (yes) or N (no). The default is N.

Note: Only turn on this feature if necessary. RESERVE processing can affect system performance.

Staging Options

The staging process captures the data to be copied to the cloud and creates a backup on DASD; this backup will be written to the cloud later. By staging the data, if there is an issue with connectivity to the cloud server (the network goes down or the server is unavailable), the data can be copied to the cloud at a later time. While this may require additional time and space, it will ensure that data is not lost if a server I/O problem occurs while attempting to copy the data to the cloud.

You may also choose to stage the data if your transfer rate to the cloud is slow, because a slow transfer rate could increase the elapsed time of your batch jobs for writing. Staging the data to DASD can reduce the elapsed time of your batch jobs. If you choose not to stage the data and the "direct" transfer to the cloud is interrupted, the backup will not be written to the cloud. The job will abend if the **Abend on Errors** field on the **Parmlib General Options** screen is set to "Yes".

When you choose Option 2, **Staging Options**, on the Parmlib Options Main Menu, the following screen displays.

```
CUZ$PRMS V1R1 -------------------- Parmlib Staging Options  -------------------
Option  ===>

                                                    2016/06/29  18:11:08
                                                    User: USERID  - CUZ
--------------------------------------------------------------------------------
 Parmlib Dataset: PROD.CLOUD.SCUZPARM
 Parmlib Member : CUZ#PARM
--------------------------------------------------------------------------------
  Staging a backup to DASD is in place to quickly capture the data being
  backed up to the Cloud, so the job writing the data doesn't have to
  wait for server IO. If you turn this on, make sure the Primary and
  secondary track allocations are large enough to handle any backups.
--------------------------------------------------------------------------------
     Stage Data on DASD. . . . . .   Y           (Yes / No)
     Staging Dataset Alias . . . .   CUZSTAGE    (z/OS Cataloged Alias)
     Staging Dataset Allocation. .   C           (Cyl / Trks)
     Primary Space Allocation. . .   5000        (1 to 99999999)
     Secondary Space Allocation. .   5000        (1 to 99999999)
     Staging Dataset Vol Count . .   005         (1 to 256)
     SMS Storage Class . . . . . .   SCCUZSTG    (Optional)
     Error Retry Count . . . . . .   10          (1 to 9999)
     Error Retry Interval Secs . .   5           (1 to 999)
     Nbr of IO Buffers . . . . . .   50          (1 to 50)
  *CMD
```

Figure 5. Parmlib Staging Options

The Staging Options for the Parmlib member listed on the screen are described below. The default values are displayed, but you can change those values to suit your environment.

Staging Data on DASD
Indicate whether you want to stage the data (Y) or skip this step and write the data only to the cloud (N). The default is Y.

Staging Dataset Alias
Specify up to an eight-character name for the z/OS catalog alias. The default name is CUZSTAGE. For more information on defining a high-level alias for staging, see “Step 7: Create staging and restore aliases and define SMS information (Optional)” on page 12.

Staging Dataset Allocation
Specify the type of allocation you want to use for a staging data set. Valid values are "C" for cylinders and "T" for tracks. The default is C.

Primary Space Allocation
Type a number between 1 and 99999999 for the amount of primary space to allocate. The default is 5000. This allocation parameter must be large enough to handle any size data set being written to the cloud.

Secondary Space Allocation
Type a number between 1 and 99999999 for the amount of secondary space to allocate. The default is 5000. This allocation parameter must be large enough to handle any size data set being written to the cloud.

Staging Dataset Vol Count
Type a number between 1 and 256 for the amount of volumes you need to allocate for a multi-volume data set. The default is 5 volumes.

SMS Storage Class (Optional)
This is an optional field. Specify up to an eight-character name for the storage class. The default is SCCUZSTG.

Error Retry Count
Type a number between 1 - 9999 to indicate the maximum number of times you want to try to copy the data sets again after an error occurs. The default is 10.

Error Retry Interval Secs
Type a number between 1 - 999 to indicate the number of seconds to wait between retry attempts. The default is 5.

Nbr of IO Buffers
Type a number between 1 and 50 for the maximum number of I/O buffers that can be used. The default is 10.

Cloud Server Options

When you choose option 3, **Cloud Servers**, on the Parmlib Options Main Menu, the **Cloud Server Display** screen appears. It lists all of the cloud servers that are defined for use by Cloud Connector. You can also create a new cloud definition, modify a definition, or delete one.

```
 CUZ$PRMC V1R1    --------- Cloud Server Display --------- 2016/07/29  18:17:01
 Option  ===> _____________________________________________ Scroll ===> PAGE

 Line Commands: C - Create E - Edit  D - Delete

                                                  ROW 1 OF 6          >
-------------------------------------------------------------------------------
Cmd Cld Name  Type Userid  Passwor IP Address     Reposit Directory Path
___ MYCLOUD   HCP  JoeSmo1 M0reSpc ab0.cde1.hcp70 fg0.ten Dir1/
___ HCP       HCP  JoeSmo1 M0reSpc ab0.cde1.hcp70 fg0.ten Dir2/
___ CLS       CLS  raND0mJ MlP3A15 2.10.16.134    mystuff /
___ S3        S3   JCAT tMpls0V                  mystuf2 /
___ SFT       SFT  YOURID2 12345f6 cb250.objst8           /
___ FTP       FTP  myusrid puPyd0g 12.10.17.25
***************************** Bottom of Data ********************************
```

Figure 6. Parmlib Cloud Servers option showing Cloud Server Display screen

The information on this screen is described below.

Cld Name

The cloud name is a user-defined name for linking filter criteria to a specific cloud definition. Type one to eight characters for the name of the cloud to be defined.

When you define filter criteria, which is described in "Backup Filter Criteria" on page 43, you assign a cloud name to a filter to specify which data you want to save to this cloud. For example:

1. You define a cloud named "PROD".
2. You create a filter, based on the data set name, with a data set mask of `MY.PROD.DATASETS.*`.
3. You assign this filter to cloud PROD.

The result is only the data sets that match this filter will be saved to cloud PROD.

Type or Cld Type

The type of protocol used for this cloud. Valid values are:

- CLS - Cleversafe
- FTP - File transfer protocol
- HCP - Hitachi Content Platform
- S3 - Amazon Simple Storage Service
- SFT - IBM SoftLayer

User ID or Userid

The User ID is the server ID that is required for signing into this cloud. The User ID can be up to 64 characters in length.

Password

The password associated with the User ID that allows access to this cloud. The password can be up to 64 characters in length.

IP Address

The Internet Protocol Address used to connect to the cloud. The IP Address can be up to 128 characters in length.

Repository

The name or location of the repository on the cloud where the data will be saved. The repository information can be up to 128 characters in length.

Directory or Path

The name and path of the directory where the data will be saved. The directory information can be up to 255 characters in length.

Optional Parms

(Optional) Use this field to specify additional parameters to help connect to the cloud server. You can also specify parameters to alter some of the Cloud Connector defaults to suit your environment.

Table 2. List of possible optional parameters for cloud server definitions

Optional parameter	Description
PORT	Identifies the port by which the product attempts to connect to the cloud server. Valid values are 1 - 65535. The default is 80.

Table 2. List of possible optional parameters for cloud server definitions (continued)

Optional parameter	Description
CONNRETRY	Consists of a two-part value: • The number of times the product will attempt to reconnect if the socket connection is dropped. Valid values are 1 - 999. The default is 5. • The number of seconds to wait between connection attempts. Valid values are 1 - 999. The default is 30.
COMPRESSION or COMP	Indicates whether to use zEnterprise Data Compression (zEDC) to compress data. The default is NO or N. If either YES or Y is specified, Cloud Connector will attempt to use zEDC to compress the data when transferring to the cloud. **Note:** For more information on zEDC, refer to http://www.redbooks.ibm.com/redbooks/pdfs/sg248259.pdf Compression can only be completed on systems with full z/EDC support. For systems that do not have the required hardware for z/EDC, decompressing the data can still be accomplished via z/EDC's software inflate mode. Compressing data, however, can not be accomplished via software mode.
PARTSIZE	Indicates the maximum amount of data (part size), in MB, that will be transferred to the cloud during a transaction. Specify a number between 5 – 100. The default is 5MB. The bigger the number, the better the performance will be, but at a memory cost. Specifying 100MB will gain the most in terms of performance, but does allocate a large memory area to hold the data.

For example, consider the following entry in the "Opt Parms" field:

```
PORT(8080),CONNRETRY(5,30),COMPRESSION(YES),PARTSIZE(25)
```

In this example, Cloud Connector will try to connect to the cloud server using port 8080 instead of the default port of 80. On failed connections, Cloud Connector will attempt to connect again to the cloud server 5 times, waiting 30 seconds between each attempt. Compression through zEDC will be used when transferring data to the cloud, and the maximum part size is 25MB of data.

Note: The actual fields used vary based on the type of server you are using. Refer to the appropriate server information, which is provided later in this chapter, for details on the server type you are using.

Line Commands

Choose one of these line commands for use on this screen:

- C - Create a new cloud server definition.
- D - Delete an existing cloud server definition.
- E - Edit an existing cloud server definition.

Each of these line commands displays a window where you must follow instructions to complete the process.

Create a cloud server definition

When you choose option 3, **Cloud Servers**, on the Parmlib Options Main Menu, the **Cloud Server Display** screen appears. When you type the "C" line command on any line, the **Cloud Server Create** window appears.

Type the number that matches the type of cloud you want to define to Cloud Connector.

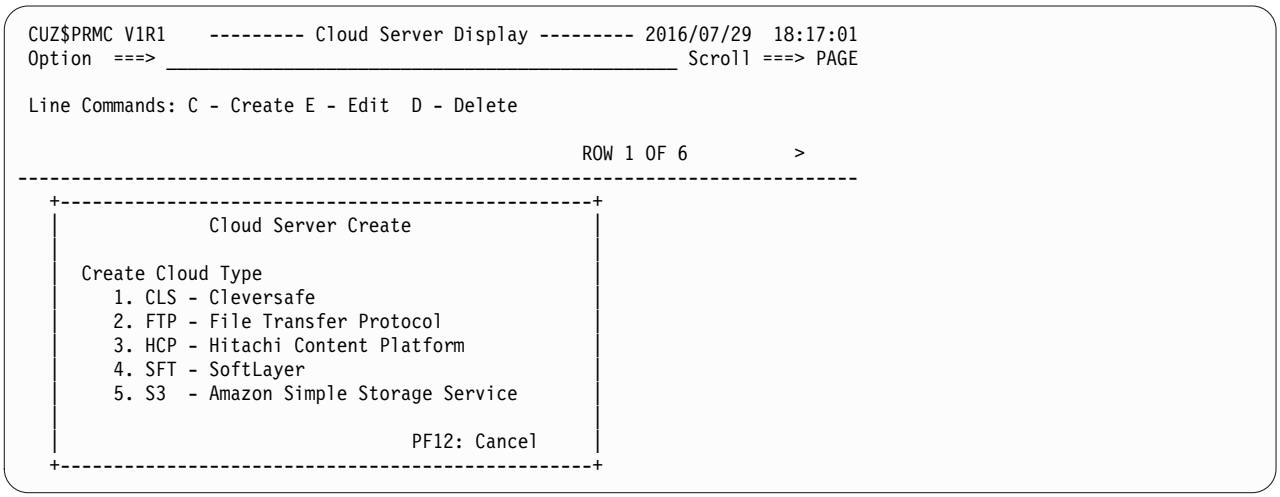

Figure 7. Cloud Server Create window shows list of Cloud Types that can be defined

After you choose the type of cloud you want to define, a "Create" screen for that type will display. Refer to the appropriate section below to see what information you need to provide to create a cloud definition.

Table 3. Links to cloud type fields

Cloud Type	Link to Section
CLS - Cleversafe	"Specifying a Cleversafe cloud"
FTP - File Transfer Protocol	"Specifying an FTP cloud" on page 29
HCP - Hitachi Content Platform	"Specifying a Hitachi Content Platform cloud" on page 32
SFT - IBM SoftLayer	"Specifying a SoftLayer cloud" on page 35
S3 - Amazon Simple Storage Service	"Specifying an S3 cloud" on page 38

Cloud Tape Connector also supports the use of the IBM Virtual Tape Facility for Mainframe (VTFM) to "vault" tapes, which saves virtual tape data to disk. Through module CUZ#APIB, VTFM can save data to and retrieve data from any cloud defined in Cloud Tape Connector. See Appendix B, "Using the Cloud Connector batch API," on page 185 for more information on module CUZ#APIB.

Specifying a Cleversafe cloud

You can define a connection between Cloud Connector and a Cleversafe (CLS) cloud, and assign a name to the cloud where you want to save data.

When you enter the "C" line command in the CMD column on the **Cloud Server Display** screen, a window displays asking you to indicate which type of cloud connection you want to create. To create a connection to a Cleversafe (CLS) cloud,

type "1" in the **Cloud Server Create** window. The following screen displays:

```
CUZ$PRMC V1R1    --------- Cloud Server Display --------- 2016/07/13  13:35:12
Option  ===>                                                Scroll ===> PAGE

Line Commands: C - Create E - Edit  D - Delete

                                                    ROW 1 OF 6          >
--------------------------------------------------------------------------------
+------------------------ Cleversafe Server Definition ------------------------+
|                                                                              |
|  Cld Type   CLS           (CLS,FTP,HCP,SFT,S3)                               |
|  Cld Name   ________      (Cloud Name used to Match Filter Criteria)         |
|  Key Id     ____________________________________________________________     |
|  Secret Key ____________________________________________________________     |
|  IP Addr    ____________________________________________________________     |
|             ____________________________________________________________     |
|  Bucket Nme ____________________________________________________________     |
|  Directory  ____________________________________________________________     |
|             ____________________________________________________________     |
|             ____________________________________________________________     |
|             ____________________________________________________________     |
|  Opt Parms  ____________________________________________________________     |
|             ____________________________________________________________     |
|             ____________________________________________________________     |
|             ____________________________________________________________     |
|             ____________________________________________________________     |
|                                                                              |
|                                                          PF12: Cancel        |
+------------------------------------------------------------------------------+
```

Figure 8. Cleversafe Server Definition

The fields on this window are described below.

Cld Type
The type of cloud connection to be created. In this case, the value is CLS for Cleversafe.

Cld Name
The name that Cloud Connector will use to identify the cloud where you want to save data. Type one to eight characters for the name of this cloud. You can assign a different cloud name for the same cloud storage device if you are saving data to a different directory on that cloud or are using different credentials (User ID and Password) to access the cloud.

Key ID
The Key ID is the server ID that is required for signing into this cloud. The Key ID must be 16 - 32 characters in length.

Secret Access Key
The password associated with the Key ID that allows access to this cloud. The Secret Access Key must be 32 - 64 characters in length.

IP Addr
The Internet Protocol Address used to connect to the cloud. The IP Address can be up to 128 characters in length.

Bucket Nme
The name or location of the repository on the cloud where the data will be saved. The Bucket Name must be 3 - 63 characters in length.

Directory or Path
(Optional) The name and path of the directory where the data written to the cloud will be saved. The directory information can be up to 256 characters in length. Leave this field blank if you want to store data in the root folder. The directory designates the top level folder that will hold all

of the Cloud Connector data. For example, if you specify "Testdata/" in the Directory field, the data will be sent to the "Testdata/" directory. This is useful to keep Cloud Connector data separate from other data you have stored in that particular cloud.

Opt Parms

(Optional) Use this field to specify additional parameters to help connect to the cloud server. You can also specify parameters to alter some of the Cloud Connector defaults to suit your environment.

Table 4. List of optional parameters for this cloud server definition

Optional parameter	Description
PORT	Identifies the port by which the product attempts to connect to the cloud server. Valid values are 1 - 65535. The default is 80.
CONNRETRY	Consists of a two-part value: • The number of times the product will attempt to reconnect if the socket connection is dropped. Valid values are 1 - 999. The default is 5. • The number of seconds to wait between connection attempts. Valid values are 1 - 999. The default is 30.
COMPRESSION or COMP	Indicates whether to use zEnterprise Data Compression (zEDC) to compress data. The default is NO or N. If either YES or Y is specified, Cloud Connector will attempt to use zEDC to compress the data when transferring to the cloud. **Note:** For more information on zEDC, refer to http://www.redbooks.ibm.com/redbooks/pdfs/sg248259.pdf
PARTSIZE	Indicates the maximum amount of data (part size), in MB, that will be transferred to the cloud during a transaction. Specify a number between 5 – 100. The default is 5MB. The bigger the number, the better the performance will be, but at a memory cost. Specifying 100MB will gain the most in terms of performance, but does allocate a large memory area to hold the data.
THREADS(x)	When `THREADS(x)` is specified, where "x" is a value from 1 -20, Cloud Connector will use multiple concurrent threads when writing data to S3 or Cleversafe clouds. Using multiple threads can help large backups complete more quickly. With each thread that is specified, there is an increase in the amount of memory that is needed. If the `THREADS(x)` parameter is omitted, no multi-threading will be performed.

For example, consider the following entry in the "Opt Parms" field:

```
PORT(8080),CONNRETRY(5,30),COMPRESSION(YES),PARTSIZE(25),THREAD(2)
```

In this example,

- Cloud Connector will try to connect to the cloud server using port 8080 instead of the default port of 80.
- On failed connections, Cloud Connector will attempt to connect again to the cloud server 5 times, waiting 30 seconds between each attempt.
- Compression through zEDC will be used when transferring data to the cloud.
- The maximum part size is 25MB of data.
- Two threads will be used when writing data to the cloud.

Cloud Connector will try to connect to the cloud server using port 8080 instead of the default port of 80. On failed connections, Cloud Connector will attempt to connect again to the cloud server 5 times, waiting 30

seconds between each attempt. Compression through zEDC will be used when transferring data to the cloud. The maximum part size is 25MB of data and two threads will be used when writing data to the cloud.

An example of a completed Cleversafe Server Definition is shown below. The values listed on this screen are not valid, but are provided as an example of the type of values that are expected for a Cleversafe server.

```
CUZ$PRMC V1R1    --------- Cloud Server Display --------- 2016/07/13  13:35:12
Option  ===>                                                Scroll ===> PAGE

Line Commands: C - Create E - Edit  D - Delete

                                                        ROW 1 OF 6          >
--------------------------------------------------------------------------------
+----------------------- Cleversafe Server Definition -----------------------+
|                                                                            |
|  Cld Type   CLS           (CLS,FTP,HCP,SFT,S3)                             |
|  Cld Name   CLDEXAMP      (Cloud Name used to Match Filter Criteria)       |
|  Key Id     s1dfkig0g3fFGF3c2c56                                           |
|  Secret Key pm0v9vj4in4tng50g05894gm-8elo0rr3r0fqf99                       |
|  IP Addr    8.19.212.56                                                    |
|                                                                            |
|  Bucket Nme mybucket                                                       |
|  Directory  Testdata/                                                      |
|                                                                            |
|                                                                            |
|                                                                            |
|  Opt Parms  PORT(8080),CONNRETRY(5,30),COMPRESSION(Y),PARTSIZE(25),        |
|             THREAD(2)                                                      |
|                                                                            |
|                                                                            |
|                                                                            |
|                                                                            |
|                                                                 PF12: Cancel |
+----------------------------------------------------------------------------+
```

Figure 9. Example of a Cleversafe Server Definition

Specifying an FTP cloud

One of the cloud types that is supported is the File Transfer Protocol (FTP) server. You can define a connection between Cloud Connector and an FTP cloud, and assign a name to the cloud where you want to save data.

When specifying an FTP server, please keep the following requirements in mind:

- The FTP server must support passive FTP.
- The z/OS FTP servers are not supported at this time.

When you type the "C" line command in the CMD column on the **Cloud Server Display** screen, a window displays asking you to indicate which type of cloud connection you want to create. To create a connection to an FTP cloud, type "2" in the **Cloud Server Create** window. The following screen displays:

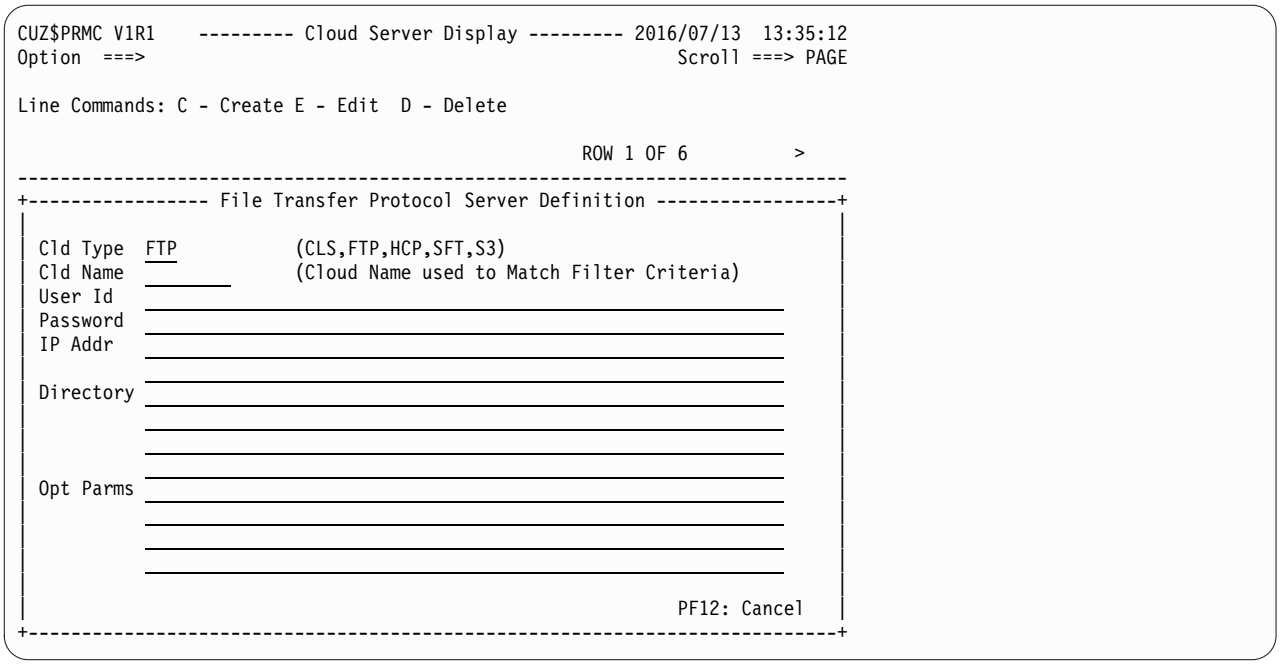

Figure 10. File Transfer Protocol (FTP) Server Definition

The fields on this window are described below.

Cld Type
The type of cloud connection to be created. In this case, the value is FTP for File Transfer Protocol.

Cld Name
The name that Cloud Connector will use to identify the cloud where you want to save data. Type one to eight characters for the name of this cloud. You can assign a different cloud name for the same cloud storage device if you are saving data to a different directory on that cloud or are using different credentials (User ID and Password) to access the cloud.

User ID or Userid
The User ID is the server ID that is required for signing into this cloud. The User ID can be up to 64 characters in length.

Password
The password associated with the User ID that allows access to this cloud. The password can be up to 64 characters in length.

IP Addr
The Internet Protocol Address used to connect to the cloud. The IP Address can be up to 128 characters in length.

Directory or Path
(Optional) The name and path of the directory where the data written to the cloud will be saved. The directory information can be up to 256 characters in length. Leave this field blank if you want to store data in the root folder. The directory designates the top level folder that will hold all of the Cloud Connector data. For example, if you specify "Testdata/" in the Directory field, the data will be sent to the "Testdata/" directory. This is useful to keep Cloud Connector data separate from other data you have stored in that particular cloud.

Opt Parms
(Optional) Use this field to specify additional parameters to help connect to

the cloud server. You can also specify parameters to alter some of the Cloud Connector defaults to suit your environment.

Table 5. List of optional parameters for this cloud server definition

Optional parameter	**Description**
PORT	Identifies the port by which the product attempts to connect to the cloud server. Valid values are 1 - 65535. The default is 80.
CONNRETRY	Consists of a two-part value: • The number of times the product will attempt to reconnect if the socket connection is dropped. Valid values are 1 - 999. The default is 5. • The number of seconds to wait between connection attempts. Valid values are 1 - 999. The default is 30.
COMPRESSION or COMP	Indicates whether to use zEnterprise Data Compression (zEDC) to compress data. The default is NO or N. If either YES or Y is specified, Cloud Connector will attempt to use zEDC to compress the data when transferring to the cloud. **Note:** For more information on zEDC, refer to http://www.redbooks.ibm.com/redbooks/pdfs/sg248259.pdf

For example, consider the following entry in the "Opt Parms" field:

```
PORT(8080),CONNRETRY(5,30),COMPRESSION(YES)
```

In this example, Cloud Connector will try to connect to the cloud server using port 8080 instead of the default port of 80. On failed connections, Cloud Connector will attempt to connect again to the cloud server 5 times, waiting 30 seconds between each attempt. Compression through zEDC will be used when transferring data to the cloud.

An example of a completed FTP Server Definition is shown below. The values listed on this screen are not valid, but are provided as an example of the type of values that are expected for an FTP server.

```
CUZ$PRMC V1R1    --------- Cloud Server Display --------- 2016/07/13  13:35:12
Option  ===>                                              Scroll ===> PAGE

Line Commands: C - Create E - Edit  D - Delete

                                                      ROW 1 OF 6          >
--------------------------------------------------------------------------------
+----------------- File Transfer Protocol Server Definition -----------------+
|                                                                             |
| Cld Type  FTP           (CLS,FTP,HCP,SFT,S3)                                |
| Cld Name  FTPEXAMP      (Cloud Name used to Match Filter Criteria)          |
| User Id   JoeSmo1                                                           |
| Password  M0reSpc                                                           |
| IP Addr   ftp.hostname.com                                                  |
|                                                                             |
| Directory Testdata/                                                         |
|                                                                             |
|                                                                             |
|                                                                             |
| Opt Parms PORT(8080),CONNRETRY(5,30),COMPRESSION(Y)                         |
|                                                                             |
|                                                                             |
|                                                                             |
|                                                                             |
|                                                                  PF12: Cancel   |
+-----------------------------------------------------------------------------+
```

Figure 11. Example of FTP Server Definition

Specifying a Hitachi Content Platform cloud

One of the cloud types that is supported is a Hitachi Content Platform (HCP) server. You can define a connection between Cloud Connector and a cloud on the HCP, and assign a name to the cloud where you want to save data.

When you type the "C" line command in the CMD column on the **Cloud Server Display** screen, a window displays asking you to indicate which type of cloud connection you want to create. To create a connection to an HCP cloud, type "3" in the **Cloud Server Create** window. The following screen displays:

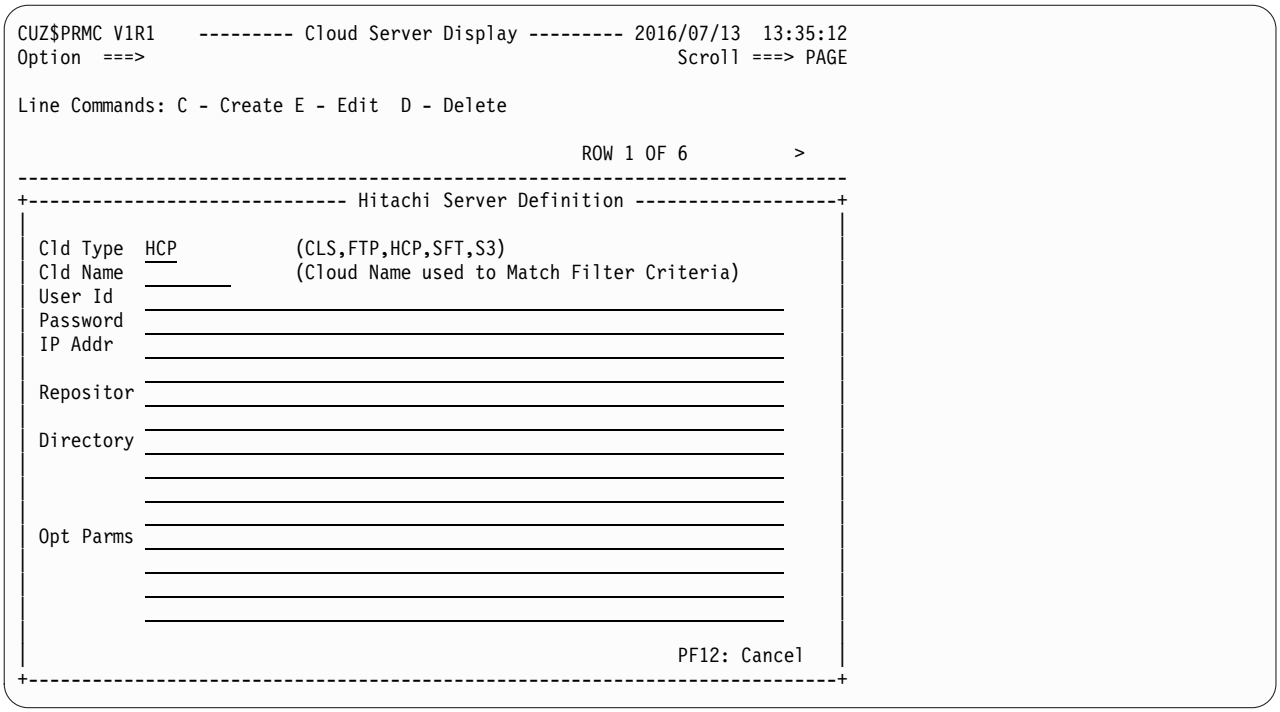

Figure 12. Hitachi Server Definition

The fields on this window are described below.

Cld Type
The type of cloud connection to be created. In this case, the value is HCP for Hitachi Content Platform.

Cld Name
The name that Cloud Connector will use to identify the cloud where you want to save data. Type one to eight characters for the name of this cloud. You can assign a different cloud name for the same cloud storage device if you are saving data to a different directory on that cloud or are using different credentials (User ID and Password) to access the cloud.

User ID or Userid
The User ID is the server ID that is required for signing into this cloud. The User ID can be up to 64 characters in length.

Password
The password associated with the User ID that allows access to this cloud. The password can be up to 64 characters in length.

IP Addr
The Internet Protocol Address used to connect to the cloud. The IP Address can be up to 128 characters in length. The format for the URL is:

```
namespace.tenant.host.
```

As an example, if your HCP "namespace" value is `ns0`, the "tenant" name is `ten1`, and the host name is `hcp123.hcphostname.com`, the URL value you would enter in the **IP Addr** field is:

```
ns0.ten1.hcp123.hcphostname.com.
```

The host name and domain name will almost always be the same, unless your HCP box is specifically configured to have separate names.

Repository
The name or location of the repository where the data will be saved. The repository information can be up to 128 characters in length.

Directory or Path
(Optional) The name and path of the directory where the data written to the cloud will be saved. The directory information can be up to 256 characters in length. Leave this field blank if you want to store data in the root folder. The directory designates the top level folder that will hold all of the Cloud Connector data. For example, if you specify "`Testdata/`" in the Directory field, the data will be sent to the "`Testdata/`" directory. This is useful to keep Cloud Connector data separate from other data you have stored in that particular cloud.

Opt Parms
(Optional) Use this field to specify additional parameters to help connect to the cloud server. You can also specify parameters to alter some of the Cloud Connector defaults to suit your environment.

Table 6. List of optional parameters for this cloud server definition

Optional parameter	Description
PORT	Identifies the port by which the product attempts to connect to the cloud server. Valid values are 1 - 65535. The default is 80.
CONNRETRY	Consists of a two-part value: • The number of times the product will attempt to reconnect if the socket connection is dropped. Valid values are 1 - 999. The default is 5. • The number of seconds to wait between connection attempts. Valid values are 1 - 999. The default is 30.
COMPRESSION or COMP	Indicates whether to use zEnterprise Data Compression (zEDC) to compress data. The default is NO or N. If either YES or Y is specified, Cloud Connector will attempt to use zEDC to compress the data when transferring to the cloud. **Note:** For more information on zEDC, refer to http://www.redbooks.ibm.com/redbooks/pdfs/sg248259.pdf

For example, consider the following entry in the "Opt Parms" field:

```
PORT(8080),CONNRETRY(5,30),COMPRESSION(YES)
```

In this example, Cloud Connector will try to connect to the cloud server using port 8080 instead of the default port of 80. On failed connections, Cloud Connector will attempt to connect again to the cloud server 5 times, waiting 30 seconds between each attempt. Compression through zEDC will be used when transferring data to the cloud.

An example of a completed Hitachi Server Definition is shown below. The values listed on this screen are not valid, but are provided as an example of the type of values that are expected for a Hitachi server.

```
CUZ$PRMC V1R1    --------- Cloud Server Display --------- 2016/07/13  13:35:12
Option  ===>                                                Scroll ===> PAGE

Line Commands: C - Create E - Edit  D - Delete

                                                        ROW 1 OF 6          >
--------------------------------------------------------------------------------
+------------------------------ Hitachi Server Definition -------------------+
|                                                                            |
|  Cld Type  HCP           (CLS,FTP,HCP,SFT,S3)                              |
|  Cld Name  HCPEXAMP      (Cloud Name used to Match Filter Criteria)        |
|  User Id   JoeSmo1                                                         |
|  Password  M0reSpc                                                         |
|  IP Addr   ns0.ten1.hcp123.hcphostname.com                                 |
|                                                                            |
|  Repositor ns0.ten1.hcp123.hcphostname.com                                 |
|                                                                            |
|  Directory Testdata/                                                       |
|                                                                            |
|                                                                            |
|                                                                            |
|  Opt Parms PORT(80),CONNRETRY(5,30),COMPRESSION(Y)                         |
|                                                                            |
|                                                                            |
|                                                                            |
|                                                                            |
|                                                                 PF12: Cancel |
+--------------------------------------------------------------------------------+
```

Figure 13. Example of Hitachi Server Definition

Specifying a SoftLayer cloud

One of the cloud types that is supported is an IBM SoftLayer server. You can define a connection between Cloud Connector and a cloud on the IBM SoftLayer (SFT) server, and assign a name to the cloud where you want to save data.

When you type the "C" line command in the CMD column on the **Cloud Server Display** screen, a window displays asking you to indicate which type of cloud connection you want to create. To create a connection to an IBM SoftLayer (SFT) cloud, type "4" in the **Cloud Server Create** window. The following screen displays:

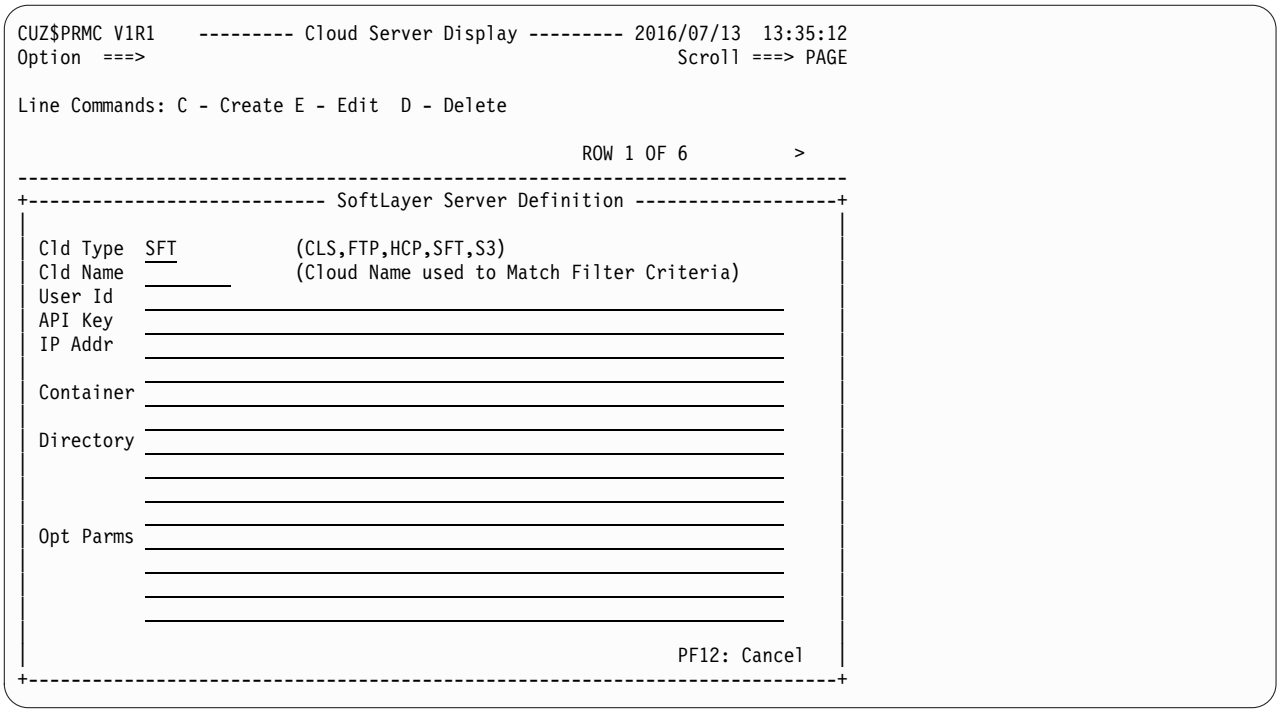

Figure 14. SoftLayer Server Definition

The fields on this window are described below.

Cld Type
The type of cloud connection to be created. In this case, the value is SFT for IBM SoftLayer.

Cld Name
The name that Cloud Connector will use to identify the cloud where you want to save data. Type one to eight characters for the name of this cloud. You can assign a different cloud name for the same cloud storage device if you are saving data to a different directory on that cloud or are using different credentials (User ID and Password) to access the cloud.

User ID or Userid
The User ID is the server ID that is required for signing into this cloud. The User ID can be up to 64 characters in length.

API Key
The password associated with the User ID that allows access to this cloud. The password can be up to 64 characters in length.

IP Addr
The Internet Protocol Address used to connect to the cloud. The IP Address can be up to 128 characters in length.

Container
The name of the container (similar to a repository) where the data will be saved. The container name can be up to 128 characters in length.

Directory or Path
(Optional) The name and path of the directory where the data written to the cloud will be saved. The directory information can be up to 256 characters in length. Leave this field blank if you want to store data in the root folder. The directory designates the top-level folder that will hold all of the Cloud Connector data. For example, if you specify "Testdata/" in

the Directory field, the data will be sent to the "Testdata/" directory. This is useful to keep Cloud Connector data separate from other data you have stored in that particular cloud.

Opt Parms

(Optional) Use this field to specify additional parameters to help connect to the cloud server. You can also specify parameters to alter some of the Cloud Connector defaults to suit your environment.

Table 7. List of optional parameters for this cloud server definition

Optional parameter	Description
PORT	Identifies the port by which the product attempts to connect to the cloud server. Valid values are 1 - 65535. The default is 80.
CONNRETRY	Consists of a two-part value: • The number of times the product will attempt to reconnect if the socket connection is dropped. Valid values are 1 - 999. The default is 5. • The number of seconds to wait between connection attempts. Valid values are 1 - 999. The default is 30.
COMPRESSION or COMP	Indicates whether to use zEnterprise Data Compression (zEDC) to compress data. The default is NO or N. If either YES or Y is specified, Cloud Connector will attempt to use zEDC to compress the data when transferring to the cloud. **Note:** For more information on zEDC, refer to http://www.redbooks.ibm.com/redbooks/pdfs/sg248259.pdf

For example, consider the following entry in the "Opt Parms" field:

```
PORT(8080),CONNRETRY(5,30),COMPRESSION(YES)
```

In this example, Cloud Connector will try to connect to the cloud server using port 8080 instead of the default port of 80. On failed connections, Cloud Connector will attempt to connect again to the cloud server 5 times, waiting 30 seconds between each attempt. Compression through zEDC will be used when transferring data to the cloud.

An example of a completed SoftLayer Server Definition is shown below. The values listed on this screen are not valid, but are provided as an example of the type of values that are expected for a SoftLayer server.

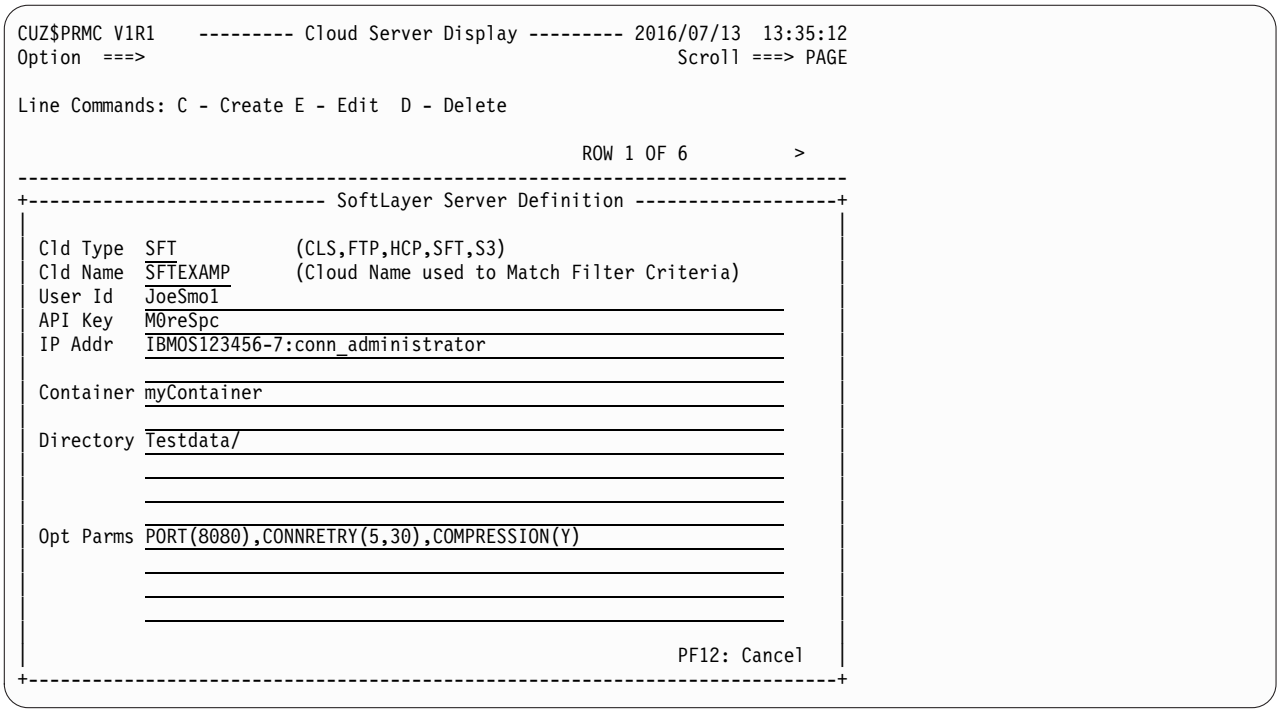

Figure 15. SoftLayer Server Definition

Specifying an S3 cloud

One of the cloud types that is supported is an Amazon Simple Storage Service (S3) server. You can define a connection between Cloud Connector and an S3 cloud, and assign a name to the cloud where you want to save data.

When you type the "C" line command in the CMD column on the **Cloud Server Display** screen, a window displays asking you to indicate which type of cloud connection you want to create. To create a connection to an Amazon Simple Storage Service (S3) cloud, type "5" in the **Cloud Server Create** window. The following screen displays:

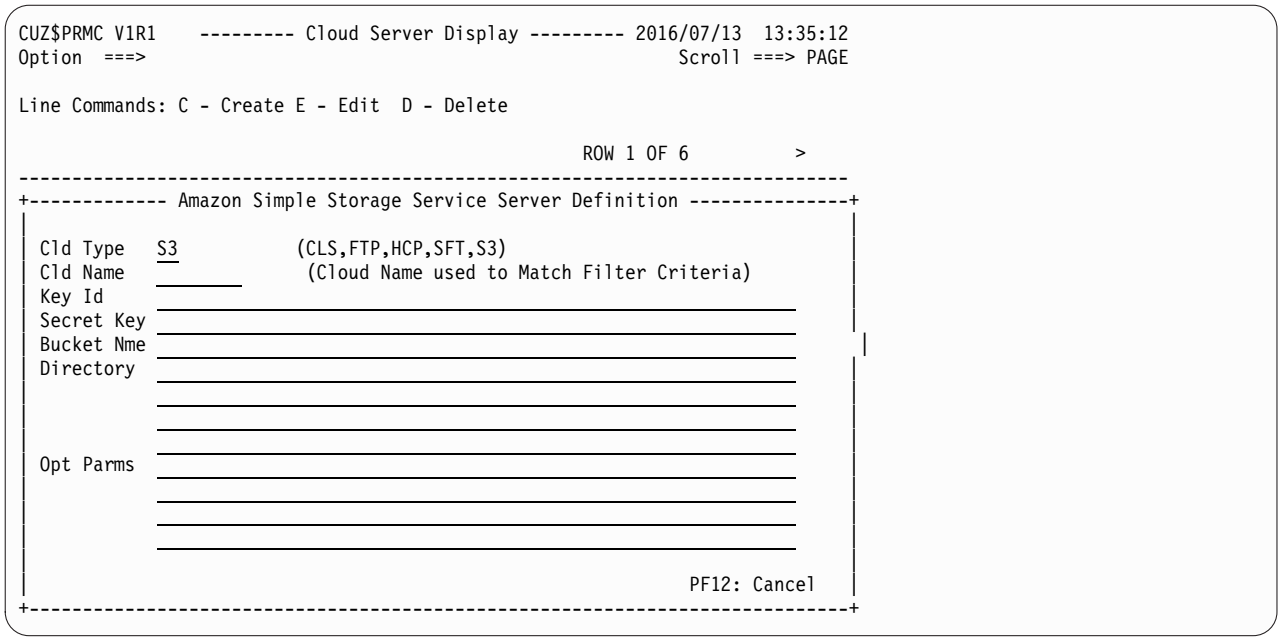

Figure 16. Amazon Simple Storage Service (S3) Server Definition

The fields on this window are described below.

Cld Type
The type of cloud connection to be created. In this case, the value is S3 for Amazon Simple Storage Service.

Cld Name
The name that Cloud Connector will use to identify the cloud where you want to save data. Type one to eight characters for the name of this cloud. You can assign a different cloud name for the same cloud storage device if you are saving data to a different directory on that cloud or are using different credentials (User ID and Password) to access the cloud.

Key ID
The Key ID is the server ID that is required for signing into this cloud. The Key ID must be 16 - 32 characters in length.

Secret Access Key
The password associated with the Key ID that allows access to this cloud. The Secret Access Key must be 32 - 64 characters in length.

Bucket Name
The name or location of the repository on the cloud where the data will be saved. The Bucket Name must be 3 - 63 characters in length.

Directory or Path
(Optional) The name and path of the directory where the data written to the cloud will be saved. The directory information can be up to 256 characters in length. Leave this field blank if you want to store data in the root folder. The directory designates the top level folder that will hold all of the Cloud Connector data. For example, if you specify "Testdata/" in the Directory field, the data will be sent to the "Testdata/" directory. This is useful to keep Cloud Connector data separate from other data you have stored in that particular cloud.

Opt Parms
(Optional) Use this field to specify additional parameters to help connect to

the cloud server. You can also specify parameters to alter some of the Cloud Connector defaults to suit your environment.

Table 8. List of optional parameters for this cloud server definition

Optional parameter	Description
VHOSTURLSTYLE	Indicates whether the connection to an S3 server should have the bucket name in front of the S3 host name. For example, if this is enabled, the product will connect to `bucketname.s3.amazonaws.com`, instead of the standard connection to `s3.amazonaws.com`. This is useful in some installations where advanced network routing is in place. Valid values are Y (yes) or N (no). The default is N.
PORT	Identifies the port by which the product attempts to connect to the cloud server. Valid values are 1 - 65535. The default is 80.
CONNRETRY	Consists of a two-part value: • The number of times the product will attempt to reconnect if the socket connection is dropped. Valid values are 1 - 999. The default is 5. • The number of seconds to wait between connection attempts. Valid values are 1 - 999. The default is 30.
COMPRESSION or COMP	Indicates whether to use zEnterprise Data Compression (zEDC) to compress data. The default is NO or N. If either YES or Y is specified, Cloud Connector will attempt to use zEDC to compress the data when transferring to the cloud. **Note:** For more information on zEDC, refer to http://www.redbooks.ibm.com/redbooks/pdfs/sg248259.pdf
PARTSIZE	Indicates the maximum amount of data (part size), in MB, that will be transferred to the cloud during a transaction. Specify a number between 5 – 100. The default is 5MB. The bigger the number, the better the performance will be, but at a memory cost. Specifying 100MB will gain the most in terms of performance, but does allocate a large memory area to hold the data.
THREADS(x)	When `THREADS(x)` is specified, where "x" is a value from 1 -20, Cloud Connector will use multiple concurrent threads when writing data to S3 or Cleversafe clouds. Using multiple threads can help large backups complete more quickly. With each thread that is specified, there is an increase in the amount of memory that is needed. If the `THREADS(x)` parameter is omitted, no multi-threading will be performed.
SERVERENCRYPT	Specifies whether server-side encryption will be supported. Valid values are: • **AES256** – If AES256 is specified, Cloud Connector will add the proper header to S3 traffic to allow it to be in compliance with a bucket policy that requires server-side encryption. • **NONE** – If NONE is specified, or if the SERVERENCRYPT parameter is omitted, no additional header will be used.

For example, consider the following entry in the "Opt Parms" field:

```
VHOSTURLSTYLE(Y),PORT(8080),CONNRETRY(5,30),COMPRESSION(Y),PARTSIZE(25),
THREADS(3),SERVERENCRYPT(AES256)
```

In this example:

- The bucket name will be placed in front of the S3 host name.

- Cloud Connector will try to connect to the cloud server using port 8080 instead of the default port of 80.
- On failed connections, Cloud Connector will attempt to connect again to the cloud server 5 times, waiting 30 seconds between each attempt.
- Compression through zEDC will be used when transferring data to the cloud.
- The maximum part size is 25MB of data.
- Three threads will be used when writing data to the cloud.
- The AES256 server-side encryption will include a header.

An example of a completed S3 Server Definition is shown below. The values listed on this screen are not valid, but are provided as an example of the type of values that are expected for an S3 server.

```
CUZ$PRMC V1R1    --------- Cloud Server Display --------- 2016/07/13  13:35:12
Option  ===>                                                Scroll ===> PAGE

Line Commands: C - Create E - Edit  D - Delete

                                                      ROW 1 OF 6          >
--------------------------------------------------------------------------------
+------------- Amazon Simple Storage Service Server Definition ---------------+
|                                                                              |
|  Cld Type   S3           (CLS,FTP,HCP,SFT,S3)                                |
|  Cld Name   S3EXAMP       (Cloud Name used to Match Filter Criteria)         |
|  Key Id     s1dfkig0g3fFGF3c2c56                                             |
|  Secret Key pm0v9vj4in4tng50g05894gm-8elo0rr3r0fqf9                          |
|  Bucket Nme myS3bucket                                                       |
|  Directory  Testdata/                                                        |
|             ____________________________________________________________     |
|             ____________________________________________________________     |
|             ____________________________________________________________     |
|  Opt Parms  VHOSTURLSTYLE(Y),PORT(80),CONNRETRY(5,30),COMPRESSION(Y),        |
|             PARTSIZE(25),THREAD(3),SERVERENCRYPT(AES256)                     |
|             ____________________________________________________________     |
|             ____________________________________________________________     |
|             ____________________________________________________________     |
|                                                                              |
|                                                          PF12: Cancel        |
+------------------------------------------------------------------------------+
```

Figure 17. Example of S3 Server Definition

Using ICSF with S3 and Cleversafe clouds

Cloud Connector uses callable services provided by the IBM Integrated Cryptographic Service Facility (ICSF). In order for the product to function properly, ICSF needs to be present on the system with the ICSF started task running.

Cloud Connector utilizes some functions of ICSF in order to do certain hashing that is necessary for S3 and Cleversafe API requests. If ICSF is not running, S3 and Cleversafe requests will fail with an error stating that the hash algorithm could not be performed. In this case, start the ICSF started task and try the process again.

Edit a cloud server definition

When you choose option 3, **Cloud Servers**, on the Parmlib General Options screen, the **Cloud Server Display** screen appears. When you type the "E" line command next to an existing cloud definition, a window displays the current definition for that cloud.

You can edit the information for that specific cloud. The fields you can modify will vary based on the type of cloud you are editing. Refer to the appropriate section in the table below to see what information you need to provide to edit a cloud definition.

Table 9. Links to cloud type fields

Cloud Type	Link to Section
CLS - Cleversafe	“Specifying a Cleversafe cloud” on page 26
FTP - File Transfer Protocol	“Specifying an FTP cloud” on page 29
HCP - Hitachi Content Platform	“Specifying a Hitachi Content Platform cloud” on page 32
SFT - IBM SoftLayer	“Specifying a SoftLayer cloud” on page 35
S3 - Amazon Simple Storage Service	“Specifying an S3 cloud” on page 38

Delete a cloud server definition

When you choose option 3, **Cloud Servers**, on the Parmlib General Options screen, the **Cloud Server Display** screen appears. When you type the "D" line command next to a cloud definition on this screen, the **Cloud Server Delete** window appears.

The **Confirm Delete** field, located at the bottom of the window, is asking you to confirm that you want to delete this server definition. Type one of these values in this field:

- **Y** - Yes, you want to delete this server definition.
- **N** - No, you want to keep this server definition. This is the default.

You can also press PF12 to cancel and exit this window. The server definition will not be deleted if you cancel.

An example of a **Cloud Server Delete** window is shown below.

```
CUZ$PRMC V1R1    --------- Cloud Server Display --------- 2016/05/29  22:14:54
Option  ===>                                                Scroll ===> PAGE

Line Commands: C - Create E - Edit  D - Delete

                                                        ROW 1 OF 3          >
 ------------------------------------------------------------------------------
+---------------------------- Cloud Server Delete -----------------------+
|                                                                        |
|  Cld Name  xxxx          (Cloud Name used to Match Filter Criteria)    |
|  Cld Type  FTP           (CLS,FTP,HCP, SFT, S3)                        |
|  User Id   userID4thiscloud_____________                               |
|  Password  password4thiscloud_____                                     |
|  IP Addr   123.456.7.89                                              _ |
|                                                                        |
|  Repositor \company                                                    |
|                                                                        |
|  Directory y:\test\samplib                                             |
|                                                                      __|
|                                                                        |
|                                                                      _ |
|  Opt Parms PORT(80),CONNRETRY(5,30)                                  _ |
|                                                                      _ |
|                                                                      _ |
|                                                                      _ |
|                                                                        |
|              Confirm Delete  N  (Y/N)                                  |
|                                                          PF12: Cancel  |
|                                                                        |
+------------------------------------------------------------------------+
```

Figure 18. Example of Cloud Server Delete confirmation window

The server information that appears on this window will vary depending upon the type of server you have chosen to delete.

Backup Filter Criteria

When you choose option 4, **Backup Filter Criteria**, on the Parmlib Options Main Menu, the **Cloud Filter Display** screen appears. It lists all of the filters that are defined for use by Cloud Connector. You can also create a new cloud filter, modify a filter, or delete one.

```
CUZ$PRMF V1R1    --------- Cloud Filter Display --------- 2016/05/29  18:30:02
Option  ===> ________________________________________________  Scroll ===> PAGE

Line Commands: C - Create E - Edit  D - Delete

                                                        ROW 1 OF 9
 ------------------------------------------------------------------------------
    Filter     Cloud   Catalog   Retention Filter
Cmd  Type      Name    To Cloud   Period   Criteria
 _  Storclass  MARS      No         7       IBMVTL*
 _  Dataset    MARS      Yes        2       PROD.DUMP01.*
 _  Dataset    MARS      No         2       TESTLOG.*
 _  Dataset    MARS      No         2       TESTSYS.*
 _  Dataset    MARS      Yes        2       PROD.*
 _  Esot Unit  JUPITER   No         2       VTAPE
 _  Esot Unit  MARS      No         2       CART
 _  Dataset    MARS      Yes        0       SYSID.*
 _  Repo Bkup  MARS      No         0
 _  Dataset    MARS      No         0       PROD.TEST.*
****************************** Bottom of Data ********************************
```

Figure 19. Example of Cloud Filter Display window for Backup Filter Criteria option

The information on this screen is described below. If you choose to Create or Edit a filter, these same fields appear on the **Cloud Filter Criteria Create** screen and the **Cloud Filter Criteria Edit** screen.

Filter Type

The type of filter used for this cloud. Valid values are:

- S - Storage class
- E - Esoteric Unit
- D - Dataset
- R - Repository Backup.

  The Repository Backup filter specifies where to save a backup of the entire repository. No criteria is allowed for this filter type and only one Repository filter can be defined. A backup of the repository is performed every "n" minutes, based on the value you specified in the **Auto Bkup Repository Min** field on the General Options screen (under Parmlib Options).

  Note: If you specified a value in the **Auto Bkup Repository Min** field, but do not create a Repository filter to specify where the repository backup should be saved, an error message displays to inform you that a Repository filter must be created to automatically backup the repository.

  Be extremely cautious when creating a Storage Class or Esoteric Unit filter criteria that is associated with DASD devices. Do not include DASD devices as part of an Esoteric Unit filter. Creating a filter with "SYSDA" or "SYSALLDA" will copy JES sysout and joblog data sets to the cloud. Filter criteria on DASD devices should only be specified via Dataset Filters.

Cloud Name

The name of the cloud server where you want to save data. Type one to eight characters for the name of this cloud. The cloud must have already been defined through the Cloud Servers option (under Parmlib Options).

Catalog to Cloud

Specify Y or N to indicate whether to catalog a data set to the cloud. The default is N. If you specify Y, the data set will be copied to the cloud and cataloged (or re-cataloged) with a volume serial of `CLOUD`. The original data set will be deleted from disk or un-cataloged from tape.

Note: Re-cataloging a Repository Filter is not allowed.

Retention Period

Type a number between 0 and 9999 for the number of days you want to retain this backup. A value of zero is helpful for testing so you can run an expiration job and retest without having to wait days for the group of backed up data sets to expire. A value of 9999 means the data set will never expire or be deleted from the cloud via the expiration job. The only way to delete a data set from cloud with a Retention Period of 9999 is to manually delete it using Option 3 on the (ISPF) Main Menu.

Filter Criteria

Enter the data set names, esoteric unit names or storage class names to be used as selection criteria for this filter. A data set name can be up to 44 characters in length. The name of an esoteric or a storage class can be up to 8 characters. Wildcard characters are allowed (* %).

Line Commands

Choose one of these line commands for use on this screen:

- **C** - Create a new cloud filter.
- **D** - Delete an existing cloud filter.
- **E** - Edit an existing cloud filter.

Each of these commands displays a window where you complete the process.

Create cloud filter criteria

When you choose option 4, **Backup Filter Criteria**, on the Parmlib Options Main Menu, the **Cloud Filter Display** screen appears. When you type the "C" line command on this screen, the Cloud Filter Criteria Create window appears.

Specify values in the fields to create new cloud filter criteria. For more information about these fields, refer to “Backup Filter Criteria” on page 43.

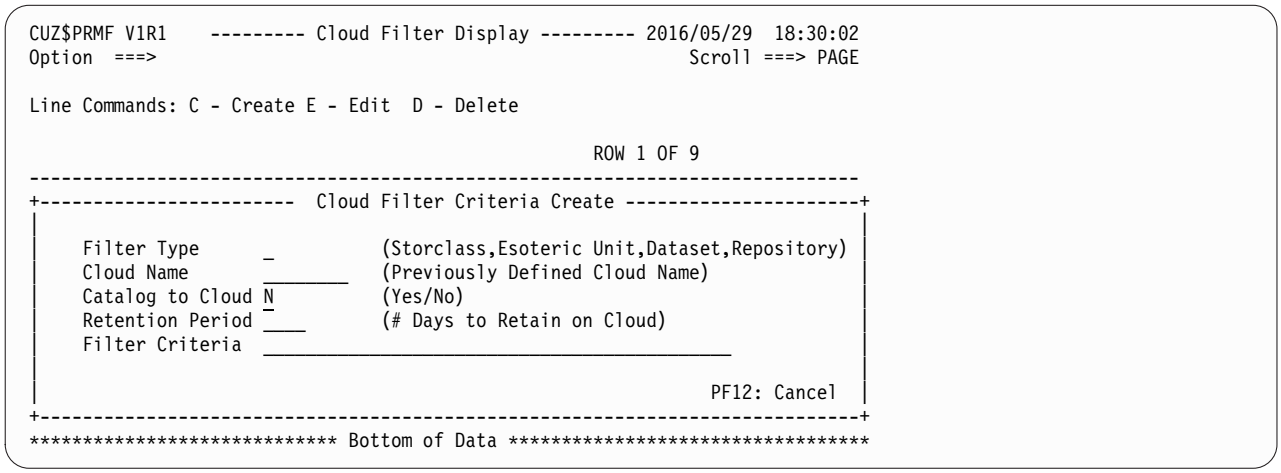

Figure 20. Cloud Filter Criteria Create window

To save a backup of the entire Repository, you must specify "R" as the Filter Type and provide a Cloud Name and Retention Period. However, no value for the "Filter Criteria" field is allowed for this filter type because the whole repository will be saved to this location. Only one Repository (R) Backup filter can be defined.

Edit cloud filter criteria

When you choose option 4, **Backup Filter Criteria**, on the Parmlib General Options screen, the **Cloud Filter Display** screen appears. It lists all of the filters that are defined for use by Cloud Connector. When you type the "E" line command on this screen, the **Cloud Filter Criteria Edit** window appears.

Specify values in the fields to edit an existing cloud filter. For more information about these fields, refer to “Backup Filter Criteria” on page 43.

```
CUZ$PRMF V1R1    --------- Cloud Filter Display --------- 2016/05/29  18:30:02
Option  ===>                                              Scroll ===> PAGE

Line Commands: C - Create E - Edit  D - Delete

                                                    ROW 1 OF 9
--------------------------------------------------------------------------------
+-----------------------  Cloud Filter Criteria Edit  -----------------------+
|                                                                            |
|    Filter Type      D          (Storclass,Esoteric Unit,Dataset,Repository) |
|    Cloud Name       MARS       (Previously Defined Cloud Name)              |
|    Catalog to Cloud Y          (Yes/No)                                     |
|    Retention Period 2          (# Days to Retain on Cloud)                  |
|    Filter Criteria  PROD.TEST01.*                                           |
|                                                                            |
|                                                          PF12: Cancel      |
+----------------------------------------------------------------------------+

***************************** Bottom of Data ********************************
```

Figure 21. Cloud Filter Criteria Edit window

If you edit a Repository (R) Backup filter, you can change the Cloud Name and Retention Period. However, no value for the "Filter Criteria" field is allowed for this filter type because the whole repository will be saved to this cloud. Only one Repository (R) Backup filter can be defined.

Delete cloud filter criteria

When you choose option 4, **Backup Filter Criteria**, on the Parmlib General Options screen, the **Cloud Filter Display** screen appears. It lists all of the filters that are defined for use by Cloud Connector. When you type the "D" line command on this screen, the **Cloud Filter Criteria Confirm Delete** window appears.

To delete this cloud filter, type a "Y" (yes) in the **Confirm Delete** field located at the bottom of the window. To keep the filter, type an "N" (no) in this field. The default is N. For more information about these fields, refer to “Backup Filter Criteria” on page 43.

```
CUZ$PRMF V1R1    --------- Cloud Filter Display --------- 2016/05/29  18:30:02
Option  ===>                                              Scroll ===> PAGE

Line Commands: C - Create E - Edit  D - Delete

                                                    ROW 1 OF 9
--------------------------------------------------------------------------------
+----------------  Cloud Filter Criteria Confirm Delete  ---------------------+
|                                                                            |
|    Filter Type      D          (Storclass,Esoteric Unit,Dataset,Repository) |
|    Cloud Name       MARS       (Previously Defined Cloud Name)              |
|    Catalog to Cloud Y          (Yes/No)                                     |
|    Retention Period 2          (# Days to Retain on Cloud)                  |
|    Filter Criteria  PROD.TEST01.*                                           |
|                                                                            |
|                Confirm Delete  N  (Yes / No)                               |
|                                                                            |
|                                                          PF12: Cancel      |
+----------------------------------------------------------------------------+

***************************** Bottom of Data ********************************
```

Figure 22. Confirm deletion of Cloud Filter Criteria

Note: You must have one Repository (R) Backup filter to save the entire repository to the cloud. If you have specified an **Auto Backup Repository** value and you delete the Repository filter, you must create a new one.

Data Restore Options

When you choose option 5, **Data Restore Options**, on the Parmlib Options Main Menu, the **Parmlib Restore Options** screen appears. The Data Restore Options allow you to specify how and where you want to save the data that you restore from the cloud. Data sets can be restored from the cloud to a DASD unit as long as the block size is 32K or less. If the block size is greater than 32K, the data set will be restored to tape.

The Data Restore fields are described below. The default values are displayed, but you can change those values to suit your environment.

```
CUZ$PRMR V1R1 -------------------- Parmlib Restore Options  --------------------
Option  ===>

                                                        2016/06/29  21:43:03
                                                        User: USERID   - CUZ
--------------------------------------------------------------------------------
 Parmlib Dataset: PROD.CLOUD.SCUZPARM
 Parmlib Member : CUZ#PARM
--------------------------------------------------------------------------------
  Datasets can be restored from the Cloud to a DASD unit as long as the
  blksize is 32k or less.  If the blksize is greater than 32K, the
  data set will be restored to tape.  You can also rename the DSN that
  is being restored by entering a name in the Restore Alias field.
--------------------------------------------------------------------------------

     Restore to DASD . . . . . .   Y          (Yes / No)
     Max Restore Tasks . . . . .   05         (01 to 99)
     Restore DASD Unit . . . . .   SYSALLDA   (DASD Unit Device)
     Restore TAPE Unit . . . . .   TAPE       (Tape Unit Device)
     Restore Alias . . . . . . .   CUZRESTR   (Optional)
     SMS Storage Class . . . . .   SCCUZSTG   (Optional)
     Restore DSN Vol Count . . .   005        (1 to 256)
     Retention Period. . . . . .   0005       (0 to 9999)
```

Figure 23. Example of Parmlib/Data Restore Options screen with defaults displayed

The information on this screen is described below. The values displayed on this screen are the default values. Any and all of these values can be overridden at the time of restore.

Restore to DASD
Indicate whether you want to restore the data to DASD by typing Y (yes) or N (no). The default is Y. To restore the data to TAPE, specify N.

- If you type a "Y" in this field, you must also specify a value in the **Restore DASD Unit** field and in the **Restore TAPE Unit** field. If the block size is greater than 32K, the restored data must be sent to tape rather than DASD.
- If you type an "N" in this field, the data will not be restored to DASD, but will be restored to TAPE. Therefore, you must specify a value in the **Restore TAPE Unit** field.

Max Restore Tasks
Type a number between 01 and 99 for the maximum number of drives you want to use to perform this restore. Do not set the number higher than the actual number of drives you have at your site. The default is 5.

Restore DASD Unit
Specify a one- to eight-character name for the DASD device where the

cloud data will be placed. The default name is SYSALLDA. To send data to DASD, you must have a value of "Y" in the **Restore to DASD** field. Also note the following:

- If the block size (blksize) is less than 32K, the cloud data will be restored to DASD.
- If the block size is greater than 32K, the restored data must be sent to tape rather than DASD.

Restore Tape Unit
Specify a one- to eight-character name for the TAPE device where the cloud data will be placed. The default name is TAPE.

If the block size (blksize) is greater than 32K, the restored data must be sent to tape rather than DASD. For this reason, you must specify a value in the **Restore TAPE Unit** field even if you specify a "Y" in the **Restore to DASD** field.

Restore Alias (Optional)
Specify a one- to eight-character high level alias to be used as a replacement high level when restoring the data set. The default alias name is CUZRESTR. The Restore Alias cannot be the same alias as the Staging Dataset Alias. For information on the Staging Dataset Alias, see “Staging Options” on page 22. This value is optional.

Restore DSN Vol Count
Type a number between 1 and 256 for the number of volumes you need to restore a multi-volume data set from the cloud. The default is 5 volumes.

SMS Storage Class (Optional)
Specify a one- to eight-character name for the storage class. This is an optional field.

Retention Period
Enter a number between 0 - 9999 to indicate the maximum number of days you want to keep the restored data when it is restored to tape. This Retention Period is a z/OS retention period which will be used by your Tape Management System.

Save parameter member

When you choose option 6, **Save/Save As**, on the Parmlib Options Main Menu, the **Save/Update Parmlib Member** window appears. On this window, you can edit and save the current parameter data set and member, or change the values and save them in a new data set or member.

The Save/Update Parmlib Member fields are described below. The default values are the data set and member name that you previously specified on the **Enter Parmlib Member** window when you chose Option 1, **Cloud Connector Settings (Parmlib Options)**, on the Main Menu. You can use these default values or specify a new parameter data set and member.

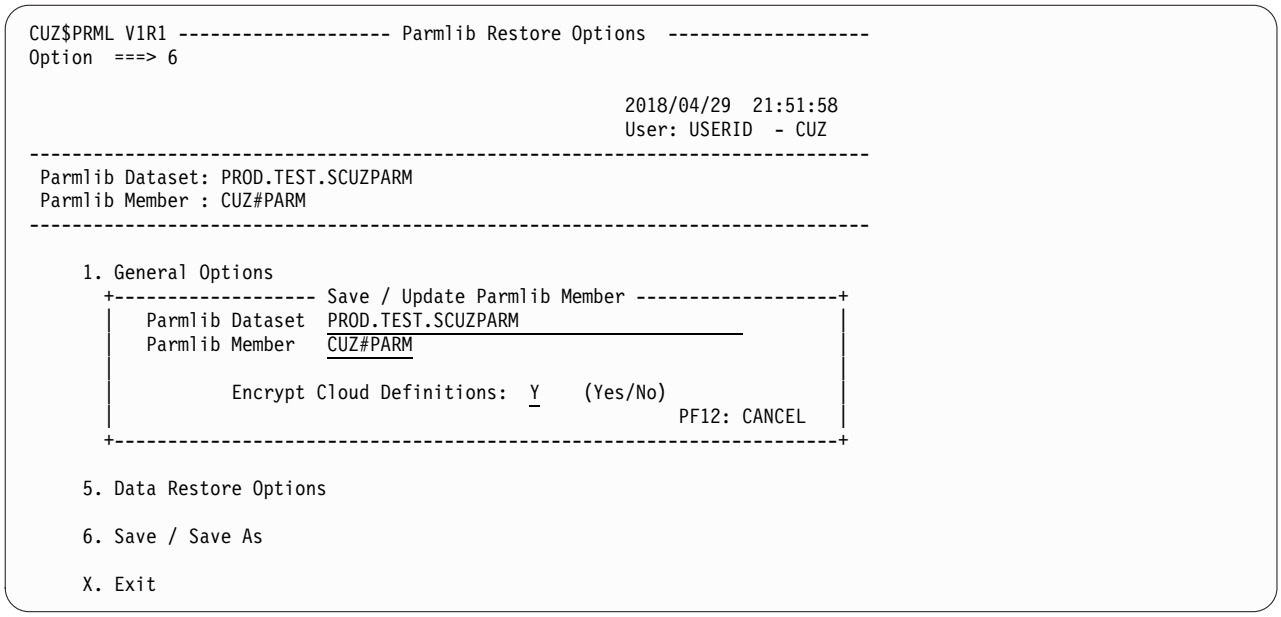

Figure 24. Example of Save/Update Parmlib Member window

The information on this screen is described below.

Parmlib Dataset
Specify the name of the data set that contains the parameter member. The SCUZPARM data set included with this product contains an example of the default parameter member, CUZ#PARM.

Parmlib Member
Type a one- to eight-character name for the parameter member. The default is CUZ#PARM.

Encrypt Cloud Definitions
Specify Y or N to indicate whether you want Cloud Connector to encrypt the cloud server definitions in the Parmlib so that the ISPF screens display encrypted information after a cloud has been defined, rather than actual information. In addition, if you choose encryption (Y), the cloud definitions will not be displayed in write-to-operator (WTO) messages at startup, and will no longer be displayed when printing the cloud definitions in the parmlib. The default is Y (yes).

Refreshing the parameter member

After saving the new or updated parameter member, these changes will not take effect until the Cloud Connector started task is restarted or the parameter member is refreshed. To refresh the parameter member without having to stop and start the started task, enter the following z/OS console command:

```
/F CUZCLOUD,REFRESH MBR=CUZ#PARM (or the member name you saved it under)
```

In order for these new parameter options to take effect, the parameter member must be stored in the same data set specified in the `CUZ#PARM DD` statement in the Cloud Connector started task (CUZCLOUD).

Viewing cloud server status

When you choose Option 2, **Cloud Servers Status**, on the Main Menu, the **Cloud Server Status** screen appears. It lists all of the cloud servers that are defined for use by Cloud Connector and their connection status.

Note: For information on how to define a cloud server, refer to "Create a cloud server definition" on page 26.

```
CUZ$SERV V1R1    ---------- Cloud Server Status --------- 2016/06/01  11:15:09
Option  ===>                                                Scroll ===> PAGE


--------------------------------------------------------------------------------
 Cloud Name: MARS     Status: Connected        Type: HCP
 User Id...: BestID1
 IP Address: abc-de-fghi-JK.company.com
 Repository: ab01.cd01.xyz-demo.abcdomain.com
 Directory : mydata/
 Total Byte: 15,062,925,049                          14 Gigabytes
 --------------------------------------------------------------------------------
 Cloud Name: xxxx     Status: Connected        Type: FTP
 User Id...: MyuserID
 IP Address: 123.456.7.89
 Repository: \company10
 Directory : y:\test\samplib
 Total Byte: 0                                       0 Bytes
 --------------------------------------------------------------------------------
 Cloud Name: CLS    Status: Connected        Type: CLS
 Key Id....: slCXabCD1E1Fg23hIjKL
 IP Address: 0.12.34.567
 Repository: myrepos
 Directory : /
 Total Byte: 0                                       0 Bytes
 ************************** Bottom of Data **********************************
```

Figure 25. Example of Cloud Server Status screen

The information on this screen is described below

Cloud Name
The user-defined name given to a cloud server or location where the data will be saved.

Status The connectivity state of the cloud server: Connected or Connection Error.

Type The type of protocol used for this cloud:

- CLS - Cleversafe
- HCP - Hitachi Content Platform
- FTP - File Transfer Protocol
- SFT- SoftLayer (IBM)
- S3 - Simple Storage Service (Amazon)

User ID or Key ID
The user or key identification required to login to the cloud server.

IP Address
The Internet Protocol Address used to connect to the cloud.

Repository or BucketName
The name or location on the cloud where the backup will be saved.

Directory or Path
The name and path of the directory where the backup will be saved.

Total Bytes
The amount of space that is being used for storage on this cloud.

Primary commands

IBM Cloud Tape Connector for z/OS supports a number of primary commands that enable you to find information, navigate panels, modify the display of data, and print information.

FIND *abc*
Finds a unique string within a panel of data where *abc* is the string for which you are searching. If the specified string is found, the cursor moves to the first position of the found string. If the specified string is not found a message displays to indicate that is the case. You should be as specific as possible when using the **FIND** command to ensure the correct return.

The **FIND** command can be issued with the following keywords:

NEXT Finds the next instance of the search string.

PREV Finds the previous instance of the search string.

FIRST Finds the first instance of the search string.

LAST Finds the last instance of the search string.

ALL Finds all instances of the search string.

The syntax is:

```
FIND <string> <keyword>
```

OR

```
FIND <keyword> <string>
```

where <*string*> is the text you want to find and <*keyword*> is a valid keyword for the **FIND** command (NEXT, PREV, FIRST, LAST, or ALL).

If none of the these keywords is explicitly specified, the default behavior is for the next instance of the search term to be found. If a keyword is the only parameter, it is treated as a search string. Two keyword parameters can coexist as long as one of them is identified by surrounding single quotes as the search string. Otherwise, the occurrence of multiple instances of keywords causes an error.

Examples:

To find the first instance of the word "apple", issue the command:

```
FIND apple FIRST
```

To find the next instance of the word "apple":

```
FIND apple
```

To find the last instance of the word "apple":

```
FIND apple LAST
```

To find all instances of the word "apple":

```
FIND apple ALL
```

To find all instances of the word "all", use single quotes to distinguish the search term from the keyword:

```
FIND 'all' ALL
```

Or:

```
FIND ALL 'all'
```

FORM

Reformats the display of a selected line item on a report panel such that each column becomes a row and values display in list format. To use the **FORM** command, type **FORM** in the option line, place your cursor on the line item of interest, and press Enter. The data for the selected line item will be displayed in list format showing column names and their associated values.

Notes:

1. To return to the original view from **FORM** view, press PF3.
2. CSETUP functions are not accessible when in **FORM** view. Exit **FORM** view to access CSETUP functionality.

NROW *n*

Displays the report for a subsequent row of interest where *n* is the number of rows (after the currently displayed row) that you want to scroll forward (when viewing reports in **FORM** view). The default value of *n* is 1.

Note: The **NROW** command is only valid when viewing a report in FORM view.

PROW *n*

Displays the report for a previous row of interest where *n* is the number of rows (prior to the currently displayed row) that you want to scroll back (when viewing reports in FORM view). The default value of *n* is 1.

Note: The **PROW** command is only valid when viewing a report in **FORM** view.

PRINTX

The **PRINTX** command takes a screen shot of a report and sends it to an output queue. The default output destination is the default output queue for your site. For example, if your site's default output class is configured to send output to the hold queue, the **PRINTX** command sends the currently displayed report to the hold queue. You can then view the output using SDSF.

You can change the output class designation for the PRINTX command by entering **PRINTX S** in the command line and pressing Enter. The following panel is displayed:

Figure 26. PRINTX Setup panel

```
SETUP ------------------------  PRINTX Setup -------------- 2010/02/25 14:27:15
Command ==> ____________________________________________________________________

Specify new output class and press ENTER
   or
press END to cancel.

If new output class is blank, default output class is used.

Current Output Class ==> DEFAULT OUTPUT MESSAGE CLASS
New Output Class     ==> _
```

Enter the desired output class in the **New Output Class** field and press Enter. The new output class is saved across sessions and remains in effect unless you change it. For appropriate output classes available at your site, check with your systems programmer. To change the class back to the default output message class, blank out the value in the **New Output Class** field.

For a snapshot of the current display (print screen), the ISPF Print command can be used. The ISPF Print command writes output to the ISPF LIST data set. See the *ISPF User's Guide* (SC34-4822, SC34-4823) for more information about ISPF Print.

SORT ***column_number direction***

Sorts data (on panels of scrollable or tabular data) by column where *column_number* is the number of the column by which you want to sort and *direction* can be either **A** (to sort data in ascending order) or **D** (to sort data in descending order).

You can refer to columns only by the column number (not the column name). Column numbers are not displayed on the panel. The CMD column is column 1 and columns to the right are incremented sequentially.

Data can be sorted in ascending (A) or descending (D) order. To specify sort order, append the A or D to the end of the SORT command. The default is ascending (A). For example, to sort column 2 in descending order, type the following in the command line and press Enter:

```
SORT 2 D
```

The data will be sorted by column 2 in descending order.

Column display functions

Column display functions (**CSETUP** functions) enable you to rearrange report columns, change the width of individual columns, and control the vertical ordering of columns.

CSETUP functionality enables you to:

- Rearrange report columns horizontally using the **CFIX** and **CORDER** options.
- Change the width of individual columns using the **CSIZE** option.
- Control the vertical ordering of columns using the **CSORT** option.

Additional column display functions enable you to:

- Scroll horizontally between columns, in both left and right directions.

- Scroll horizontally within a single report column while other report columns remain stationary on the screen.
- Insert column numbers above each display column.
- Generate a ruler at the top of the report columns beneath the headings.
- Display an entire row-column data element.

The customizations, or views, you configure using **CFIX**, **CORDER**, **CSIZE**, and **CSORT** can be saved across sessions.

The following syntax restrictions apply to the use of **CSETUP** functionality:

- Underlined text indicates the minimum acceptable abbreviation for each keyword.
- Variables are shown in italicized lowercase type.
- Keyword options are separated by vertical lines (|).

Accessing the CSETUP Primary Option Menu

The **CSETUP** primary option menu enables you to access the various **CSETUP** options and configure column display functions according to your display needs.

About this task

The **CSETUP** command uses the following syntax:

CSETUP
Launches the CSETUP Primary Option Menu.

To access and use the CSETUP Primary Option Menu:

Procedure

1. On any dynamic display (for example, the Objects Profile Display panel, the Utilities Profile Display panel, or the Jobs Profile Display panel), type **CSETUP** (or **CSET**) in the Option line and press Enter. The Setup Primary Option Menu displays as shown in the following figure:

```
SETUP ------------------- Setup Primary Option Menu ------- YYYY/MM/DD HH:MM:SS
Command ==>
                                                                Temporary View

1  CFIX        Select columns to be fixed on the left side of the report
2  CORDER      Modify the horizontal placement of unfixed columns
3  CSIZE       Customize the size of columns
4  CSORT       Select columns to sort
5  CRESET      Reset column values
6  CREMOVE     Remove all customizations, including original defaults
7  PVIEW       Permanent View (toggle between temporary and permanent)


HELP           Setup Tutorial
```

Figure 27. Setup Primary Option Menu panel

2. Type the number corresponding to the option you want to access in the Command line and press Enter. The following options are available on the Setup Primary Option Menu:

   CFIX Option 1, **CFIX**, enables you to fix and unfix columns.

   CORDER Option 2, **CORDER**, enables you to reposition columns.

CSIZE Option 3, **CSIZE**, enables you to change the displayed width of columns.

CSORT Option 4, **CSORT**, enables you to select one or more columns for sorting and thus modify the order of the rows displayed.

CRESET
Option 5, **CRESET**, enables you to reset all customizations.

CREMOVE
Option 6, **CREMOVE**, enables you to remove all customizations.

PVIEW Option 7, **PVIEW**, enables you to toggle between permanent view and temporary view.

Note: You can also directly invoke each **CSETUP** option by typing the corresponding command (for example, **CFIX**, **CORDER**, **CSIZE**, **CSORT**, **CRESET**, **CREMOVE**, or **PVIEW**) in the option line on any dynamic display and pressing Enter.

Fixing a column

The CFIX option enables you to fix and unfix columns. A fixed column is always located at the far left side of the display.

About this task

It does not shift horizontally (as unfixed columns do) when scrolling to the left or right. INNER COLUMN SCROLLING and CEXPAND may be used on a fixed column if the column is narrower than its maximum width. Certain columns may be permanently fixed in the report and cannot be unfixed by the user. Such a column has a fix status of P (permanently fixed).

A column cannot be fixed if it is larger than the available display area. There are also restrictions for fixing columns related to the size requirements of other columns.

To fix a column:

Procedure

1. Type **CFIX** in the option line on any display panel and press Enter. The Define Fixed Columns panel displays as shown in the following figure:

```
CFIX ------------------ Define Fixed Columns -------------- YYYY/MM/DD HH:MM:SS
Option  ===>                                                  Scroll ===> PAGE
------------------------------------------------------------------------     +>
                                                                    ROW 1 OF 9

Column Function ===> 1 (1-Fix/Unfix, 2-Order, 3-Size, 4-Sort)
Permanent View  ===> Y (Y-Perm, N-Temp)  Reset View ===> N (Y,N)

Device_Width   :  80
Old_Fixed_Width:  37       Old_Unfixed_Width:  43
New_Fixed_Width:           New_Unfixed_Width:
--------------------------------------------------------------------------------

Cmd New Old Len Column_Name
P   P   P     5 CMD
P   P   P    32 NAME
_            10 CREATOR
_             5 UPDT
_            32 DESCRIPTION
_            10 LAST_USER

Enter: Process selections; PF3: Exit and save; CAN: Exit without save
Line Cmds: F Fix U Unfix
```

Figure 28. Define Fixed Columns panel

The following fields appear on the Define Fixed Columns panel:

Column Function
Enables you to jump to any of the CSET functions by typing in the appropriate number. The number corresponding to the current option displays in this field.

Permanent View
Indicates whether the view you define is permanent or temporary. Valid values are:

- **Y**–View customizations are permanent.
- **N**–View customizations are temporary.

Reset View
Resets all customizations.

Device_Width
Shows the current display device size (screen width).

Old_Fixed_Width
Shows the sum of the FIXED column widths prior to any changes in the current CFIX panel.

Old_Unfixed_Width
Shows the UNFIXED area prior to any changes in the current CFIX panel. Old_Unfixed_Width = Device_Width - Old_Fixed_Width.

New_Fixed_Width
Shows the sum of the FIXED column widths that will result if the FIX/UNIFIX changes are saved.

New_Unfixed_Width
Shows the UNFIXED area that will result if the FIX/UNFIX changes are saved. New_Unfixed_Width = Device_Width - New_Fixed_Width.

Cmd Field where you specify line commands. Valid line commands are F (fix) and U (unfix).

New Displays the new CFIX view settings.

Old Displays the previous CFIX view settings.

Len Shows the length of the column.

Column_Name
Shows the name of the column.

2. Type **F** in the **Cmd** field next to column(s) you want to fix.
3. Type **U** in the **Cmd** field next to column(s) you want to unfix.
4. Press Enter. The changed values display in the **New** column next to the corresponding column(s).
5. Press **PF3** to save changes and return to the display panel.

Repositioning columns

The **CORDER** option enables you to reposition report columns. If any columns are fixed, they are grouped together as the leftmost report columns. The unfixed columns are grouped together to the right of any fixed columns.

About this task

CORDER does not move a column out of its group. A fixed column cannot be relocated to the right of an unfixed column. Likewise, an unfixed column cannot be relocated to the left of a fixed column.

To reposition columns:

Procedure

1. Type **CORDER** in the option line on any display panel and press Enter. The Define Column Display Order panel displays as shown in the following figure:

```
CTCORD ----------------- Define Column Display Order -----  YYYY/MM/DD HH:MM:SS
Option  ===>                                                 Scroll ===> PAGE
------------------------------------------------------------------------------      >
                                                                        ROW 1 OF 9

Column Function ===> 2 (1-Fix/Unfix, 2-Order, 3-Size, 4-Sort)
Permanent View  ===> N (Y-Perm, N-Temp)  Reset View ===> N (Y,N)


Cmd Fix New Old Column_Name
___ P         1 CMD
___ P         2 NAME
___           3 CREATOR
___           4 UPDT
___           5 DESCRIPTION
___           6 LAST_USER
___           7 LAST_UPDATED
___           8 CRTD_USER
___           9 CREATED_USER
***************************** Bottom of Data ********************************

Enter: Process selections; PF3: Exit and save; CAN: Exit without save
Line Cmds: Specify number for column position
```

Figure 29. Define Column Display Order panel

The following fields appear on the Define Column Display Order panel:

Column Function
Enables you to jump to any of the CSET functions by typing in the appropriate number. The number corresponding to the current option displays in this field.

Permanent View
Indicates whether the view you define is permanent or temporary. Valid values are:

- **Y**–View customizations are permanent.
- **N**–View customizations are temporary.

Reset View
Resets all customizations.

Cmd Field where you specify the number for column position.

Fix Displays fixed columns. Valid values are:

- F–Indicates the column is fixed.
- P–Indicates the column is permanently fixed.

New Displays the new CORDER view settings.

Old Displays the previous CORDER view settings.

Column_Name
Shows the name of the column.

2. Type a number next to a column to specify its order.
3. Press Enter. The new column order numbers display in the **New** column next to each column.
4. Press **PF3** to return to the display panel.

Resizing columns

The CSIZE option enables you to change the displayed width of columns.

About this task

This function is primarily intended for non-numeric data where there are large blank areas in all (or most) rows in a given column. Although the displayed width may change, the underlying data does not change.

If a column's size is less than the column maximum, it is possible that some data is not displayed. INNER COLUMN SCROLLING and CEXPAND can be used to see data outside the display range of the re-sized column.

Note: If the minimum and maximum column widths are equal, the column cannot be re-sized.

To re-size columns:

Procedure

1. Type **CSIZE** in the option line on any display panel and press Enter. The Define Column Size panel displays as shown in the following figure:

```
CSIZE -------------------- Define Column Size ------------- YYYY/MM/DD HH:MM:SS
Option  ===>                                                  Scroll ===> PAGE
------------------------------------------------------------------------------   +>
                                                                        ROW 1 OF 9

Column Function ===> 3 (1-Fix/Unfix, 2-Order, 3-Size, 4-Sort)
Permanent View  ===> N (Y-Perm, N-Temp)  Reset View ===> N (Y,N)

Device_Width   :  80
Old_Fixed_Width:  37       Old_Unfixed_Width:  43
New_Fixed_Width:           New_Unfixed_Width:
------------------------------------------------------------------------------

Cmd New Old Min Max Fix Column_Name
      5   5   5   5 P   CMD
     32  32  32  32 P   NAME
     10  10  10  10     CREATOR
      5   5   5   5     UPDT
     32  32  32  32     DESCRIPTION
     10  10  10  10     LAST_USER

Enter: Process selections; PF3: Exit and save; CAN: Exit without save
Line Cmds: Column size, between MIN and MAX
```

Figure 30. Define Column Size panel

The following fields appear on the Define Column Size panel:

Column Function
Enables you to jump to any of the CSET functions by typing in the appropriate number. The number corresponding to the current option displays in this field.

Permanent View
Indicate whether the view you define is permanent or temporary. Valid values are:

- **Y**–View customizations are permanent.
- **N**–View customizations are temporary.

Reset View
Resets all customizations.

Device_Width
Shows the current display device size (screen width).

Old_Fixed_Width
Shows the sum of the FIXED column widths.

Old_Unfixed_Width
Shows the UNFIXED area.

New_Fixed_Width
Shows the sum of the FIXED column widths.

New_Unfixed_Width
Shows the UNFIXED area.

Cmd Field where you specify the number for column position.

New Displays the new CSIZE view settings.

Old Displays the previous CSIZE view settings.

Min Displays the minimum column length.

Note: If the minimum and maximum column widths are equal, the column cannot be re-sized.

Max Displays the maximum column length.

Note: If the minimum and maximum column widths are equal, the column cannot be re-sized.

Fix Displays fixed columns. Valid values are:

- **F**–Indicates the column is fixed.
- **P**–Indicates the column is permanently fixed.

Column_Name
Shows the name of the column.

2. Type the desired column size in the **Cmd** field next to the column you want to re-size.

   Note: The column size you specify must be between the Min and Max values shown for that column.
3. Press Enter. The new view criteria display in the **New** column.
4. Press **PF3** to return to the display panel.

Sort functionality

CSORT functionality enables you to select one or more columns for sorting and thus modify the order of the rows displayed on many product panels.

Columns are selected by sort priority and direction. Direction is either ascending (default) or descending. When more than one column is selected for sorting, the second column only differentiates when rows have matching data in the first column. Similarly, a third column only impacts the sort when data in both the first two columns are identical.

Defining sort columns

You can sort display data by columns. You can select up to nine columns for sorting.

About this task

A maximum of nine columns can be selected for sorting at one time. Internal requirements may create a smaller maximum. A message is issued if the maximum number of columns selected for sorting is exceeded.

Note: **CSORT** and **SORT** are synonymous.

Procedure

1. Type **CSORT** (or **SORT**) in the option line on any display panel and press Enter. The Define Sort Columns panel displays as shown in the following figure:

```
SORT  -------------------- Define Sort Columns ------------ YYYY/MM/DD HH:MM:SS
Option  ===>                                                  Scroll ===> PAGE
------------------------------------------------------------------------------     >
                                                                          ROW 1 OF 9

Column Function ===> 4 (1-Fix/Unfix, 2-Order, 3-Size, 4-Sort)
Permanent View  ===> N (Y-Perm, N-Temp)  Reset View ===> N (Y,N)
Stop Sorting    ===> N (Y,N)


Cmd Dir New Old Column_Name
                CMD
_   _           NAME
_   _           CREATOR
_   _           UPDT
_   _           DESCRIPTION
_   _           LAST_USER
_   _           LAST_UPDATED
_   _           CRTD_USER
_   _           CREATED_USER

Enter: Process selections; PF3: Exit and save; CAN: Exit without save
Ord: 1-9 Dir: A Asc D Desc
```

Figure 31. Define Sort Columns panel

The following fields appear on the Define Sort Columns panel:

Column Function
Enables you to jump to any of the CSET functions by typing in the appropriate number. The number corresponding to the current option displays in this field.

Permanent View
Indicate whether the view you define is permanent or temporary. Valid values are:

- **Y**–View customizations are permanent.
- **N**–View customizations are temporary.

Stop Sorting
Indicates whether to stop sorting as specified. Valid values are:

- **Y**–Stop sorting.
- **N**–Continue sorting.

Cmd Field where you specify the sort order.

Dir Specifies the lexicographic order for the column. Valid values are:

- **A**–(Default) Values are listed in ascending order, smallest to largest.
- **D**–Values are listed in descending order, largest to smallest.

New Displays the new CSORT view settings.

Old Displays the previous CSORT view settings.

Column_Name
Shows the name of the column.

2. Type **A** or **D** in the **Cmd** field next to the columns on which you want to base your sort.
3. Press Enter. The new sort preferences are displayed in the **New** column.
4. Press **PF3** to return to the display panel.

Fast-path SORT command

The SORT command can be used as a primary (fast-path) command by typing the appropriate SORT syntax in the Option line of any report panel and pressing Enter.

The functionality supports both single and multi-column sorting and enables users to specify sort order (ascending or descending) for each column in the sort.

Syntax for single-column sorting

The syntax for single-column sorting is as follows:

SORT column_identifier dir

Where *column_identifier* is either the **column name** or the **relative column number** and *dir* is the direction in which to sort the column data. Valid values for *dir* are:

asc (Default) Sorts data in ascending order.

desc Sorts data in descending order.

Notes:

1. There must be a space between the *column_identifier* and its *dir* (if used).
2. The **relative column number** for a column is determined based on the column's placement when visible on the screen. Thus, relative column numbers are only available for columns currently visible on the screen. Relative column numbers are determined by counting the displayed columns from left to right, with the leftmost visible column being assigned the number '1' and each successive column (reading left to right) being assigned a relative column number that is incremented by 1. **Hint:** To quickly determine the column number, use the **CNUM** command to toggle on the column numbers for each display column.
3. You can sort on a column that is not displayed if you use the **column name** (instead of the **relative column number**) as the column_identifier in the SORT syntax.

Multi-column sorting

The syntax for multi-column sorting is as follows:

SORT *column_identifier dir column_identifier dir*

Where *column_identifier* is either the column name or the relative column number and *dir* is an optional indication of the direction in which to sort the column data. Valid values for *dir* are:

asc (Default) Sorts data in ascending order.

desc Sorts data in descending order.

The *column_identifier* and *dir* values must all be separated by spaces. The maximum number of columns that can be sorted at once is 9.

Usage examples

For a report display that has three columns, all of which display on the screen:

Column 1: Name

Column 2 Creator

Column 3: Status

The following examples show how you can sort these columns:

SORT NAME
Sorts display data in ascending order based on the value in the **Name** column (when no dir value is specified, the default sort order is ascending, thus **SORT NAME** and **SORT NAME A** are synonymous).

SORT NAME D
Sorts display data in descending order based on the value in the **Name** column.

SORT NAME DESC
Sorts display data in descending order based on the value in the **Name** column.

SORT NAME A CREATOR D
Sorts display data first in ascending order based on the value in the **Name** column and then sorts data in descending order based on the value in the **Creator** column.

SORT NAME ASC CREATOR DESC
Sorts display data first in ascending order based on the value in the **Name** column and then sorts data in descending order based on the value in the **Creator** column.

SORT 1 A
Sorts display data in ascending order based on the value in the **Name** column.

SORT 1 A CREATOR D
Sorts display data first in ascending order based on the value in the **Name** column and then sorts data in descending order based on the value in the **Creator** column.

SORT 3 2 1
Sorts the display data first in ascending order based on the value in the **Status** column, then in ascending order based on the value in the **Creator** column, and finally in ascending order based on the value in the Name column.

Note: When you specify a column name using any of the above formats, you may enclose it in single quotes, double quotes, or be without any quotes. For example, the following are equivalent:

```
SORT NAME D

SORT 'NAME' D

SORT "NAME" D
```

Resetting CSET customizations

The **CRESET** option enables you to reset all customizations.

About this task

After **CRESET** is issued, all fixed columns are unfixed (except for any permanently fixed columns), all selected sort columns are deselected and sorting is disabled, all column sizes are set to the initial values or maximum values if no suggested value previously existed, and original column locations are restored.

Procedure

1. To issue the **CRESET** option, access the Setup Primary Option Menu by typing **CSET** in the option line of any report display and pressing Enter. The Setup Primary Option Menu displays.
2. Type **5** in the command line and press **Enter**. **CRESET** is issued and all fixed columns are unfixed (except for any permanently fixed columns), all selected sort columns are deselected and sorting is disabled, all column sizes are set to the initial values or maximum values if no suggested value previously existed, and original column locations are restored.
3. Alternatively, you can issue the **CRESET** command as a primary command using the following syntax:

   CRESET
   Resets all customizations (unfixes fixed columns, deselects selected sort columns, sorting disabled, column sizes set to initial values, original column locations restored).

   Note: **CRESET** differs from **CREMOVE** in that **CREMOVE** sets all column sizes to their maximum values ignoring any initial, suggested sizes.

Removing CSET customizations

The **CREMOVE** option enables you to remove all customizations.

About this task

After you issue the **CREMOVE** command, all fixed columns are unfixed (except for those that are permanently fixed), all selected sort columns are deselected and sorting is disabled, all column sizes are set to their maximum values, and original column locations are restored.

Procedure

1. To issue the **CREMOVE** option, access the Setup Primary Option Menu by typing **CSET** in the option line of any report display and pressing Enter. The Setup Primary Option Menu displays.
2. Type **6** in the Command line and press Enter. The **CREMOVE** command is issued.
3. Alternatively, you can issue the **CREMOVE** command as a primary command using the following syntax:

   CREMOVE
   Removes all customizations (unfixes fixed columns, deselects selected sort columns, sorting disabled, column sizes set to maximum values, original column locations restored).

   Note: **CREMOVE** differs from **CRESET** in that **CREMOVE** sets all column sizes to their maximum values ignoring any initial, suggested sizes.

Column scroll

Column scrolling enables you to scroll horizontally between columns, in both left and right directions.

Use the following commands when viewing any dynamic display panel to scroll horizontally between columns:

CRIGHT ***n***
Enables you to scroll the left side of the display window *n* report columns to the right.

CLEFT ***n***
Enables you to scroll the left side of the display window *n* report columns to the left.

Inner column scroll

Inner column scroll enables you to scroll horizontally within a single report column while other report columns remain stationary on the screen.

Inner column scrolling may be useful for columns that have been shortened using the **CSIZE** functionality. Use the following commands when viewing any dynamic display panel to scroll horizontally within a single report column:

ICRIGHT
Enables you to scroll to the right within one report column while the other report columns remain stationary.

ICLEFT
Enables you to scroll to the left within one report column while the other report columns remain stationary.

Column numbers

Column numbers can be inserted above each display column.

The inserted column numbers are relative to the leftmost display column. Use the following command to invoke column numbering:

CNUM
Enables you to toggle on/off the column numbers above each display column.

Notes:

1. The leftmost displayed column is always numbered one (1) regardless of how far to the right you scroll.
2. You can use column numbers when issuing the **SORT** fast-path command.
3. Column numbers are not removed by **CRESET** nor **CREMOVE**. To remove column numbers, reissue the **CNUM** command.

Ruler display

The **COLS** command enables you to generate a ruler at the top of the report columns beneath the headings.

This ruler tracks the current position within the column. The < > symbols indicate whether there is additional column data to the left or right of the displayed data. For example:

```
<-5----2----5->
```

In this example, positions 13 through 28 are displayed. There is data both to the left and right of the currently displayed area.

The **COLS** command can be issued by itself, as a toggle switch, or with one parameter (ON|OFF). The syntax is as follows:

COLS (ON|OFF)
Enables you to generate a ruler at the top of the report columns to track the current position within the column.

Expanding columns

The **CEXPAND** command enables you to display an entire row-column data element.

About this task

This command can be useful in instances when the **CSIZE** command has reduced a column to a width that is too narrow to display all data. Expanding columns using the **CEXPAND** command provides you with an alternative to inner column scrolling.

Procedure

To invoke CEXPAND, place the cursor on a row-column element and issue the **CEXPAND** command. The cursor position determines the row-column that expands. The **CEXPAND** command can be issued by itself or with two parameters (row and column). The syntax is as follows:

CEXPAND ***(row column)***
Enables you to display an entire row-column data element where *row* is the number of the row and *column* is the number of the column (non-heading lines only) that you want to expand.

Restrictions

The following restrictions apply to CSET options.

- Total fixed column sizes cannot exceed screen width.
- Total fixed column sizes must leave enough unfixed space for the minimum allowed size for all unfixed columns. If a column is not eligible for resizing, the column's minimum size requirement is the same as its maximum size. Minimum and maximum sizes for all columns are shown in the CSIZE display.
- If a column has been resized, then its current width is treated as its smallest allowable size. When a column is resized its current size must fit on the screen completely. For example, on an 80-byte screen with no fixed columns, a 128-byte column can only be resized to 80 bytes or less (assuming no conflicting minimum size associated with the column). If there were two 10-byte fixed columns, for a total fixed area size of 20-bytes, the 128-byte column would be limited to 60 bytes or its minimum allowed size, whichever was smaller.

Chapter 4. Operational Considerations

When using Cloud Connector, several features help you operate the product, view the connection status of the cloud servers, and manage the data sets that are saved on the cloud or restored to tape or DASD. These product features and operational commands are described below.

Managing the started task

This section describes the available console commands. All commands are intended to be operands of the z/OS MODIFY (F) command.

The general command format is as follows:

```
F CUZCLOUD,keywords
```

Table 10. Command format

Item	Description
F	Specifies the commonly used abbreviation used for the z/OS MODIFY command.
CUZCLOUD	Refers to the job name of the Cloud Connector started task, which in this example is the default, CUZCLOUD.
keywords	Indicates the Cloud Connector command to be executed. All of the operations are described in this chapter.

For example, if an operator wanted to display diagnostic information, the operator would type the following command:

```
F CUZCLOUD,DISPLAY DIAG
```

Please note that changes made to the Cloud Connector configuration with console operator commands only apply to this execution of the Cloud Connector started task and are not saved after the started task is stopped.

Cloud Connector issues message CUZ0112E if the specified command is invalid and message CUZ0115E if a supported command contains invalid syntax.

Displaying Diagnostic information

Use the DISPLAY DIAG command to display diagnostic information about the Cloud Tape Connector started task. IBM Technical Support may ask for the information provided by this command as part of problem diagnosis. The Cloud Tape Connector started task issues messages CUZ0113I and CUZ0114I in response to this command.

The syntax for the DISPLAY DIAG command is:

```
F CUZCLOUD,DISPLAY DIAG
```

Keywords

DISPLAY - Cloud Tape Connector is to initiate Display processing.

Parameters

DIAG - Request a display of diagnostic information.

Updating parameter settings

You can make changes to the parameter values used by the Cloud Tape Connector started task (CUZCLOUD) by entering the new values in the parameter fields displayed via the Cloud Tape Connector ISPF interface. Be sure to save the parameter changes to the Parmlib member, which is CUZ#PARM by default. You can then use the REFRESH command to implement those changes immediately so that the new parameter values are used by the CUZCLOUD started task without having to restart that task.

Use the REFRESH command to implement the parameter changes listed in the specified parameter member without having to restart Cloud Tape Connector. The syntax is:

```
F CUZCLOUD,REFRESH MEMBER=member
```

Keywords

REFRESH - Update the active parameters in the CUZCLOUD started task.

Parameters

MEMBER - Replace *member* with the name of the parameter member to process. The default name for this member is CUZ#PARM. Ensure that changes to the parameter values have been saved in the Parmlib member, CUZ#PARM, and that this member has been saved in the parameter library before issuing the REFRESH command. The command will fail if the specified member name is not in the parameter library in use by the CUZCLOUD started task.

Example of command

This example shows how to use the REFRESH command to reload the parameter values from the Parmlib member, CUZ#PARM. These values will be used by the CUZCLOUD started task without having to restart the task.

```
F CUZCLOUD,REFRESH MEMBER=CUZ#PARM
```

Restoring a data set

Use the RESTORE command to initiate a restore request for a data set or initiate a stand-alone restore of the repository data set. The RESTORE operator command provides limited options for restoring data sets from cloud storage locations. For more flexibility in restoring data sets, use of the ISPF dialog is recommended.

Use the RESTORE DSN command to restore a data set. The command syntax is:

```
F CUZCLOUD,RESTORE DSN=dsname [GEN=nnn] [NEWNAME=new dsname]
```

Keywords

RESTORE - Requests Cloud Tape Connector to restore a specified data set.

Parameters

DSN - Replace *dsname* with the name of the data set that you wish to restore. Cloud Tape Connector issues messages CUZ088E and CUZ091E if a backup for the specified data set does not exist.

GEN - Replace *nnn* with a number from 1-10 to indicate the previous generation to restore. Use this value to select a backup version other than the most recent version. For example, GEN=1 requests the previous (-1) backup version. Cloud Tape Connector issues message CUZ091E if a matching prior backup version does not exist.

NEWNAME - Replace *new dsname* with the name you wish to assign to the restored data set. The RESTORE command will not delete or replace a currently cataloged data set with the same name as the one being restored. If this is the case, use this parameter to specify a new data set name that does not conflict with a name currently in the catalog.

Example 1

This example shows how to restore the current version of a data set that is no longer cataloged:

```
F CUZCLOUD,RESTORE DSN=DATA.SET
```

Example 2

This example shows how to restore the previous version of a data set that is currently cataloged:

```
F CUZCLOUD,RESTORE DSN=DATA.SET GEN=1 NEWNAME=DATA.SET.GEN1
```

Example 3

This example shows how to restore previous version 3 of a data set that is no longer cataloged:

```
F CUZCLOUD,RESTORE DSN=DATA.SET GEN=3
```

Performing a stand-alone restore of the repository data set

Use the RESTORE CLD command to perform a stand-alone restore of the repository data set from cloud storage when the repository is not available. This section only describes the command syntax, keywords, and parameters. Refer to the stand-alone restore procedures in"Restoring a Repository" on page 87 for complete details on recovering and restoring the Cloud Tape Connector Repository.

The command syntax is:

```
F CUZCLOUD,RESTORE CLD=cldname CLDLIST=cldlist
```

Keywords

RESTORE - Requests Cloud Tape Connector to restore a specified data set.

Parameters

CLD - Replace *cldname* with the name of the cloud storage location that contains the backup of the Repository. Cloud Tape Connector records this name in message CUZS056I when creating a copy of the Repository in Cloud storage.

CLDLIST - Replace *cldlist* with the name of the file containing the Repository backup. This name is a fixed name constructed using the Staging alias as the high-level qualifier, the system name as the second-level qualifier, the Repository DDNAME from the started task as the third-level qualifier, and `LIST` as the last qualifier. Cloud Tape Connector records this name in message CUZS056I when creating a copy of the Repository in cloud storage.

Example of command

This example shows how to use the RESTORE CLD command to initiate a stand-alone restore of the Cloud Tape Connector Repository.

```
F CUZCLOUD,RESTORE CLD=MYCLOUD CLDLIST=CUZSTAGE.SYSA.CUZCLOUD.LIST
```

Considerations for restoring GDG's

When restoring a Generation Data Set (GDS), which is a member of a Generation Data Group (GDG), it is important to consider how the dataset will be restored. This section explains the terminology of GDG's and then describes how the dataset will be restored.

When defining a GDG, there are a few factors to consider:

- Will the GDG be SMS Managed or Non-SMS Managed?
- If SMS Managed, will the data set be located on a disk or on tape?

These factors are discussed in more detail below.

SMS-Managed GDG's

For a GDG to be managed by SMS (System-Managed Storage), a GDG base must first be defined to the z/OS Catalog, which requires a batch job to be run. The use of parameters in this batch job will determine how a GDG is restored

Example of DSLIST results based on SCRATCH and NOSCRATCH parameters

To define a GDG, run an IDCAMS DEFINE GDG batch job. The important parameters in this job are the LIMIT and SCRATCH/NOSCRATCH parameters. An example is shown below.

```
//  JOBCARD
//*
//DEFGDG EXEC PGM=IDCAMS,REGION=4M
//SYSPRINT  DD SYSOUT=*
//SYSOUT    DD SYSOUT=*
//SYSIN     DD *
  DEFINE GDG (NAME('CUZ.MLGP00.DUMP.BKP') SCRATCH LIMIT(3))
  DEFINE GDG (NAME('CUZ.MLGP01.DUMP.BKP') NOSCRATCH LIMIT(3))
/*
```

The LIMIT will determine the number of generations that can be addressed using Relative Generations Numbers. Relative generations are data sets that can be referenced with (0), (-1). An Absolute Generation refers to the data set name assigned to the catalog, such as `MY.DATASET.G0004V00`.

In the sample job above, two GDG's were created with a LIMIT of 3:

- The first data set was defined with the SCRATCH option.
- The second data set was defined with the NOSCRATCH option.

The SCRATCH option will delete and uncatalog data sets that are rolled off. The NOSCRATCH option will leave the old dataset cataloged, but it cannot be referenced by a relative generation number like (0) or (-1). It must be referenced by its absolute generation, like `MY.DATASET.G0001V00`.

Below is a DSLIST of data sets generated with the two GDG's that were created from the `IDCAMS DEFINE GDG` job described above. Five generations have been created for each GDG.

```
CUZ                                                        *ALIAS
CUZ.MLGP00.DUMP.BKP                                      ??????
CUZ.MLGP00.DUMP.BKP.G0003V00                             STAG12
CUZ.MLGP00.DUMP.BKP.G0004V00                             STAG01
CUZ.MLGP00.DUMP.BKP.G0005V00                             STAG06
CUZ.MLGP01.DUMP.BKP                                      ??????
CUZ.MLGP01.DUMP.BKP.G0001V00                             STAG12
```

```
CUZ.MLGP01.DUMP.BKP.G0002V00                                    STAG08
CUZ.MLGP01.DUMP.BKP.G0003V00                                    STAG09
CUZ.MLGP01.DUMP.BKP.G0004V00                                    STAG08
CUZ.MLGP01.DUMP.BKP.G0005V00                                    STAG13
```

Notice that the first GDG, CUZ.**MLGP00**.DUMP.BKP, has only generations 3, 4, and 5 (listed as G0003V00, G0004V00, G0005V00 in the above example). This is because the SCRATCH option is used and generations 1 and 2 have been rolled off, deleted, and uncatalogued.

The second GDG, CUZ.**MLGP01**.DUMP.BKP, still shows all five generations. This is because the NOSCRATCH option was used. The data sets were not deleted or uncatalogued. Generations 1 and 2 have a status of ROLLED-OFF. These data sets (1 and 2) cannot be referenced by relative generation number (-3), (-4). You will need to reference them by their absolute generation number, CUZ.MLGP01.DUMP.BKP.G0001V00.

Note: The NOSCRATCH option has no effect on GDG data sets that are on tape or when the Cloud Connector Filter option, Catalog to Cloud, is turned on.

Example of use of LISTCAT command

To determine the status of a GDS, issue an IDCAMS LISTCAT command on the dataset or the GDG Base. The status values that are important in Cloud Connector processing are the following:

Active The dataset (GDS) is in the GDG index and can be referenced by a relative generation number.

Defer The dataset (GDS) has been restored, but is outside of the GDG index and cannot be referenced by a relative generation number.

Rolled Off
The dataset (GDS) has been removed from the GDG index and can't be referenced by a relative generation number.

If you issue a LISTCAT command on the GDG base, it will only display data sets that are in the Active GDG index. It will not display Deferred or Rolled-Off generations. Below is a LISTCAT on GDG base CUZ.MLGP01.DUMP.BKP. Generations 1 and 2 are not displayed because they have been rolled-off.

```
GDG BASE ------ CUZ.MLGP01.DUMP.BKP
     ATTRIBUTES
       LIMIT-----------------3     NOSCRATCH  NOEMPTY    LIFO
     ASSOCIATIONS
       NONVSAM--CUZ.MLGP01.DUMP.BKP.G0003V00
       NONVSAM--CUZ.MLGP01.DUMP.BKP.G0004V00
       NONVSAM--CUZ.MLGP01.DUMP.BKP.G0005V00
```

Below is an example of a LISTCAT on generation 1 (listed as G0001V00), which has been rolled-off.

```
NONVSAM ------- CUZ.MLGP01.DUMP.BKP.G0001V00
     HISTORY
       DATASET-OWNER-----(NULL)     CREATION--------2018.068
       RELEASE----------------2     EXPIRATION------0000.000
       ACCOUNT-INFO-----------------------------------(NULL)
       STATUS--------ROLLED-OFF
```

Below is an example of a LISTCAT on generation 3 (listed as G0003V00), which is still active in the GDG index.

```
NONVSAM ------- CUZ.MLGP01.DUMP.BKP.G0003V00
      HISTORY
        DATASET-OWNER-----(NULL)     CREATION--------2018.068
        RELEASE----------------2     EXPIRATION------0000.000
        ACCOUNT-INFO-----------------------------------(NULL)
        STATUS------------ACTIVE
```

Non-SMS managed GDG's

Two of the STATUS values, Rolled-off and Defer, are *not* supported by non-SMS managed GDG's. All of the data sets in this type of GDG are considered to be active.

The NOSCRATCH parameter is ignored and data sets rolling-off will be deleted and uncatalogued.

Restoring SMS-Managed GDG's

Cloud Connector takes caution to avoid modifying the GDG index. If a dataset has a status of Active, Cloud Connector will restore it as Active. If the dataset has a status of Rolled-Off or Deferred, it will be restored as Deferred. However, there may be valid reasons to modify the GDG index. Therefore, a new parameter, **Roll into GDG Base**, has been created to allow you to modify the GDG index.

The "Roll into GDG Base" parameter has been added to the ISPF Restore screen, the batch restore job, and the Restore API macro. This new parameter has three options: Yes, No, or Conditional. Examples of how to specify this new parameter are provided below.

ISPF Restore pop-up panel

When you choose Option 3, **Cloud Datasets**, from the Main Menu, and then specify to restore (R) a data set, the "Restore Dataset Confirmation" pop-up panel displays. The **Roll into GDG Base** field is listed on this screen. An example is shown below.

```
CUZ$CDSN V1R1    --------- Cloud Dataset Display -------- 2016/02/04  15:22:19
Option  ===>                                                Scroll ===> PAGE

Line Commands: R - Restore V - View  D - Delete

--------------------------------------------------------------------------------
 Dataset Like  *
+-------------------- Restore Dataset Confirmation -----------------------+
|                                                                         |
|   Dataset Name         CUZ.MLGP01.DUMP.BKP.G0005V00                     |
|   Backup Timestamp     2018-03-09  07:17:51                             |
|   Restore Unit Type    T            (Tape / Disk)                       |
|   Restore DASD Unit    SYSALLDA     (Restore to DASD Esoteric Unit)     |
|   Restore TAPE Unit    CART         (Restore to Tape Esoteric Unit)     |
|   Restore Vol Count    005          (1 to 256)                          |
|   SMS Storage Class    SCCUZSTG     (Restore to SMS Storage Class)      |
|   Retention Period     0004         (# days to retain restored DSN)     |
|   Delete Old Backup    N            (Delete old backup DSN ?)           |
|   Roll into GDG Base   C            (Yes/No/Conditional)                |
|   Restore to Alias     CUZRESTR     (Blank will Restore to Orig Name)   |
|   Restore to Dataset   _____________________________________________    |
|                                                                         |
|        Restore Dataset  N  (Yes / No / All)                             |
|                                                                         |
|                                                    PF12: Cancel         |
+-------------------------------------------------------------------------+
```

Valid values are Yes, No, and Conditional (default). See "Values for Roll into GDG Base parameter" for more detailed information.

Batch Restore control cards

If you are using a batch job to run a restore process, you can specify the **ROLL_INTO_GDG_BASE** parameter. See the example below.

```
RESTORE_FROM_CLOUD (
  RESTORE_TO_ALIAS              CUZRESTR
  RESTORE_TO_UNIT               SYSALLDA
  RESTORE_SMS_STORAGE_CLASS     SCCUZSTG
  RESTORE_VOLUME_COUNT          5
  RELATIVE_GENERATION           '0'
  RETENTION_PERIOD              0000
  DELETE_OLD_BACKUP             YES
  WAIT_FOR_COMPLETION           YES
  ROLL_INTO_GDG_BASE            CONDITIONAL
 )
```

Valid values are: Yes, No, and Conditional (default). See "Values for Roll into GDG Base parameter" for more detailed information.

API Restore Macro Parameter List

If you are using the API Restore macro to run a restore process, you can specify the **RESTORE_ROLL_INTO_GDG_BASE=ROLL_IN_GDG** parameter. See the example below.

```
     CUZ#APIB FUNC=RESTORE_FROM_CLOUD,                    +
              APIB_REG=(R8),                              +
              RESTORE_DSN=MY_DATASET,                     +
              RESTORE_REL_GEN=_REL_GEN,                   +
              RESTORE_TO_DASD_UNIT=DASD_UNIT,             +
              RESTORE_TO_TAPE_UNIT=TAPE_UNIT,             +
              RESTORE_TO_ALIAS=MY_ALIAS,                  +
              RESTORE_TO_STORCLASS=STORCLASS,             +
              RESTORE_TO_DASD_TAPE=D,                     +
              RESTORE_DELETE_OLD=Y,                       +
              RETENTION_PERIOD=RETENTION_PERIOD,          +
              RESTORE_WAIT_FOR_COMPLETION=Y,              +
              RESTORE_ROLL_INTO_GDG_BASE=ROLL_IN_GDG
```

Values for Roll into GDG Base parameter

The values specified for the **Roll into GDG Base** parameter have different results depending on whether you are using SMS DASD data sets or SMS Tape data sets. This section describes the values and their results.

Values for Roll into GDG Base parameter for SMS DASD data sets

This section presents the values for the **Roll into GDG Base** parameter as they apply to SMS DASD data sets.

Yes The generation data set (GDS) will be rolled into the active generation data group (GDG) index, regardless of its current state.

No The GDS will be restored in Deferred state, regardless of its current state.

Conditional (default)
The restore process varies, depending on the present state of the GDS. Refer to the table below.

Table 11. Conditional processing for SMS-managed DASD data sets

Current Status of GDS	Conditional processing results
Active	Restore as Active.
Defer	Restore as Deferred.
Rolled off	Restore as Deferred.
Not cataloged	Processing depends on whether or not the GDG Index is full: • If GDG Index is full, restore as Deferred. • If GDG Index is not full, restore as Active.

Roll into GDG Base for SMS Tape data sets

This section presents the values for the **Roll into GDG Base** parameter as they apply to SMS Tape data sets.

Yes The generation data set (GDS) will be rolled into the active generation data group (GDG) index, regardless of its current state.

No The GDS will be restored, but the data set will be renamed from G####**V**## to G####**X**##.

Conditional (default)
The restore process varies, depending on the present state of the GDS. Refer to the table below.

Table 12. Conditional processing for SMS-managed tape data sets

Current Status of GDS	Conditional processing results
Active	Restore as Active.
Defer	Restore with the data set renamed from G####**V**## to G####**X**##.
Rolled off	Restore with the data set renamed from G####**V**## to G####**X**##.
Not cataloged	Restore with the data set renamed from G####**V**## to G####**X**##.

Restoring a GDS with an Active status

To restore a generation data set (GDS) in Active Status, the z/OS restore process allocates the dataset with `DISP=(NEW,CATLG)`. By allocating the data set this way, the dataset will always be placed in the GDG index and will remove the oldest generation if the GDG index is full. In the examples provided in "SMS-Managed GDG's" on page 70, generations 3, 4 and 5 are active.

The following will occur when restoring generation 1 to Active Status:

- Generation 1 will be placed into the GDG index.
- Generation 3 is deleted.

After the restore, the following changes will have been made:

- Generations 2 and 3 have been deleted.
- Generations 1, 4 and 5 will be in the GDG index.
- Generation 5 will have a relative generation of (0).
- Generation 4 will have a relative generation of (-1).
- Generation 1 will have a relative generation of (-2).

Restoring a GDS in Deferred status

To restore a generation data set (GDS) in Deferred status, the restore process allocates the dataset with `DISP=(NEW,KEEP)`. Since SMS requires *disk* data sets to be cataloged, Cloud Connector will restore the dataset in Deferred Status and also catalog it.

When restoring a *tape* dataset with `DISP=(NEW,KEEP)`, the dataset will *not* be cataloged. To ensure that a tape data set is restored and also cataloged with `DISP=(NEW,CATLG)`, Cloud Connector renames the generation level of the data set from `G####V##` to `G####X##`. Notice that the "V" has been renamed to an "X". Renaming the data set will prevent the data set from being placed on Active status, allowing it to be in a Deferred status.

Restoring Non-SMS managed GDG's

Since Non-SMS managed generation data groups (GDG's) do not support a GDG status of Deferred or Rolled-Off, the generation data set (GDS) must be restored as Active, or placed in the GDG index.

Values for Roll into GDG Base parameter for Non-SMS data sets (Disk or Tape)

This section presents the values for the **Roll into GDG Base** parameter as they apply to both DASD (disk) or Tape data sets that are *not* SMS-managed.

Yes The generation data set (GDS) will be rolled into the active generation data group (GDG) index, regardless of its current state.

No The GDS will be restored, but the data set will be renamed from `G####V##` to `G####X##`.

Conditional (default)
The restore process varies, depending on the present state of the GDS. Refer to the table below.

Table 13. Conditional processing for non-SMS managed data sets

Current Status of GDS	Conditional processing results
Cataloged	Restore as Active.
Not cataloged	Restore with data set renamed from `G####V##` to `G####X##`.

Starting the Cloud Tape Connector started task

Use the z/OS START command to initiate the Cloud Tape Connector started task. Use the following command:

```
[START|S] CUZCLOUD
```

Use either START or the "S" abbreviation.

Stopping the Cloud Tape Connector started task

Use either of the command formats below to stop the Cloud Tape Connector started task.

[P|STOP]CUZCLOUD
Enter this command to terminate the started task.

F CUZCLOUD,STOP
Enter this command to terminate the started task.

Example 1

This example shows how to stop the Cloud Tape Connector address space with the z/OS STOP command:

```
P CUZCLOUD
```

Example 2

This example shows how to stop the Cloud Tape Connector address space with the z/OS MODIFY (F) command:

```
F CUZCLOUD,STOP
```

Resolving problems with stopping the started task

If the Cloud Tape Connector started task fails to terminate normally, the started task may be cancelled with the CANCEL (or C) console command.

```
C CUZCLOUD
```

If this occurs and the started task is cancelled, the SVC intercepts may not be properly disabled. In this case, tailor and submit the JCL from the CUZJDSVC member in the SCUZSAMP data set to disable the SVC intercepts.

If a batch job was cancelled or forced out of the system while Cloud Tape Connector was processing that job, it may be necessary to cancel the CUZCLOUD address space due to residual storage and processing issues. If this condition should occur, tailor and submit the JCL from the CUZJDSVC member in the SCUZSAMP data set to disable the SVC intercepts. The Cloud Tape Connector started task can then be started again.

Managing zIIP processing

This command can be used to enable or disable zIIP processing. The IBM z Systems Integrated Information Processor (zIIP) provides an option to help free-up general computing capacity in your processor. If your processor is zIIP-enabled, Cloud Tape Connector can take advantage of this feature.

zIIP processing will be set based on the presence of the NOZIIP DD in the CUZCLOUD started task JCL procedure. If the DD is not present or is commented out, zIIP processing will be active by default. To enable or disable zIIP processing without having to restart the started task, issue one of the following commands. Message CUZ0121I is issued in response to this command to indicate the current state of the zIIP processing option.

The command syntax is:

```
F CUZCLOUD,ZIIP [ENABLE|DISABLE]
```

Keywords

ZIIP - Cloud Tape Connector is to modify zIIP status.

Parameters

ENABLE - Enable the zIIP processing option.

DISABLE - Disable the zIIP processing option.

Example of command

This example shows how to enable the zIIP processing option:

```
F CUZCLOUD,ZIIP ENABLE
```

Diagnostic log files

To write errors and other informational messages that pertain to the transfer of data to and from a cloud server, you need to allocate the LOGMSG DD file. When LOGMSG is allocated, additional DD's can also be used to collect diagnostic information for IBM Technical Support. These additional DD's as well as LOGTRACE and LOGDEBUG should only be used when directed to do so by IBM Technical Support.

To obtain diagnostic data from any of these DD statements, a DD statement must be added to the CUZCLOUD started task procedure. The format of these DD statements is as follows:

```
//LOGMSG   DD SYSOUT=*
//LOGDEBUG DD DUMMY
//LOGTRACE DD DUMMY
```

Working with cloud data sets

After Cloud Connector has created a backup on a cloud server, you can manage the data sets that are saved to the cloud. When you specify selection criteria, a list of data sets matching that criteria displays. You can then restore data sets from the cloud to tape or disk (depending upon the blocksize), and/or delete data sets from the cloud. This section will describe different ways in which to work with cloud data sets.

Specifying selection criteria

When you choose Option 3, **Cloud Datasets**, on the Main Menu, the **Enter Dataset Selection Criteria** window displays. You can use the default values or type different values to display a list of data sets currently saved on the cloud that match your criteria.

```
CUZ$MAIN V1R1 ------------ IBM Cloud Tape Connector for z/OS       -----------
Option  ===> 3

                                                    2016/07/01  11:23:17
                                                    User: MYUSERID - CUZ
--------------------------------------------------------------------------------

 Cloud Connector Started Task Status:  Active

--------------------------------------------------------------------------------

     1. +----------------- Enter Dataset Selection Criteria ------------------+
        |                                                                     |
     2. |    Dataset Like  *_____________________________________________     |
        |    Cloud   Like  *_______                                           |
     3. |                                                                     |
     4. |                                                                     |
        +---------------------------------------------------------------------+
     X. Exit
```

Figure 32. Enter Dataset Selection Criteria window

The fields on this window are described below.

Dataset Like
Specify a name or part of a name for the data set you are trying to select. The default is an asterisk (*), which means all.

Cloud Like
Specify a name or part of a name for the cloud you are trying to select. The default is an asterisk (*), which means all.

After specifying selection criteria, the **Cloud Dataset Display** screen displays the list of data sets that match the selection criteria. Line commands enable you to delete a data set or restore a data set. You can also change the selection criteria to display a different group of cloud data sets on this screen.

```
CUZ$CDSN V1R1    --------- Cloud Dataset Display -------- 2016/05/22  12:20:41
Option  ===>                                                Scroll ===> PAGE
Primary Commands: REFresh display  REStore all in display
Line Commands   : R - Restore  D - Delete  X -Exclude
-----------------------------------------------------------------Row 1 of 12
 Dataset Like  *
 Cloud   Like  *
 Total   Bytes 15,062,946,941                          14 Gigabytes
-------------------------------------------------------------------------------
Cmd  Dataset Name                                  Backup Timestamp
 _   DB2PROD.ARCHLOG1.D16020.T1732224.B0000617     2016-05-20  22:32:22
 _   DB2PROD.ARCHLOG1.D16020.T1732224.A0000617     2016-05-20  22:32:27
 _   DB2PROD.ARCHLOG2.D16020.T1732224.B0000617     2016-05-20  22:32:28
 _   DB2PROD.ARCHLOG2.D16020.T1732224.A0000617     2016-05-20  22:32:33
 _   DB2PROD.ARCHLOG1.D16021.T1412347.B0000618     2016-05-21  19:12:35
 _   DB2PROD.ARCHLOG1.D16021.T1412347.B0000069     2016-05-21  19:12:35
 _   DB2PROD.ARCHLOG1.D16021.T1412347.A0000618     2016-05-21  19:12:40
 _   DB2PROD.ARCHLOG1.D16021.T1412347.A0000069     2016-05-21  19:12:40
 _   DB2PROD.ARCHLOG2.D16021.T1412347.B0000618     2016-05-21  19:12:40
 _   DB2PROD.ARCHLOG2.D16021.T1412347.B0000069     2016-05-21  19:12:40
 _   DB2PROD.ARCHLOG2.D16021.T1412347.A0000618     2016-05-21  19:12:45
 _   DB2PROD.ARCHLOG2.D16021.T1412347.A0000069     2016-05-21  19:12:46
 _
```

Figure 33. Example of Cloud Dataset Display screen

The "Total Bytes" amounts display underneath the **Cloud Like** field. These numbers indicate the amount of space used by all of the data sets that match the selection criteria.

The information in each column of the Cloud Dataset Display screen is described below, but cannot be changed. You can scroll to the right or left to see additional data that is not displayed on the initial screen.

Dataset Name
The fully qualified z/OS data set name, up to 44 characters in length, that is being stored on the cloud.

Backup Timestamp
The date and time that the backup was created. The date is in the format of YYYY-MM-DD. The time format is HH:MM:SS.

Jobname
The one- to eight-character name of the backup job.

Stepname
The one- to eight-character name of the step name of the backup job.

Job Nbr
The one- to eight-character job number assigned to the job.

DD Name
The six- to eight-character DD name.

Esot Unit
The one- to eight-character name of the esoteric unit.

Recfm The type of record format being used. Values include:

- F: Fixed
- FB: Fixed block
- FBA: Fixed-block architecture
- FBS: Fixed-block, spanned
- V: Variable-length, unblocked
- VB: Variable-length, blocked
- VS: Variable-length, unblocked, spanned
- VBS: Variable-length, blocked, spanned
- U: Undefined

Dsorg The type of data set organization. Possible values include:

- PS: Physical sequential
- DA: Direct access

Lrecl The length, in bytes, of each record in the data set.

Blksize
The maximum length, in bytes, of a data block.

Byte Count
The maximum number of bytes for each block.

Block Count
The maximum number of blocks allowed.

Cloud Name
The name of the cloud where the data set is stored.

Cloud Data Set Name
The fully qualified cloud data set name, up to 44 characters, that is assigned when the data set is stored in the cloud. The Cloud DSN may be different than the z/OS DSN due to multiple generations of the same DSN being stored on the cloud.

Entering commands

On the Cloud Dataset Display, you can enter line commands to the left side of a data set name in the Cmd column, or you can enter primary commands on the command line (Option line).

Line Commands

You can enter a line command next to one or more data sets. A window will appear asking you to confirm the command for each data set.

Note: Before processing any of the line commands, Cloud Connector will verify that you have the authority to perform the function. If you do not have the correct SAF authority, the line command will not be processed and an error message will display.

Valid line commands are:

- **R** - Restore (copy) this data set from cloud to tape or DASD. Use this line command when you have only a few data sets to restore from the cloud or when you want to restore a data set that is not the most current generation of the data set (the 0 generation).
- **D** - Delete a data set from the cloud.
- **X** - Exclude this data set. This line command is used in combination with the RESTORE primary command, which restores the most current generation (the 0 generation) of every data set from the list that is displayed on the screen. By using data set name masking, you can selectively identify the list of data sets to be restored. However, you can further exclude specific data sets that also match the mask by using the Exclude line command (X) to select the data sets you want to exclude from RESTORE processing.

  Excluded data sets are removed from the list displayed on the screen, but remain in the cloud. Type the REFRESH primary command, as described below, on the Option line to show the excluded data set in the list again.

Primary Commands

The primary commands are useful when you want to process a large group of data sets. Valid primary commands are:

- REFRESH or REF

  Use this command to re-create the list of data sets. This is especially helpful if you previously used the "X" (Exclude) line command to remove a data set from the list displayed on the screen. The REFRESH primary command will cause the previously excluded data set to appear in the list again.
- RESTORE or RES

  Use this command to restore the most current generation (0 generation) of all data sets in the current display list. For example, if a data set has 5 generations in the cloud, only the most current generation will be restored. If you want to restore the previous generation (the "-1" generation), this can be accomplished with the "R" (Restore) line command or by excluding the other generations on the screen and then issuing the RESTORE command.

  Use the "X" (Exclude) line command, prior to entering the RESTORE command, to remove data sets from the list that you do not want restored. You do not have to manually Exclude the older generations.

Restoring data from cloud storage

Cloud Connector restores data from cloud storage locations through explicit requests. The product provides three mechanisms to initiate these requests:

- **Cloud Connector ISPF Interface (Main Menu)**. This is the recommended way to request data set restores. From the Main Menu, you can choose several Restore options that provide much more function than the Restore Operator command.
- **Restore Operator Command**. This command does not require the Cloud Connector ISPF interface, but it provides limited function.
- **Batch Restore job**. This is an alternate method of restoring data sets from the cloud without using the ISPF interface. This restore method supports the use of wildcard characters or restoring full data sets. The instructions for performing a batch restore process are found in the SCUZSAMP library in member CUZJREST. For more details on how to modify the JCL in this member, refer to “Sample Job for Batch Restore” on page 107.

From this point and for simplicity, this section assumes the recommended method, Cloud Connector ISPF Interface, is used to initiate Restore requests. Also, this section is an overview of Restore processing. Refer to “Restore commands” for specific details.

Restore commands

When you choose Option 3, **Cloud Datasets**, on the Main Menu and specify selection criteria, a list of backup data sets appears on the **Cloud Dataset Display** screen. You can restore one data set, several data sets, or all of the data sets.

The Restore "R" *line* command and the RESTORE (or RES) *primary* command can be used to restore data sets. These commands are described in more detail below.

Using line commands: To restore individual data sets from the cloud, type "R" in the Cmd column next to the data set you want to restore. A confirmation window appears. The name and characteristics of the data set that you selected are listed in the confirmation window. An example is shown below.

```
CUZ$CDSN V1R1    --------- Cloud Dataset Display -------- 2016/02/04  15:22:19
Option  ===>                                                Scroll ===> PAGE

Line Commands: R - Restore V - View  D - Delete

--------------------------------------------------------------------------------
 Dataset Like  *
+-------------------- Restore Dataset Confirmation -----------------------+
|                                                                         |
|   Dataset Name         PRODTEST.ARCHLOG1.D16020.T1732224.B0000617       |
|   Backup Timestamp     2016-07-20  22:32:22                             |
|   Restore Unit Type    D            (Tape / Disk)                       |
|   Restore DASD Unit    SYSALLDA     (Restore to DASD Esoteric Unit)     |
|   Restore TAPE Unit    TAPE         (Restore to Tape Esoteric Unit)     |
|   Restore Vol Count    005          (1 to 256)                          |
|   SMS Storage Class    STORCLAS     (Restore to SMS Storage Class)      |
|   Retention Period     0005         (# days to retain restored DSN)     |
|   Delete Old Backup    N            (Delete old backup DSN ?)           |
|   Roll into GDG Base   C            (Yes/No/Conditional)                |
|   Restore to Alias     CUZRESTR     (Blank will Restore to Orig Name)   |
|   Restore to Dataset   ____________________________________________     |
|                                                                         |
|        Restore Dataset  N  (Yes / No / All)                             |
|                                                                         |
|                                                      PF12: Cancel       |
+-------------------------------------------------------------------------+
```

The values shown in the fields on this screen are the restore option values in the Parmlib. All of the values can be overridden at this time.

If you type an "R" on two or more Cmd lines on the Cloud Dataset Display screen, a confirmation window displays for each data set to verify that you want to restore it. If you typed an "R" in the Cmd line of a large number of data sets and are certain that you want to restore all of them, type "A" in the Restore Dataset field to restore them all.

Note: Before processing any of the "R" line commands, Cloud Connector will verify that you have the authority to restore the data sets. If you do not have the correct SAF authority, an error message will display.

The fields on this screen are described below.

Restore Unit Type

Specify one of the following values in this field:

- T -- Tape
- D -- Disk/DASD

If you specify a "D" and the block size is too large to store on DASD, an error message will display to inform you that this data set must be restored to tape. It is required that you specify a value in the **Restore DASD Unit** field and the **Restore TAPE Unit** field in the event that a data set is too large to restore to DASD.

Restore DASD Unit

Specify a one- to eight-character name for the DASD device where the cloud data set will be placed. The default value is the Parmlib value. To send a data set to DASD, you must have a value of "D" in the **Restore Unit Type** field. Also note the following:

- If the block size (blksize) is less than 32K, the cloud data set will be sent to DASD.
- If the block size is greater than 32K, the restored data set must be sent to tape rather than DASD.

Restore Tape Unit

Specify a one- to eight-character name for the tape device where the cloud data set will be placed. The default value is the Parmlib value.

If the block size (blksize) is greater than 32K, the restored data set must be sent to tape rather than DASD. For this reason, you must specify a value in the **Restore TAPE Unit** field even if you specify a "D" in the **Restore Unit Type** field.

Restore Vol Count

Type a number between 1 and 256 for the number of volumes needed to restore a multi-volume data set from the cloud. The default value is the Parmlib value.

SMS Storage Class (Optional)

Specify a one- to eight-character name for the storage class. This is an optional field.

Retention Period

Enter a number between 0 - 9999 to indicate the maximum number of days you want to retain the restored data set on tape. This Retention Period is a z/OS retention period which will be used by your Tape Management System for releasing the tape back to the scratch pool.

Delete Old Backup?

Indicate whether to delete (Y) or keep (N) the local copy of the data set before restoring the data set from the cloud. The default is "N". If you are restoring a data set from the cloud to a data set that already exists, the old data set must be deleted before the restore can occur. A message will appear if the "restore to" data set already exists and **Delete Old Backup** is set to "N".

Roll into GDG Base?

Indicate whether to modify the generation data group (GDG) index. Valid values are:

- Yes
- No
- Conditional (This is the default.)

See “Restoring SMS-Managed GDG's” on page 72 for more detailed information on these values and how they are applied to SMS DASD data sets and SMS Tape data sets.

Restore to Alias
If you want to restore the data set to a different name, enter the name of a high-level alias to be used when restoring the data set. If you prefer to use the original data set name, rather than an alias, leave this field blank. This field is mutually exclusive with **Restore to Dataset**.

Restore to Dataset
Type the name of the data set where you want to place the restored data. If you prefer to use the original data set name, leave this field blank. This field is mutually exclusive with **Restore to Alias**. If you want to restore to the original data set, both "Restore to Alias" and "Restore to Dataset" must be blank.

Restore Dataset
Indicate whether you want to restore this data set:

- **Y** - Yes
- **N** - No (Default)
- **A** - All

Using primary commands: When you type the RESTORE (or RES) *primary* command in the Option line at the top of the screen, all of the most current versions (0 generation) of the data sets currently listed in the Cloud Dataset Display screen are selected for restoration. You can remove data sets from the list on the screen prior to issuing the RESTORE command by using the "X" line command to mark a data set as Excluded. Using the RESTORE primary command eliminates the need to confirm the restore for each individual data set.

The RESTORE primary command only restores the most recent version of the data set. If multiple versions of the same data set are selected, older versions are ignored unless you specifically select them with the "R" line command or exclude the other generations.

Also the RESTORE primary command does not support the **Restore to Dataset** field. The options on this screen (below) are applied to all of the data sets displayed in the list. Thus, restoring all data sets to the same "Restore to Dataset" is not supported.

When you use this command, a window displays that is similar to the one for the "R" line command. For field descriptions, refer to “Using line commands” on page 81.

```
CUZ$CDSN V1R1    --------- Cloud Dataset Display -------- 2016/06/22  10:44:20
Option  ===> RES                                          Scroll ===> PAGE

Primary Commands: REFresh display  REStore all in display
Line Commands   : R - Restore  D - Delete  X -Exclude
+------------------ Restore All Datasets Confirmation -------------------+
|                                                                        |
|   Restore All Datasets - This option will restore the latest           |
|   generation of all datasets in the list.  To remove datasets          |
|   from this list, exit out and Exclude them prior to setting           |
|   Restore All Datasets to Yes.                                         |
|                                                                        |
|   Restore Unit Type    D            (Tape / Disk)                      |
|   Restore DASD Unit    SYSALLDA     (Restore to DASD Esoteric Unit)    |
|   Restore TAPE Unit    TAPE         (Restore to Tape Esoteric Unit)    |
|   Restore VOL count    10           (1 to 256)                         |
|   SMS Storage Class    STORCLAS     (Restore to SMS Storage Class)     |
|   Retention Period     0005         (# days to retain restored DSN)    |
|   Delete Old Backup    N            (Delete old backup DSN ?)          |
|   Roll into GDG Base   N            (Yes/No/Conditional)               |
|   Restore to Alias     CUZRESTR     (Blank will Restore to Orig Name)  |
|                                                                        |
|          Restore All Datasets In List  N  (Yes / No)                   |
|                                                        PF12: Cancel    |
+------------------------------------------------------------------------+
```

Figure 34. Restore All Datasets Confirmation window

You can specify the restore settings for the data sets you want to process. The restore options you choose will be applied to all data sets that are restored when using the RESTORE primary command. You are also given the opportunity to confirm that you want to restore all of the data sets in the list.

To cancel this RESTORE process and leave this window, press PF12.

Deleting data from cloud storage

When you choose Option 3, **Cloud Datasets**, on the Main Menu and specify selection criteria, a list of backup data sets appears on the **Cloud Dataset Display** screen. To delete one of these data sets from the cloud, type "D" in the Cmd column next to the data set you want to delete. A confirmation window appears for you to indicate whether you want to delete this data set or keep it.

The name of the data set that you selected for deletion is listed in the confirmation window. Indicate whether you want to delete this backup data set by typing "Y" (yes) or "N" (no) in the **Delete Cloud Backup** field. The default is N. An example is shown below.

```
 CUZ$CDSN V1R1    --------- Cloud Dataset Display -------- 2076/02/04  15:27:12
 Option  ===>                                              Scroll ===> PAGE
 Primary Commands: REFresh display  REStore all in display
 Line Commands: R - Restore V - View  D - Delete

 ------------------------------------------------------------------------------
  Dataset Like  *
+------------------- Delete Cloud Backup Confirmation --------------------+
|                                                                         |
|    Dataset Name      PRODTST.ARCHLOG1.D16250.T1234567.B0000617           |
|    Backup Timestamp  2076-07-20  22:32:22                               |
|                                                                         |
|          Delete Cloud Backup  N  (Yes / No / All)                       |
|                                                                         |
|                                                      PF12: Cancel       |
+-------------------------------------------------------------------------+
      PROD001.ARCHLOG1.D16310.T1234567.B0000618     2076-07-21  19:12:35
      PRODTST.ARCHLOG1.D16310.T1234567.B0000069     2076-07-21  19:12:35
      PROD001.ARCHLOG1.D16310.T1234567.A0000618     2076-07-21  19:12:40
      PRODTST.ARCHLOG1.D16310.T1234567.A0000069     2076-07-21  19:12:40
      PROD001.ARCHLOG2.D16310.T1234567.B0000618     2076-07-21  19:12:40
      PRODTST.ARCHLOG2.D16310.T1234567.B0000069     2076-07-21  19:12:40
      PROD001.ARCHLOG2.D16310.T1234567.A0000618     2076-07-21  19:12:45
      PRODTST.ARCHLOG2.D16310.T1234567.A0000069     2076-07-21  19:12:46
```

Figure 35. Delete Cloud Backup Confirmation window

If you typed a "D" on two or more lines on the Cloud Dataset Display screen, a confirmation window displays for each data set to verify that you want to delete it. If you selected a large number of data sets and are certain that you want to delete all of them, type "A" in the **Delete Cloud Backup** field to delete all of the selected data sets.

Note that you can delete expired backups from the cloud through the use of a batch job. Sample JCL is available in the CUZJEXPR member of the SCUZSAMP library. This batch job will delete all backups from the cloud and z/OS repository where the retention period has expired.

Repository Operations

The Cloud Connector Repository contains information about all of the data sets currently residing in cloud storage locations and is updated whenever a data set is copied to a cloud. The Repository can also be copied to a designated cloud storage location for recovery purposes.

Two parameters, **Cloud Filter Criteria** and **Auto Bkup Repository Min**, determine whether the Repository is copied to a cloud storage location, and if so, how often. The Repository copy stored in the cloud can be used in the event of a disaster recovery event or to recover the Repository in the event of loss.

Creating Repository Backups

To request Repository backup processing, first define **Cloud Filter Criteria** to establish a destination for the backup. Only one Repository Filter Type can be defined. To create a Repository definition, follow these steps:

1. On the Main Menu, choose option 1, **Cloud Connection Settings (Parmlib Options)**.
2. On the Parmlib Options menu, choose option 4, **Backup Filter Criteria**. The **Cloud Filter Display** screen appears.

3. Type the "C" line command to create a cloud filter. The **Cloud Filter Criteria Create** window appears.

```
CUZ$PRMF V1R1    --------- Cloud Filter Display --------- 2016/05/29  18:30:02
Option  ===>                                                Scroll ===> PAGE

Line Commands: C - Create E - Edit  D - Delete

                                                  ROW 1 OF 9
--------------------------------------------------------------------------------
+----------------------  Cloud Filter Criteria Create ------------------------+
|                                                                              |
|    Filter Type      R          (Storclass,Esoteric Unit,Dataset,Repository)  |
|    Cloud Name       MYCLOUD    (Previously Defined Cloud Name)               |
|    Retention Period 3___       (# Days to Retain on Cloud)                   |
|    Filter Criteria  ____________________________________________             |
|                                                                              |
|                                                          PF12: Cancel        |
+------------------------------------------------------------------------------+
***************************** Bottom of Data ********************************
```

Figure 36. Example of Cloud Filter Criteria Create screen with Repository as Filter Type

4. For this cloud definition, use **Filter Type** "R" for Repository.
5. Specify the **Cloud Name** of the cloud storage location to contain the Repository copy. In the example above, the Cloud Name is `MYCLOUD`.
6. Specify a **Retention Period**. The Retention Period should be set to a value that will retain the cloud copy at least until another backup is taken, as specified by the **Auto Bkup Repository Min** parameter (described below).
7. Do not specify any values in the **Filter Criteria** field because the Filter Type of "R" designates this as a Repository backup filter, so the entire Repository will be saved to this location.

Next, specify a value in the **Auto Bkup Repository Min** parameter to define the Repository backup time period. This value sets the number of minutes to elapse between backups. To specify a value for this parameter, do the following:

1. Choose Option 1, **Cloud Connector Settings (Parmlib Options)** on the Main Menu.
2. Choose Option 1, **General Options**, on the Parmlib Options menu. The **Parmlib General Options** screen displays.

```
CUZ$PRMG V1R1 -------------------- Parmlib General Options  -------------------
Option  ===>

                                                        2016/07/03  12:21:37
                                                        User: USERID  - CUZ
--------------------------------------------------------------------------------
 Parmlib Dataset: PROD.CLOUD.SCUZPARM
 Parmlib Member : CUZ#PARM
--------------------------------------------------------------------------------

     Abend on Errors . . . . . .   N           (Yes / No)
     User Abend Return Code. . .   01          (01 to 99)
     Copy Past History Parm Mbr. .  CUZ#INEX   (Parmlib Mbr with INCL/EXCL)
     Debug Mode. . . . . . . . .   J           (None / All / Job)
     Debug Jobname . . . . . . .   TEST*       (Jobname Like)
     Write to Operator Msgs. . .   N           (Yes / No)
     Max Cloud Backup Gens . . .   1           (1 to 10)
     Max Backup History Tasks. . .  5          (1 to 99)
     Auto Bkup Repository Min. . .  60         (5 to 9999)
     Memory Cell Pool Size . . .   55242880    (2560000 to 99999999)
     Memory Primary Cells. . . .   250         (10 to 9999)
     Memory Secondary Cells. . .   250         (10 to 9999)
     Memory Cell Extents . . . .   250         (02 to 9999)
```

Figure 37. Parmlib General Options screen

The **Auto Bkup Repository Min**interval dictates the frequency of the Repository backup. However, the interval should correlate to actual usage. For example, specifying a value of 60 (minutes) is unnecessary if data is only backed up to the cloud on a weekly basis. Conversely, if cloud backups occur throughout the day, 30 might be a more appropriate value. Refer to “General Options” on page 20 for more details on how to specify these options.

Once the started task is activated with these parameters, the Repository is copied to the cloud storage location designated on the **Cloud Filter Criteria** screen on the interval designated by the **Auto Bkup Repository Min** parameter. The Repository backup is stored in the cloud as an IDCAMS REPRO copy of the VSAM data set. Once retrieved from the cloud, it can be used as input to reconstitute the damaged or missing VSAM Repository.

Restoring a Repository

There are three ways to restore the Repository. The first two methods require that the Repository currently exists and is accessible via the CUZCLOUD address space.

Restore Repository with ISPF Interface and the "R" line command

If the VSAM Repository is still available and accessible via the ISPF Interface (Option 3, **Cloud Datasets**, on the Main Menu), use the "R" line command to restore the Repository backup from the displayed list. You must specify either a new name or new alias for the restored data set, because the Repository backup data set name is the VSAM Repository.

Restore processing retrieves the IDCAMS REPRO copy of the VSAM Repository from its cloud storage location and recreates it on either Tape or DASD. Define a new VSAM Repository and use the restored data set as input to an IDCAMS REPRO process to repopulate the VSAM Repository. The ISPF Interface restores to either Tape or DASD, depending upon the storage media selected on the Restore panel. Refer to “Restore commands” on page 81 for more information.

Restore Repository with Operator command

If the VSAM Repository is still available, but the ISPF Interface is *not* accessible, use the operator command to restore the Repository backup, specifying a new name so as not to conflict with the existing VSAM Repository. For example, enter the following command:

```
F CUZCLOUD,RESTORE DSN=PROD.SCUZLOUD NEWNAME=PROD.SCUZLOUD.REPRO
```

Restore processing retrieves the IDCAMS REPRO copy of the VSAM Repository from its cloud storage location and recreates it on either Tape or DASD. Define a new VSAM Repository and use the restored data set as input to an IDCAMS REPRO process to repopulate the VSAM Repository. The operator command restores to the storage media recorded in the repository record, DASD.

Stand-Alone Repository Restore

If the VSAM Repository is unavailable or empty, follow the Stand-Alone Repository Restore steps below to rebuild the repository.

The Stand-Alone Repository Restore is typically used during a disaster recovery event. In this situation, the VSAM Repository is empty and the only copy of it resides in its cloud storage location. Follow these steps to restore and repopulate the VSAM Repository. These steps assume you have configured the Cloud Connector started task.

1. Confirm that the CUZ#REST Samplib member is the same as the CUZ#PARM member, except for Filter Criteria. CUZ#REST must not have any Filter Criteria specified in the CLOUD_BACKUP_UTILITY keyword. This prevents CUZCLOUD from taking new backups while it is being restored.
2. Modify the CUZCLOUD started task JCL by changing CUZ#PARM to CUZ#REST.
3. Define a new VSAM Repository data set using the name specified in the CUZCLOUD started task. It should be empty as this process will populate it with data from the Repository cloud backup.
4. Start the CUZCLOUD started task with parameter member CUZ#REST. CUZCLOUD will be running in an idle state with no Filter Criteria dictating any backup processing.
5. Issue the RESTORE CLD operator command, specifying the Cloud List name of the VSAM Repository, in the following format:

   ```
   stageinghlq.systemname.CUZCLOUD.LIST
   ```

   An example is shown below:

   ```
   F CUZCLOUD,RESTORE CLD=MYCLOUD CLDLIST=CUZSTAGE.SYSA.CUZCLOUD.LIST
   ```

This command requires two parameters, the cloud name specified in the Repository Filter Criteria and the Cloud List name. The Cloud List specifies a fixed format file name for the backup copy of the Repository data set stored in the cloud. It contains a list of the VSAM Repository backup entries in the cloud. It retrieves the most recent Repository backup entry from this list and uses that information to retrieve the Repository copy from its cloud storage location.

The Cloud List file name is constructed using the Staging alias as a high-level qualifier, the system name as a second-level qualifier, and CUZCLOUD.LIST for the suffix. The list is replaced each time the Repository is copied to the cloud.

Messages CUZS102I and CUZS056I record the Cloud name and Cloud List name at the end of each copy process.

```
CUZS102I-CUZ#REPM-Cloud Connector Repository List staged to
        CUZSTAGE.SYSA.CUZCLOUD.LIST
CUZS056I-CUZ#REPM-Cloud Connector Repository being backed up to Cloud MYCLOUD
```

After invoking the command, the CUZCLOUD address space populates the VSAM Repository. After completing the process, access the ISPF Interface to view the repository contents. If you wish to begin cloud backup processing at the disaster recovery site, shutdown the address space, modify the CUZCLOUD started task JCL to point to the original CUZ#PARM, and restart it. Otherwise, continue processing using the restore-based parameter member, CUZ#REST.

Messages CUZS102I and CUZS056I are uniquely named so that they may be recorded via any message automation process. The information contained in these two messages is critical to the stand alone restore process.

Catalog Support

When using catalog support within Cloud Tape Connector, the original data set will be deleted from DASD or uncataloged from tape, and re-cataloged with a volume serial of CLOUD after the data set has been successfully written to the cloud.

Backup Filter Criteria

A field, **Catalog to Cloud**, is available on the Filter Criteria screens. The default is "N" (No). To turn on cataloging to the cloud, choose to edit (E) the cloud filter and type "Y" in the **Catalog to Cloud** field.

An example of the "Cloud Filter Criteria Edit" screen is shown below, which includes the **Catalog to Cloud** field. For more information on specifying filter criteria, see “Backup Filter Criteria” on page 43.

```
CUZ$PRMF V1R1    --------- Cloud Filter Display --------- 2017/11/29  18:30:02
Option  ===>                                              Scroll ===> PAGE

Line Commands: C - Create E - Edit  D - Delete

                                                  ROW 1 OF 9
--------------------------------------------------------------------------------
+-----------------------  Cloud Filter Criteria Edit  -----------------------+
|                                                                            |
|    Filter Type      D          (Storclass,Esoteric Unit,Dataset,Repository) |
|    Cloud Name       FTP        (Previously Defined Cloud Name)              |
|    Catalog to Cloud Y          (Yes/No)                                     |
|    Retention Period 0          (# Days to Retain on Cloud)                  |
|    Filter Criteria  PRODTEST*                                               |
|                                                                            |
|                                                          PF12: Cancel      |
+----------------------------------------------------------------------------+

***************************** Bottom of Data ********************************
```

Figure 38. Cloud Filter Criteria Edit window

After specifying the criteria, you will see which filters have re-cataloging turned on (Catalog to Cloud set to "Y"). A Repository filter type must have a **Catalog to Cloud** value of "N". Re-cataloging a Repository Filter is not supported.

Assuming you used the entries listed in the above sample screen, the list of data sets matching the filter criteria could be similar to the example screen below:

```
CUZ$PRMF V1R1    --------- Cloud Filter Display --------- 2017/11/29  18:30:02
Option  ===> ____________________________________________  Scroll ===> PAGE

Line Commands: C - Create E - Edit  D - Delete

                                                 ROW 1 OF 9
--------------------------------------------------------------------------------
    Filter     Cloud   Catalog   Retention Filter
Cmd  Type      Name    To Cloud   Period   Criteria
 _  Repo Bkup  FTP       No         0
 _  Dataset    FTP       Yes        0       PRODTEST*
 _  Dataset    FTP       Yes        0       AB1ALOG*
 _  Dataset    FTP       Yes        0       ABCT.ARCHLOG2.*
 _  Dataset    FTP       Yes        0       ABCP.ARCHLOG2.*
****************************** Bottom of Data ********************************
```

Figure 39. Example of Cloud Filter Display screen

History Include/Exclude Support

The "Catalog to Cloud" column on the Include/Exclude History screen is available on "include" lines only. The default value is "N" and can be changed to "Y" for each include line you want to re-catalog.

An example of the Include/Exclude History screen with the "Catalog Cloud" (Catlg Cloud) column is shown below. For more information on backing up history data sets, see “Working with history data sets” on page 96.

```
CUZ$INEX V1R1    ------- Include / Exclude History ------ 2016/06/01  13:12:48
Option  ===>                                             Scroll ===> PAGE

Line Commands: I - Insert  D - Delete  R - Repeat
--------------------------------------------------------------------------------
 In/Ex Dataset: PROD.CUZ0110.SCUZSAMP
 In/Ex Member : CUZ#INEX                                  Row 1 of 4
--------------------------------------------------------------------------------
Cmd Inc  Dataset Filter                          Cloud     Retn   Catlg
    Exc                                          Name      Perd   Cloud
 _  I    PROD12.BKPDATA.*                        CITYABC   0090     Y
 _  I    CLDCON.DRDATA.*                         INHOUSE   0120     N
 _  E    PROD12.BKPDATA.TEST
 _  E    CLDCON.DRDATA.TEST
****************************** Bottom of Data ********************************
```

Figure 40. Example of Include/Exclude History screen with one data set selected for cataloging to the cloud

Processing changes with batch job

An alternative to copying data to the cloud using the history "include" list is to tailor the sample JCL member, CUZJINCL, in the SCUZSAMP library and run it as a batch job. This batch job requires you to manually enter the include and exclude history data set masks, cloud name, retention period and catalog to cloud status for files to be copied to the cloud. When you run this job, the include history list is processed immediately.

As an example, part of the sample JCL in CUZJINCL is shown below:

```
CLOUD_NAME            FTP     -\* Copy to this Cloud*\
RETENTION_PERIOD      0       -\* Retain Cloud Days *\
CATALOG_TO_CLOUD      YES     -\* Catalog DSN Cloud *\
INCLUDE(                      -\* Include the following DSNs *\
```

```
PDUSER.JCLLIB-
)
EXCLUDE(                -\* Exclude the following DSNs *\
)
```

For more information on the CUZJINCL sample library member, see “Sample Job to Include/Exclude Data Sets” on page 105.

Running the batch job is a one-time include process. If you need data sets to be copied to the cloud regularly, they must be specified in the history include list member, CUZ#INEX.

Running and verifying cataloging of data sets to the cloud

After updating the Parmlib Options with filter criteria cataloging options and history include options, do the following:

- Recycle the CUZCLOUD started tasks.
- Run your normal batch jobs.

Several messages will appear in your jobs and in the SYSLOG stating that the data sets have been re-cataloged to the cloud. An example of these messages is shown below:

```
06.50.49 RS04 STC00030  CUZS200I CUZ#RCAT-DSN CUZTEST.CUZ.EXPRES01.SHIST000.P00000.
R200020 has been successfully Re-Cataloged to Cloud

06.50.49 RS04 STC00030  CUZ0101I-CUZSTCPY-Stage to copy process completed
successfully
```

If you use the ISPF DSLIST option or option 3.4 to check the job, you will see that the data sets now have "CLOUD" as the Volume Serial (VOLSER). An example of this screen is shown below.

```
Command ===> _____________________________________________ Scroll ===> CSR
Command - Enter "/" to select action                    Message          Volume
-------------------------------------------------------------------------------
         .
         .
         .
         ABCSTAGE                                                        ?ALIAS
         ABCTEST.ABC.EXPRES01.SCUST000.P00000.R200020                    CLOUD
         ABCTEST.ABC.EXPRES01.SDIST000.P00000.R200020                    CLOUD
         ABCTEST.ABC.EXPRES01.SHIST000.P00000.R200020                    CLOUD
         ABCTEST.ABC.EXPRES01.SITEM000.P00000.R200020                    CLOUD
         ABCTEST.ABC.EXPRES01.SNORD000.P00000.R200020                    CLOUD
         ABCTEST.ABC.EXPRES01.SODLN000.P00000.R200020                    CLOUD
         ABCTEST.ABC.EXPRES01.SORDR000.P00000.R200020                    CLOUD
         ABCTEST.ABC.EXPRES01.SSTCK000.P00000.R200020                    CLOUD
         ABCTEST.ABC.EXPRES01.SWARE000.P00000.R200020                    CLOUD
```

Figure 41. Sample ISPF DSLIST screen with CLOUD in the Volume column

At this point, Cloud Tape Connector is backing up data sets and re-cataloging them. When the data set is allocated, it will be restored back from the cloud and re-cataloged on a z/OS volume. The data sets in the example above are just a few of the data sets that were the result of a DB2 image copy of an entire database. When you run a DB2 restore job, these data sets will be brought back.

When each data set is allocated, you will see the following messages in your job and the SYSLOG:

```
06.58.05 RS04 JOB00040  CUZS187I CUZSVH26-Jobname DB2#RST .RECOVER-Cloud Dataset
CUZTEST.CUZ.EXPRES01.SSTCK000.P00000.R200020  Scheduled for Restore

06.58.05 RS04 JOB00040  CUZS169I CUZ#API-Func R-DSN
CUZTEST.CUZ.EXPRES01.SSTCK000.P00000.R200020 Scheduled for Restore from Cloud

06.58.05 RS04 JOB00040  CUZS084I CUZ#XMRR Scheduling restore,
DSN=CUZTEST.CUZ.EXPRES01.SSTCK000.P00000.R200020

06.58.05 RS04 STC00030  CUZS116I CUZ#RTDR-Attaching restore for
DSN(CUZTEST.CUZ.EXPRES01.SSTCK000.P00000.R200020)
```

When you refresh the DSLIST, you will see that the data sets have been restored back to z/OS. The Volume is no longer "CLOUD".

```
Command ===> _____________________________________________ Scroll ===> CSR
Command - Enter "/" to select action                Message          Volume
-------------------------------------------------------------------------------
         .
         .
         .
         ABCSTAGE                                                    ?ALIAS
         ABCTEST.ABC.EXPRES01.SCUST000.P00000.R200020                STAG06
         ABCTEST.ABC.EXPRES01.SDIST000.P00000.R200020                STAG08
         ABCTEST.ABC.EXPRES01.SHIST000.P00000.R200020                STAG07
         ABCTEST.ABC.EXPRES01.SITEM000.P00000.R200020                STAG08
         ABCTEST.ABC.EXPRES01.SNORD000.P00000.R200020                STAG02
         ABCTEST.ABC.EXPRES01.SODLN000.P00000.R200020                STAG10
         ABCTEST.ABC.EXPRES01.SORDR000.P00000.R200020                STAG02
         ABCTEST.ABC.EXPRES01.SSTCK000.P00000.R200020                STAG06
         ABCTEST.ABC.EXPRES01.SWARE000.P00000.R200020                STAG09
```

Figure 42. Sample ISPF DSLIST screen without CLOUD in the Volume column

After a data set has been restored to z/OS, it will not be re-cataloged back to the cloud. The backup still resides on the cloud, but is not cataloged to the cloud.

If you ran another DB2 image copy job, you would see that the new data sets are re-cataloged to the cloud and the older restored data sets are not.

```
Command ===> _____________________________________________ Scroll ===> CSR
Command - Enter "/" to select action                Message          Volume
-------------------------------------------------------------------------------
         ABCTEST.ABC.EXPRES01.SCUST000.P00000.R200020                STAG06
         ABCTEST.ABC.EXPRES01.SCUST000.P00000.R200021                CLOUD
         ABCTEST.ABC.EXPRES01.SDIST000.P00000.R200020                STAG08
         ABCTEST.ABC.EXPRES01.SDIST000.P00000.R200021                CLOUD
         ABCTEST.ABC.EXPRES01.SHIST000.P00000.R200020                STAG07
         ABCTEST.ABC.EXPRES01.SHIST000.P00000.R200021                CLOUD
         ABCTEST.ABC.EXPRES01.SITEM000.P00000.R200020                STAG08
         ABCTEST.ABC.EXPRES01.SITEM000.P00000.R200021                CLOUD
         ABCTEST.ABC.EXPRES01.SNORD000.P00000.R200020                STAG02
         ABCTEST.ABC.EXPRES01.SNORD000.P00000.R200021                CLOUD
         ABCTEST.ABC.EXPRES01.SODLN000.P00000.R200020                STAG10
         ABCTEST.ABC.EXPRES01.SODLN000.P00000.R200021                CLOUD
         ABCTEST.ABC.EXPRES01.SORDR000.P00000.R200020                STAG02
         ABCTEST.ABC.EXPRES01.SORDR000.P00000.R200021                CLOUD
         ABCTEST.ABC.EXPRES01.SSTCK000.P00000.R200020                STAG06
         ABCTEST.ABC.EXPRES01.SSTCK000.P00000.R200021                CLOUD
         ABCTEST.ABC.EXPRES01.SWARE000.P00000.R200020                STAG09
         ABCTEST.ABC.EXPRES01.SWARE000.P00000.R200021                CLOUD
```

Figure 43. Sample ISPF DSLIST screen with a mix of data sets restored from cloud and new data sets cataloged to the cloud

Expiring data sets

You can run the expire job, CUZ#EXPR, or Samplib (SCUZSAMP) member CUZJEXPR to generate a report of expired data sets. A new column has been added to the expire report generated in the job. This column indicates whether Cloud Tape Connector un-cataloged the data set from z/OS.

Note: If a data set is expiring, meaning deleted from the cloud and the data set has been re-cataloged to the cloud, Cloud Tape Connector will un-catalog the data set from z/OS.

An example of the "Expired Cloud Backups" report is shown below. The data set names have been shortened and the number of lines reduced to ensure the report is easy to read.

```
12017-10-05                z/OS Cloud Connector for Tape            11:16:37
                                    Expired Cloud Backups

Dataset Name                       Cloud Dataset Name                        Cloud Name Uncataloged
---------------------------------  ----------------------------------------  ---------- -----------
ABCTEST.EXPRES01.SSTCK000.R200020  ABCSTAGE.DB2#IC.JOB00039.SYS00001.R3102658     FTP         NO
ABCTEST.EXPRES01.SCUST000.R200020  ABCSTAGE.DB2#IC.JOB00039.SYS00005.R9556793     FTP         NO
ABCTEST.EXPRES01.SHIST000.R200020  ABCSTAGE.DB2#IC.JOB00039.SYS00007.R1831880     FTP         NO
ABCTEST.EXPRES01.SORDR000.R200020  ABCSTAGE.DB2#IC.JOB00039.SYS00009.R4356680     FTP         NO
.
.
.

ABCTEST.EXPRES01.SSTCK000.R200021  ABCSTAGE.DB2#IC.JOB00041.SYS00001.R5208251     FTP         Yes
ABCTEST.EXPRES01.SCUST000.R200021  ABCSTAGE.DB2#IC.JOB00041.SYS00005.R9511233     FTP         Yes
ABCTEST.EXPRES01.SHIST000.R200021  ABCSTAGE.DB2#IC.JOB00041.SYS00007.R5508555     FTP         Yes
ABCTEST.EXPRES01.SORDR000.R200021  ABCSTAGE.DB2#IC.JOB00041.SYS00009.R3186122     FTP         Yes
.
.
.
```

Figure 44. Sample report for Expired Cloud Backups

In the example above, only data sets cataloged with *volser*=CLOUD were uncataloged from z/OS.

When you refresh the DSLIST, the data sets will no longer show "CLOUD" under the Volume column. An example screen is shown below.

```
Command ===> ____________________________________________________ Scroll ===> CSR
Command - Enter "/" to select action                Message          Volume
-------------------------------------------------------------------------------
         .
         .
         .
         ABCSTAGE                                                    ?ALIAS
         ABCTEST.ABC.EXPRES01.SCUST000.P00000.R200020                STAG06
         ABCTEST.ABC.EXPRES01.SDIST000.P00000.R200020                STAG08
         ABCTEST.ABC.EXPRES01.SHIST000.P00000.R200020                STAG07
         ABCTEST.ABC.EXPRES01.SITEM000.P00000.R200020                STAG08
         ABCTEST.ABC.EXPRES01.SNORD000.P00000.R200020                STAG02
         ABCTEST.ABC.EXPRES01.SODLN000.P00000.R200020                STAG10
         ABCTEST.ABC.EXPRES01.SORDR000.P00000.R200020                STAG02
         ABCTEST.ABC.EXPRES01.SSTCK000.P00000.R200020                STAG06
         ABCTEST.ABC.EXPRES01.SWARE000.P00000.R200020                STAG09
```

Figure 45. Sample ISPF DSLIST screen without CLOUD in the Volume column

Chapter 5. Backing up existing data sets

Cloud Connector is most often used to backup data sets that are created frequently. However, it can also be used to back up data sets that are either no longer actively used or that are still in use, but have never been backed up to the cloud. These data sets are referred to as "history" data sets. The **Backup History Datasets** option on the Main Menu enables you to copy and manage these history data sets.

The data sets you add to the "include" history list must have the data set organization of PS (Physical Sequential). Partitioned data sets (PDS and PDSE) and VSAM files are not supported. To copy a VSAM file or partitioned data set to the cloud, you will first need to run a utility program, such as IDCAMS or IEBCOPY, to create a sequential data set, and then have that output data set sent to the cloud, either by filter criteria or through the use of the include history data set list.

Specify Parmlib and Member to Include or Exclude

When you choose Option 4, **Backup History Datasets**, on the Main Menu, a window displays. You must specify the **Parmlib Dataset** and the name of the **Parmlib Member** that you want to use when determining which data sets to include or exclude.

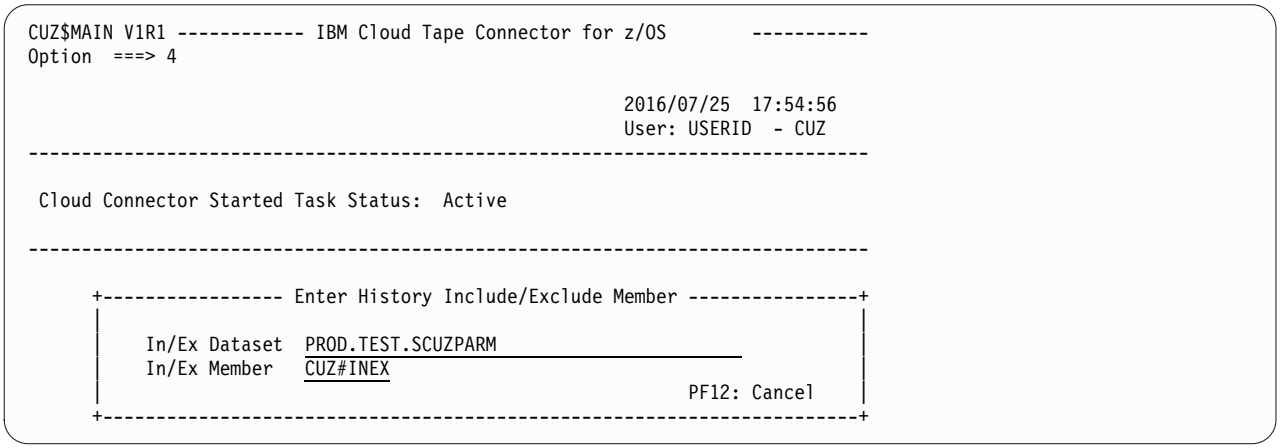

Figure 46. Enter History Include/Exclude Member window

To view a list of backup history data sets, you must specify the **Include/Exclude Dataset** and the name of the **Include/Exclude Member**.

In/Ex Dataset
Type the name of the Include/Exclude history data set that holds the Include/Exclude Member. The default data set name is SCUZPARM.

In/Ex Member
Type a one- to eight-character name for the Include/Exclude history member that you want to use when identifying which pre-existing sequential data sets to include or exclude. You can also modify the sample member, CUZ#INEX, for your environment. This is the default member name. The Include/Exclude Member can be in a separate Include/Exclude history data set or reside in the same library as the CUZ#PARM member.

Working with history data sets

When you choose option 4, **Backup History Datasets**, on the Main Menu and specify an Include/Exclude Dataset and an Include/Exclude Member, the **Include/Exclude History** screen appears. On this screen you can create new data set filters, delete existing filters, and specify whether to include or exclude a data set filter when determining which history data sets to copy to the cloud.

One example of how you could use the Include (I) and Exclude (E) values is when you want to copy a large group of data sets to the cloud, but exclude some of the data sets via a mask so they are not copied. In the example below, the PRODMP.BKPDATA group of data sets is included, but part of that group, PRODMP.BKPDATA.TEST, is excluded.

```
CUZ$INEX V1R1    ------- Include / Exclude History ------ 2016/06/01  13:12:48
Option  ===>                                              Scroll ===> PAGE

Line Commands: I - Insert  D - Delete  R - Repeat
--------------------------------------------------------------------------------
 In/Ex Dataset: PROD.CUZ0110.SCUZSAMP
 In/Ex Member : CUZ#INEX                                  Row 1 of 4
--------------------------------------------------------------------------------
Cmd Inc  Dataset Filter                              Cloud     Retn   Catlg
    Exc                                              Name      Perd   Cloud
 _  I    PRODMP.BKPDATA.*                            CITYABC   0090     Y
 _  I    CLDCON.DRDATA.*                             INHOUSE   0120     N
 _  E    PRODMP.BKPDATA.TEST
 _  E    CLDCON.DRDATA.TEST
****************************** Bottom of Data ***********************************
```

Figure 47. Example of Include/Exclude History screen with large group included and subset group excluded

The fields on the Include/Exclude History screen are described below.

Inc/Exc
: Indicate whether to include (I) or exclude (E) the data sets that match this filter when making a backup on the cloud.

Dataset Filter
: Type up to 44 characters for the filter criteria. Data set masking is supported for both the include and exclude data sets. Use an asterisk (*) for one or more characters and a percent sign (%) to represent a single character anywhere in the data set name. An example is shown below:

  MY.TEST%.DATA*.SETS.

Cloud Name
: Type up to eight characters for the name of the cloud where the filtering criteria applies.

Retn Perd
: Type a number between 0 and 9999 for the number of days you want to retain this backup. A value of 9999 means that the backup is kept permanently and does not expire. A value of zero is helpful for testing purposes to ensure your data was moved to the cloud successfully.

Catalog to Cloud
: Specify Y or N to indicate whether to catalog a history data set to the cloud. The default is N (no). Type a "Y" for each "include" line you would like to re-catalog to the cloud with a volume serial of CLOUD.

  Note: This option is available on "include" (I) lines only.

Line commands

Type one of these line commands in the Cmd column:

- **I** - Insert a line to add a new data set filter.
- **D** - Delete a line (if blank) or delete an existing data set filter.
- **R** - Repeat a line to copy an existing data set filter to a new line.

Saving changes

After you have completed your changes to the history data set include list, press PF3. The **Save/Update Include History Member** window displays for you to verify the data set name and member where you want the history data to be saved. You can either press Enter to save, make changes and press Enter to save, or press PF12 to cancel.

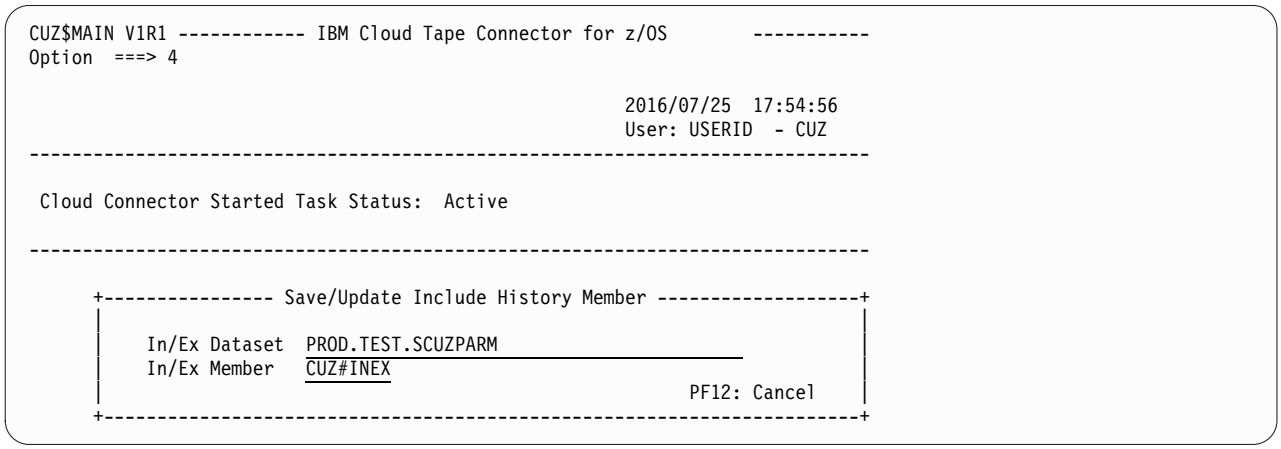

Figure 48. Save/Update Include History Member

If you wish to change the location or name of the member, you must update the **Copy Past History Parm Mbr** parameter in the **Parmlib General Options** of the ISPF interface. For more information, see "General Options" on page 20.

Important: The data sets specified in the **Copy Past History Parm Mbr** parameter will not be processed until the next interval cycle defined in the **Auto Bkup Repository Min** parameter. This parameter not only initiates an automatic backup of the repository, but will process or re-process the history "include" list. As an example, if the last time the repository was backed up was 15 minutes ago, and you have the auto backup repository minutes value set to 60, it will be 45 more minutes before the include history list is processed again. The default value for **Auto Bkup Repository Min** is 60.

Processing changes with batch job

An alternative to copying data to the cloud using the history include/exclude list is to tailor the sample JCL member, CUZJINCL, in the SCUZSAMP library and run it as a batch job. This batch job requires you to manually enter the include and exclude history data set masks, cloud name, retention period and catalog to cloud status for files to be copied to the cloud. As an example, part of the sample JCL in CUZJINCL is shown below:

```
CLOUD_NAME            FTP     -\* Copy to this Cloud*\
RETENTION_PERIOD      0       -\* Retain Cloud Days *\
CATALOG_TO_CLOUD      YES     -\* Catalog DSN Cloud *\
```

```
INCLUDE(                      -\* Include the following DSNs *\
      PDUSER.JCLLIB-
      )
      EXCLUDE(                -\* Exclude the following DSNs *\
      )
```

For more information on the CUZJINCL sample library member, see “Sample Job to Include/Exclude Data Sets” on page 105.

When you run this job, the include history list is processed immediately. You do not have to wait for the started task to hit the interval specified in the **Auto Bkup Repository Minutes** parameter.

Running the batch job is a one-time include process. If you need data sets to be copied to the cloud regularly, then they must be specified in the history include list member, CUZ#INEX.

Chapter 6. Active Tasks

The **Active Tasks** option allows you to view the current status of any active tasks. Different colors are used to indicate the status, such as green for "Cloud Copy" activity.

When you choose Option 5, **Active Tasks**, on the Main Menu, a window displays where you can specify selection criteria for the active tasks you want to review. An example is shown below:

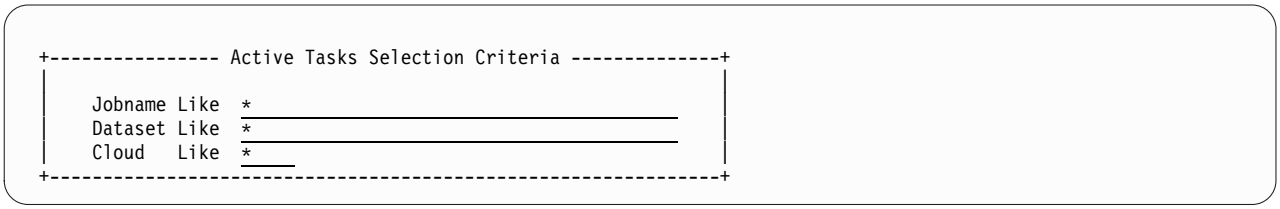

Figure 49. Active Tasks Selection Criteria

The fields on the "Active Tasks Selection Criteria" window are described below.

Jobname Like
Display only the Active Tasks that are like this job name. The default is an asterisk (*), which means all.

Dataset Like
Display only the Active Tasks that are like this data set name. The default is an asterisk (*), which means all.

Cloud Like
Display only the Active Tasks that are like this Cloud Name. The default is an asterisk (*), which means all.

After specifying the selection criteria, the Active Tasks Display screen appears. On this screen, the jobs matching your selection criteria are displayed in a list. If you decide to change the list, the same criteria fields are at the top of the screen so you can adjust the selection criteria as needed.

An example of the screen is shown below without any data.

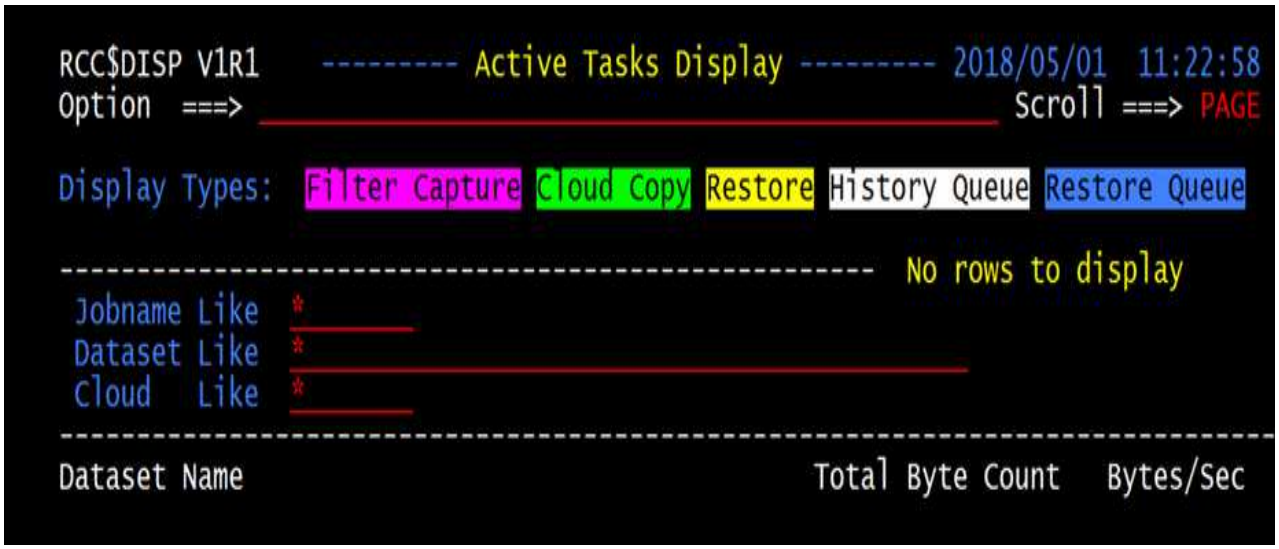

Figure 50. Active Tasks Display screen with color-coded status at top

The next example shows the Active Tasks Display screen with active data.

Figure 51. Active Tasks Display screen with data

The "Active Tasks Display" uses different colors to indicate the status of active tasks:

Filter Capture Tasks (Pink)
Filter Capture tasks are jobs where the data is currently being captured and directly written to the cloud or being staged. They are displayed in pink on the screen.

Cloud Copy Tasks (Green)
Cloud Copy tasks are jobs where a dataset is being copied to the cloud. The tasks can consist of active history tasks, staged data sets being copied, or data sets residing on DASD during filter capture. They are displayed as green on the screen.

Restore Tasks (Yellow)
Restore tasks are data sets currently being restored from the cloud. They are displayed as yellow on the screen.

History Queue Tasks (White)
History Queue tasks are history data sets that are currently queued to be copied to the cloud. These tasks are not currently active copy tasks. They are displayed as white on the screen.

Restore Queue Tasks (Blue)
Restore Queue tasks are restore data sets that are currently queued to be restored from the cloud. These tasks are not currently active restore tasks. They are displayed as blue on the screen.

There are several columns of information about the Active Tasks Display. Page right to see additional columns. All of the columns are described below.

Dataset Name
Lists the fully qualified z/OS data set name, up to 44 characters in length, that is being stored to the cloud or being restored from the cloud.

Total Byte Count
Indicates the number of bytes copied or restored at this time.

Bytes/Sec
Indicates the average number of bytes per second that were transferred to or from the cloud.

Block Count
Indicates the number of blocks copied or restored at this time.

Elapsed Time
Lists the amount of time, in hours, minutes, and seconds, that the active task has been running.

Jobname
Lists the one- to eight-character name of the backup job.

Stepname
Lists the one- to eight-character name of the step that was performed in this job.

Job Nbr
Lists the one- to eight-character job number assigned to the job.

Start Timestamp
Indicates the date and time that the task started. The date is in the format of `YYYY-MM-DD`. The time format is `HH:MM:SS`.

Cld Name
Lists the name of the cloud where the data set is stored to or restored from.

DD Name
Lists the six- to eight-character DD name.

Cloud Dataset Name
Specifies the fully-qualified cloud data set name (DSN), up to 44 characters, that is assigned when the data set is stored on the cloud. The Cloud DSN may be different than the z/OS DSN due to multiple generations of the same DSN being stored on the cloud.

Chapter 7. Utilities

The utilities described in this chapter provide additional functionality to maximize your use of Cloud Connector. The purpose of each utility and instructions on how to use the utility are provided.

Tape Compare Utility

In some cases, a data set may be copied multiple times, such as to tape, then to the cloud, then back to tape at a later date. In this situation, you may want to verify that the data set is still the same and no data has been lost through all of the copying processes. The Tape Compare Utility allows you to compare two data sets to ensure that they are the same. Different reports are generated to show if the data sets are the same or where they differ if they are not the same.

The SCUZSAMP library contains sample JCL for a job to compare the contents of two tape data sets in member CUZJCOMP. Run this job to compare two data sets or to analyze a specific data set. Follow the instructions at the top of the CUZJCOMP job to make changes to the job before you submit it.

When you run the compare tape job, it will generate one or both of the following reports.

- Dataset Compare Report -- Results show whether the data sets are the same or different.
- Dataset Analysis Report -- Results provide an analysis of a specific tape showing more basic information, such as tape label, number of blocks and records, and block sizes. If this analysis is performed on one data set, the Dataset Analysis Report only provides this basic type of information. This report is also written as part of the Dataset Compare Report for each tape when two tapes are being compared.

Dataset Compare Report - Same Results

The sample "Dataset Compare Report" below shows how the report would look if the data sets were the same. Notice the last line in the report which states "The datasets compared are equal".

```
                  DATASET COMPARE REPORT

************************************************************************************************
***** FILE COMPARE NUMBER:       1     BELOW 2 FILES WILL BE COMPARED
************************************************************************************************

DDNAME: DSN1 DSN: TSDEM.GENER.PUTA                              FIRST VOLSER: C10057 FILE SEQ 00001
DDNAME: DSN2 DSN: TSDEM.GENER.PUTB                              FIRST VOLSER: C10059 FILE SEQ 00001

HDR2 DCB INFORMATION WAS EQUAL

LAST 17 BYTES OF DSN FROM HDR1 LABELS NOT EQUAL DSN1: TSDEM.GENER.PUTA  DSN2: TSDEM.GENER.PUTB

TWO JFCB DSNS NOT EQUAL DSN1: TSDEM.GENER.PUTA                              DSN2: TSDEM.GENER.PUTB


THE DATASETS COMPARED ARE EQUAL
```

Figure 52. Dataset Compare Report -- Results show data sets are the same.

Dataset Compare Report - Different

The sample "Dataset Compare Report" below shows how the report would look if the data sets were found to be different. Notice the line toward the bottom of the report which states "The datasets compared are not equal".

```
                  DATASET COMPARE REPORT

*************************************************************************************************************
***** FILE COMPARE NUMBER:       1     BELOW 2 FILES WILL BE COMPARED
*************************************************************************************************************

DDNAME: DSN1 DSN: TSDEM.GENER.PUT3                            FIRST VOLSER: C10047 FILE SEQ 00001
DDNAME: DSN2 DSN: TSDEM.GENER.ABN3                            FIRST VOLSER: C10045 FILE SEQ 00001

HDR2 DCB INFORMATION WAS EQUAL

LAST 17 BYTES OF DSN FROM HDR1 LABELS NOT EQUAL DSN1: TSDEM.GENER.PUT3  DSN2: TSDEM.GENER.ABN3

TWO JFCB DSNS NOT EQUAL DSN1: TSDEM.GENER.PUT3                              DSN2: TSDEM.GENER.ABN3

THE DATASETS COMPARED ARE NOT EQUAL !!!            <-----  ALERT  -----
THE LAST BLOCK READ ON EACH DATASET WAS NOT EQUAL
 DATA IN BLOCK NUMBER:            1  IS DIFFERENT AT BYTE DECIMAL:      168   HEX:  000A8
******************************** BOTTOM OF DATA
```

Figure 53. Dataset Compare Report -- Results show data sets are different.

Dataset Analysis Report

The sample "Dataset Analysis Report" below shows information about a single data set, such as tape label, number of blocks and records, and block sizes.

```
                          DATASET ANALYSIS REPORT

DDNAME: DSN1     DEVICE TYPE: 3490     UNIT ADDRESS: 05AE

****************************************************************************************************
******* FILE NUMBER:       1
****************************************************************************************************

DSN: TSDEM.GENER.PUTA                             FIRST VOLSER: C10057 FILE SEQ 00001

HEADER LABELS FOLLOW. CURRENT VOLSER: C10057
VOL1C10057

HDR1TSDEM.GENER.PUTA C1005700010001      0161250161270000000IBM OS/VS 370
        DSN LAST 17: TSDEM.GENER.PUTA    1ST VOLSER: C10057   VOLSQ:    1   FILESQ:    1   BLK COUNT:   0

HDR2F279200008000TSDEMGN1/S010    P   B   14F2C
        RECFM=FB    BLKSZ=27920    LRECL=   80

************  TAPEMARK ENCOUNTERED  ************

** THE DATASET REACHED EOF ON THIS VOLUME
  BLOCKS DATASET HAD ON THIS VOLUME:           4

************  TAPEMARK ENCOUNTERED  ************

TRAILER LABELS FOLLOW. CURRENT VOLSER: C10057
EOF1TSDEM.GENER.PUTA C1005700010001      0161250161270000004IBM OS/VS 370
        DSN LAST 17: TSDEM.GENER.PUTA    1ST VOLSER: C10057   VOLSQ:    1   FILESQ:    1   BLK COUNT:   4

EOF2F279200008000TSDEMGN1/S010    P   B   14F2C
        RECFM=FB    BLKSZ=27920    LRECL=   80


************  TAPEMARK ENCOUNTERED  ************

  DATASET TOTALS FOR DATASET: TSDEM.GENER.PUTA

       NUMBER OF BLOCKS READ:                 4
       SIZE OF LARGEST BLOCK:             27920
      SIZE OF SMALLEST BLOCK:              5200
          AVERAGE BLOCK SIZE:             22240
 NUMBER OF LOGICAL RECS READ:              1,112
        NUMBER OF BYTES READ:             88,960
        NUMBER OF INPUT VOLS:                 1
```

Figure 54. Dataset Analysis Report -- Basic information about one data set

Sample Job to Include/Exclude Data Sets

If existing data sets need to be copied to the cloud, you can use the CUZJINCL job in the SCUZSAMP library to specify which data sets to include and exclude for the copy process. This same information can be specified by using Option 4, **Backup History Datasets**, on the Main Menu of the ISPF interface.

Note: For information on using the ISPF interface to specify backup history data sets, see "Working with history data sets" on page 96.

Be sure to review the instructions at the top of the CUZJINCL job. You will need to tailor the JCL before submitting it. An example of the CUZJINCL member is shown below.

```
//JOBCARD  JOB    ,'?',REGION=0M
//*****************************************************************
//* COPYRIGHT ROCKET SOFTWARE, INC. 2017
//*                 ALL RIGHTS RESERVED.
```

```
//*****************************************************************
//* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
//* Member:  CUZJINCL                                               *
//*                                                                 *
//* This job will copy existing backups (tape or DASD) to           *
//* the cloud servers.  You may add as many data sets (included /   *
//* excluded) as you like.  Data set wildcarding is also supported. *
//*                                                                 *
//* Instructions:  Change the steplib to the runtime load library   *
//*                                                                 *
//* 1. Change #HIGHLVL# to the high level qualifier for your        *
//*    runtime load library                                         *
//* 2. Set the cloud server you want the data be copied to by       *
//*    changing #MYCLOUD# to your predefined cloud name             *
//*     ** The cloud name must be a 1 to 8 character cloud name     *
//*        defined in the parmlib member CUZ#PARM                   *
//* 3. Set the Retention Period in nbr of days you want the data    *
//*    to reside on the cloud. Change #RETPD# to a numeric value    *
//*     ** The retention period must be 1 to 4 characters with      *
//*        values between 0 and 9999.                               *
//* 4. Set the Catalog to Cloud option to YES or NO.  Setting this  *
//*    value to a YES will delete your original disk dataset or     *
//*    uncatalog your original tape dataset and Re-Catalog it with  *
//*    VOLSER=CLOUD.  The dataset will be restored back to z/OS     *
//*    when allocated. Change #CATALOG# to YES or NO.               *
//* 5. Add data sets to the include / exclude list                  *
//*                                                                 *
//* Examples:                                                       *
//*                                                                 *
//* 1.  Data sets going to a single cloud                           *
//*                                                                 *
//*     CLOUD_NAME            MYCLOUD1     -\* COPY TO THIS CLOUD   *
//*     RETENTION_PERIOD            30     -\* RETAIN 30 DAYS       *
//*     CATALOG_TO_CLOUD           YES     -\* Re-Catalog to Cloud  *
//*     INCLUDE (                          -\* INCLUDE DATASETS     *
//*         MY.DATASETS.TEST1*             -                        *
//*         MY.DATASETS.TEST2*             -                        *
//*         MY.DATASETS.TEST3*             -                        *
//*       )                                -\*                      *
//*     EXCLUDE (                          -\* EXCLUDE DATASETS     *
//*         MY.DATASETS.TEST1.BKP          -                        *
//*       )                                -\*                      *
//*                                                                 *
//* 2.  Data sets going to multiple clouds with Re-Cataloging       *
//*     datasets to MYCLOUD1 only.                                  *
//*                                                                 *
//*     CLOUD_NAME            MYCLOUD1     -\* COPY TO THIS CLOUD   *
//*     RETENTION_PERIOD            30     -\* RETAIN 30 DAYS       *
//*     CATALOG_TO_CLOUD           YES     -\* Re-Catalog to Cloud  *
//*     INCLUDE (                          -\* INCLUDE DATASETS     *
//*         MY.DATASETS.TEST1*             -                        *
//*         MY.DATASETS.TEST2*             -                        *
//*         MY.DATASETS.TEST3*             -                        *
//*       )                                -\*                      *
//*     EXCLUDE (                          -\* EXCLUDE DATASETS     *
//*         MY.DATASETS.TEST1.BKP          -                        *
//*       )                                -\*                      *
//*     CLOUD_NAME            MYCLOUD2     -\* COPY TO THIS CLOUD   *
//*     RETENTION_PERIOD            30     -\* RETAIN 30 DAYS       *
//*     CATALOG_TO_CLOUD            NO     -\* Don't Re-Catalog     *
//*     INCLUDE (                          -\* INCLUDE DATASETS     *
//*         MY.DATASETS.TEMP1*             -                        *
//*         MY.DATASETS.TEMP2*             -                        *
//*         MY.DATASETS.TEMP3*             -                        *
//*       )                                -\*                      *
//*     EXCLUDE (                          -\* EXCLUDE DATASETS     *
//*       )                                -\*                      *
```

```
//* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
//*
//CUZ#INEX  EXEC PGM=CUZ#INEX,REGION=0M
//STEPLIB  DD DISP=SHR,DSN=#HIGHLVL#.SCUZLOAD
//SYSPRINT DD SYSOUT=*
//CUZOUT   DD SYSOUT=*
//CUZ#INEX DD *
  CLOUD_NAME            #MYCLOUD#    -\* COPY TO THIS CLOUD       *\
  RETENTION_PERIOD      #RETPD#      -\* RETAIN X NBR OF DAYS     *\
  CATALOG_TO_CLOUD      #CATALOG#    -\* Re-Catalog to Cloud      *\
  INCLUDE (                          -\* INCLUDE DATASETS         *\
      INCLUDE.MY.DATASETS*           -
    )                                -\*                          *\
  EXCLUDE (                          -\* EXCLUDE DATASETS         *\
      EXCLUDE.SOME.DATASETS*         -
    )                                -\*                          *\
/*
//
```

Required Changes

The items in bold are the variables you **must** change in the JCL to customize the job for your environment.

#HIGHLVL#
Change #HIGHLVL# to the high level qualifier for your runtime load library.

#MYCLOUD#
Set the cloud server you want the data be copied to by changing #MYCLOUD# to your predefined cloud name. The cloud name must be a 1 to 8 character cloud name defined in the parmlib member CUZ#PARM.

#CATALOG#
Change #CATALOG# to YES or NO. The default is NO. A value of YES will delete your original disk data set or uncatalog your original tape data set and re-catalog it with `VOLSER=CLOUD` after a successful copy has been placed on the cloud. When the data set is allocated, it will be restored back from the cloud and re-cataloged on a z/OS volume.

#RETPD#
Change #RETPD# to a numeric value to indicate the number of days you want the data to reside on the cloud. The retention period must be between 0 and 9999 days.

INCLUDE.MY.DATASETS*
Replace this with data set names that you want to include in the job.

EXCLUDE.MY.DATASETS*
Replace this with data set names that you want to exclude from this job.

Sample Job for Batch Restore

The Batch Restore job provides an alternate method for restoring data sets from the cloud without having to use the ISPF interface. The JCL provided in the sample job can be modified for your environment. This job supports the use of wildcard characters and full data set restoration.

The sample job for performing a batch restore process is located in the SCUZSAMP library in member CUZJREST. Be sure to follow the instructions listed in this member. You will need to tailor the JCL before submitting it. An example of member CUZJREST is shown below.

```
//CUZJREST JOB  ,'CTC Batch Restore',CLASS=A,MSGCLASS=X,
//       NOTIFY=&SYSUID
//*
//*------------------------------------------------------------ *\
//*                                                              *\
//* Cloud Tape Connector Batch Restore - This JCL is an alternate*\
//*       method of restoring datasets from the cloud without    *\
//*       having to use the ISPF interface. This method of       *\
//*       restore supports wild carding or full dataset restores.*\
//*                                                              *\
//* Required Parameters:                                         *\
//* 1.  INCLUDE                   -                              *\
//* 2.  RESTORE_TO_UNIT           - 8 Character unit for Restore *\
//*                                 to Dataset                   *\
//*                               - Can be tape or Disk if       *\
//*                                 Blocksize < 32K              *\
//*                               - If Blocksize > 32K, unit     *\
//*                                 must be tape device          *\
//* Optional Parameters:                                         *\
//* 1.  RESTORE_TO_DATASET        - 44 Character DSN of restored *\
//*                                 Dataset                      *\
//*                               - Mutually exclusive with      *\
//*                                 RESTORE_TO_ALIAS             *\
//*                               - Can be used only if 1 Dataset*\
//*                                 is being restored            *\
//*                               - To Restore to oringinal DSN, *\
//*                                 Don't enter parms            *\
//*                                 RESTORE_TO_DATASET or        *\
//*                                 RESTORE_TO_ALIAS             *\
//* 2.  RESTORE_TO_ALIAS          - 8 Character Alias to be      *\
//*                                 substituted in Restore DSN   *\
//*                               - Mutually exclusive with      *\
//*                                 RESTORE_TO_DATASET           *\
//* 3.  RETENTION_PERIOD          - Nbr of days to retain the    *\
//*                                 newly created restore DSN    *\
//*                               - 0000 through 9999 days       *\
//* 4.  RESTORE_SMS_STORAGE_CLASS - 8 Character SMS storage class*\
//*                                 for allocating restore DSN   *\
//* 5.  RESTORE_VOLUME_COUNT      - Nbr of volumes the restore   *\
//*                                 DSN may span.  If omitted,   *\
//*                                 DASD units defaults to 1 and *\
//*                                 TAPE units defaults to 5     *\
//* 6.  RELATIVE_GENERATION       - Generation to restore.       *\
//*                               - Generation can be positive or*\
//*                                 negative value.              *\
//*                               - Range from '0' to '-10'      *\
//*                               - If negative value entered,   *\
//*                                 value must be in quotes. "'" *\
//*                               - Default is most recent       *\
//*                                 generation or 0              *\
//* 7.  DELETE_OLD_BACKUP         - If Restore DSN is already    *\
//*                                 cataloged, delete it?        *\
//*                               - Must be YES or NO            *\
//*                               - Default is NO                *\
//* 8.  WAIT_FOR_COMPLETION       - Wait for each restore to     *\
//*                                 complete before ending this  *\
//*                                 job?                         *\
//*                               - Must be YES or NO            *\
//*                               - Wait = NO, Restore is        *\
//*                                 scheduled in CUZCLOUD STC    *\
//*                               - Wait = YES, Job will not     *\
//*                                 end until all restores       *\
//*                                 complete                     *\
//*                                                              *\
//* Examples:                                                    *\
//*                                                              *\
//*  1. Restore all 0 generation datasets starting with "MYDSN"  *\
```

```
//*     with a new alias CUZRESTR on Disk using SMS Storage Class*\
//*     SCCUZRST and retention period of 1 day (Disk DSN),       *\
//*     Delete the old backups and Wait for the restore to       *\
//*     complete.                                                *\
//*                                                              *\
//*   RESTORE_FROM_CLOUD (                                       *\
//*     RESTORE_TO_ALIAS              CUZRESTR                   *\
//*     RESTORE_TO_UNIT               SYSDA                      *\
//*     RESTORE_SMS_STORAGE_CLASS     SCCUZRST                   *\
//*     RESTORE_VOLUME_COUNT          5                          *\
//*     RELATIVE_GENERATION           '0'                        *\
//*     RETENTION_PERIOD              0001                       *\
//*     DELETE_OLD_BACKUP             YES                        *\
//*     WAIT_FOR_COMPLETION           YES                        *\
//*    )                                                         *\
//*   INCLUDE (                    -\*INCLUDE THE FOLLOWING DSNS *\
//*             MYDSN.*                                    -     *\
//*           )                                                  *\
//*   EXCLUDE (                    -\*EXCLUDE THE FOLLOWING DSNS *\
//*           )                                                  *\
//*                                                              *\
//*                                                              *\
//*  2. Restore dataset MY.CLOUD.DSN to MY.CLOUD.DSN.RESTORE     *\
//*     on Disk using SMS Storage Class SCCUZRST with no         *\
//*     retention period.  Delete the old backup and wait for    *\
//*     the restore to complete.                                 *\
//*                                                              *\
//*   RESTORE_FROM_CLOUD (                                       *\
//*     RESTORE_TO_DATASET            MY.CLOUD.DSN.RESTORE       *\
//*     RESTORE_TO_UNIT               SYSDA                      *\
//*     RESTORE_SMS_STORAGE_CLASS     SCCUZRST                   *\
//*     RESTORE_VOLUME_COUNT          5                          *\
//*     RELATIVE_GENERATION           '0'                        *\
//*     RETENTION_PERIOD              0001                       *\
//*     DELETE_OLD_BACKUP             YES                        *\
//*     WAIT_FOR_COMPLETION           YES                        *\
//*    )                                                         *\
//*   INCLUDE (                    -\*INCLUDE THE FOLLOWING DSNS *\
//*             MY.CLOUD.DSN                               -     *\
//*           )                                                  *\
//*   EXCLUDE (                    -\*EXCLUDE THE FOLLOWING DSNS *\
//*           )                                                  *\
//*                                                              *\
//*                                                              *\
//*  3. Restore all 0 generation datasets for disaster recovery  *\
//*     coming back as the original dataset names and restore    *\
//*     them to TAPE.  Retain the tapes for 5 days, don't wait   *\
//*     for completion and delete all restored cataloged datasets*\
//*                                                              *\
//*   RESTORE_FROM_CLOUD (                                       *\
//*     RESTORE_TO_UNIT               CART3590                   *\
//*     RELATIVE_GENERATION           '0'                        *\
//*     RETENTION_PERIOD              0005                       *\
//*     DELETE_OLD_BACKUP             YES                        *\
//*     WAIT_FOR_COMPLETION           NO                         *\
//*    )                                                         *\
//*   INCLUDE (                    -\*INCLUDE THE FOLLOWING DSNS *\
//*             *                                          -     *\
//*           )                                                  *\
//*   EXCLUDE (                    -\*EXCLUDE THE FOLLOWING DSNS *\
//*           )                                                  *\
//*                                                              *\
//*                                                              *\
//*------------------------------------------------------------- *\
//*                                                              *\
//CUZJREST  EXEC PGM=CUZJREST,REGION=0M
//STEPLIB  DD DISP=SHR,DSN=#HIGHLVL#.SCUZLOAD
```

```
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//CUZOUT   DD SYSOUT=*
//CUZJREST DD *
 -\*------------------------------------------------------------- *\
 -\*                                                              *\
 -\* 5697-I80                                                     *\
 -\* (C) COPYRIGHT ROCKET SOFTWARE, INC. 2015 ALL RIGHTS RESERVED.*\
 -\*                                                              *\
 -\*------------------------------------------------------------- *\
   RESTORE_FROM_CLOUD (
     RESTORE_TO_ALIAS             CUZRESTR
     RESTORE_TO_UNIT              SYSDA
     RESTORE_SMS_STORAGE_CLASS    SCCUZRST
     RESTORE_VOLUME_COUNT         5
     RELATIVE_GENERATION          '0'
     RETENTION_PERIOD             0001
     DELETE_OLD_BACKUP            YES
     WAIT_FOR_COMPLETION          YES
    )
   INCLUDE (                        -\*INCLUDE THE FOLLOWING DSNS *\
             MYDSN.*                                    -
           )
   EXCLUDE (                        -\*EXCLUDE THE FOLLOWING DSNS *\
           )
/*
//
```

Required Changes

The items in bold are the variables you **must** change in the JCL to customize the job for your environment.

#HIGHLVL#
Change #HIGHLVL# to the high level qualifier for your runtime load library.

MYDSN*
Replace this with data set names that you want to restore from the cloud.

RESTORE_TO_UNIT
Specify a one- to eight-character name for the DASD device or tape where the cloud data set will be placed when it is restored.

- If the block size is less than 32K, the restored data set can be sent to tape or disk.
- If the block size is greater than 32K, the restored data set must be sent to a tape device.

Optional Parameters

The parameters below are **optional** and can be included in the JCL as needed.

RESTORE_TO_DATASET
Type up to 44 characters for the data set name to assign to the restored data set. If you prefer to use the original data set name, leave this field blank. If you specify a value for this parameter, you cannot specify anything for the RESTORE_TO_ALIAS parameter as they are mutually exclusive. The RESTORE_TO_DATASET parameter can only be used if one data set is being restored, not multiple data sets.

RESTORE_TO_ALIAS
If you want to restore the data set to a different name, type 1 - 8 characters

for the name of a high-level alias to be used when restoring the data set. If you prefer to use the original data set name, rather than an alias, leave this field blank. If you specify a value for this parameter, you cannot specify anything for the RESTORE_TO_DATASET parameter as they are mutually exclusive.

RETENTION_PERIOD
Enter a number between 0000 - 9999 to indicate the maximum number of days you want to keep the newly created restore DSN. This Retention Period is a z/OS retention period which will be used by your Tape Management System.

RESTORE_SMS_STORAGE_CLASS
Specify a one- to eight-character name SMS storage class for allocating the restore DSN.

RESTORE_VOLUME_COUNT
Type a number between 1 and 256 for the number of volumes needed to restore a multi-volume data set from the cloud. If omitted, the number of DASD units defaults to 1 and the number of TAPE units defaults to 5.

RELATIVE_GENERATION
Type a number in the range from '0' to '-10' to specify which generation of the data set to restore. When multiple copies of the same DSN have been saved to the cloud, you can specify which of those copies (generations) to restore. The default is the most recent generation, which is 0. You can specify a positive or negative value, however negative values must be in quotes, such as '-5' or '-10'. For example, the generation before the most recent backup can be specified as '-1' or simply 1.

DELETE_OLD_BACKUP
Indicate whether to delete (YES) or keep (NO) the local cataloged copy of the data set before restoring the data set from the cloud. Specify YES or NO. The default is NO. If you are restoring a data set from the cloud to a data set that already exists, the old data set must be deleted before the restore can occur. A message will appear if the "restore to" data set already exists and "Delete Old Backup" is set to "N".

WAIT_FOR_COMPLETION
Indicate whether to wait for each restore to complete before ending this job. Specify YES or NO. If YES, the job will not end until all of the restores are complete. If NO, the Restore is scheduled in the CUZCLOUD started task so that the job can end. Look in the sysout file or data set specified on the CUZOUT DD in the CUZCLOUD started task for results of the restore.

Chapter 8. Cloud Connector Repository

The Cloud Connector Repository contains information about all of the data sets copied to clouds defined in Cloud Connector. The repository data set can only be accessed through the CUZCLOUD started task.

The CUZCLOUD address space acts as a service provider for users that need access to the Repository. This is known as synchronous cross-memory communication. Through this process, jobs that create data sets which are copied to the cloud will perform those actions on the cloud, but do not update the Repository directly. That is also the case for any actions on data sets that are generated through the Cloud Connector ISPF dialog. Instead, the CUZCLOUD address space allocates any updates to the Repository.

Repository Records

The Repository uses different types of records to create information about the data sets stored in the clouds defined in Cloud Connector.

The Cloud Connector Repository is a z/OS VSAM Keyed Sequential data set (KSDS) with a 52-byte key. The first 8-bytes of the key are either `x'00's` or the store clock (STCK) value when the Cloud Connector created the entry. The data set name copied to cloud storage makes up the remaining 44-bytes. There is a minimum of two records in the repository for each data set stored in cloud storage, a single Profile record and one or more Discrete records.

- A **Profile** record names a data set that has at least one copy of itself in cloud storage. It also holds information necessary to find related Discrete entries for specific data sets. A Profile record in the Repository must have at least one Discrete record. For a Profile record, the first 8-bytes of the key are `x'00's` and the remaining 44-bytes are the data set name stored in the cloud.
- A **Discrete** record uniquely names a data set that lives in cloud storage and has all the information necessary to retrieve the data set from the cloud. Explicitly removing all of the Discrete records for a named data set will also remove the associated Profile record. For a Discrete record, the first 8-bytes are the STCK value at the time of creation and the remaining 44-bytes are the data set name stored in the cloud.

Cloud Connector uses this format to support multiple copies or Generations of a data set in cloud storage. For example, a data set named A.B.C will have a Profile record and one or more Discrete records having the name A.B.C in the data set name part of the key. The total number of discrete records equate to the largest number of Generations allowed.

See “Step 12: Define a z/OS repository file” on page 14 for instructions on defining the Cloud Connector Repository. In the sample library (SCUZSAMP), member CUZIDEFR has JCL that defines and populates the Repository. Submit this job to execute a job that defines the Repository and populates it with a single null record. Cloud Connector requires that this record exist to allow sharing the Repository.

Note: The Repository at early installations may have incorrect Share Options (SHROPTNS) specified. Correct this using the JCL in the sample library (SCUZSAMP) member CUZJALTR. Submit this JCL to execute a job that changes the Repository to `SHROPTNS(4 3)`, which is the correct specification.

After starting the Cloud Connector address space, the filter criteria determines which data sets to copy to the cloud, and records describing the copied data sets are placed in the Repository. This is the data necessary to restore data sets from the cloud.

Sharing within a Sysplex

For Sysplex environments with more than one LPAR, if jobs creating data destined for the cloud can execute on any of the LPARs, run the Cloud Connector address space on all the LPARs. This requires that Cloud Connector share the Repository between multiple LPARs.

To share the repository, specify `DISP=SHR` on the `CUZCLOUD DD` statement in the SCUZSAMP library, member CUZCLOUD. When Cloud Connector detects sharing, the following message is issued during address space startup:

```
CUZS111I CUZ#WTDR-Repository Cross System Sharing active
```

To facility Repository sharing, Cloud Connector employs ENQ/DEQ logic to keep Repository update integrity across the LPARs. The ENQ major name is **SYSZCUZV** and the ENQ minor name is the Repository data set name (`DSN=`) on the started task `CUZCLOUD DD` statement. The type of control is determined by the process being attempted:

- Update, Delete, and Insert attempts request Exclusive control.
- Read attempts request Shared control.

The ENQ requests specify a SYSTEMS scope to allow the Sysplex environment to ensure integrity across the defined LPARs.

Chapter 9. Messages

All messages generated by Cloud Connector are described in this chapter. A description of each message and information on resolving the problem are provided.

ISPF Messages

This section lists all of the messages that may display while using the menus, options, and fields that are part of this product's interface (ISPF screens). The ISPF messages are listed below.

CUZ001E Multiple executions of the ISPF interface in one TSO session is not allowed.

Explanation: You are attempting to use multiple ISPF interfaces in one TSO session, which is not allowed.

User response: Open multiple TSO sessions to use more than one ISPF interface.

CUZ007E Invalid value entered - Please enter a valid value from the list displayed.

Explanation: A value was entered that is not allowed on the current panel.

User response: Change the value to one that is allowed, based on the list displayed.

CUZ008E Invalid Line Command - Enter "D" to Delete Backup, "R" to Restore Dataset or "X" to Exclude the backup from the display list

Explanation: The only valid line commands are D, R, and X. The Exclude (X) line command is helpful when used with the RESTORE primary command, which restores the 0 generation of every data set displayed on this list. You can use DSN masking to narrow the list and then use the Exclude (X) line command to further exclude other data sets matching the mask before typing the RESTORE command.

User response: Change the value to D, R, or X, based on the descriptions listed in the message and on the panel. Be sure you are typing the line command in the "CMD" column next to the line you want to process.

CUZ009E Option not available at this time. Cloud Connector Started Task is currently Inactive. Start the Cloud Connector Started Task.

Explanation: The option you are attempting to use is not available because the Started Task is not active.

User response: Use the Start command, such as the SDSF command,`/S CUZCLOUD`, to start the Cloud Tape Connector Started Task. The status of the Started Task is displayed on the Main Menu. When you see "Active" as the status, you can select any option you want.

CUZ010E Enter a valid Dataset Name containing Cloud Connector Parmlib options.

Explanation: Type the name of the data set that holds the parameter member. The default data set is the one with the low level of SCUZPARM. The initial contents of the CUZ#PARM member will be copied from the sample provided in SCUZPARM. However, you may have specified a different data set name when you configured this product.

User response: Type the default data set name, which is SCUZPARM. Otherwise, try to determine what data set name was specified by your administrator when the product was configured.

CUZ011E Enter a PDS Member name where Cloud Connector Parms will be saved.

Explanation: A PDS member name is required to store the parameter values for this product.

User response: Type up to eight characters for a member name from a partitioned data set where you want to save the product parameters. The default member name is CUZ#PARM.

CUZ012E Parmlib Dataset not cataloged. Enter a valid Parmlib DSN.

Explanation: The Parmlib Dataset name that you provided is not cataloged.

User response: Type a different data set name. The default Parmlib Dataset name is SCUZPARM.

CUZ013E Parmlib Dataset cannot be allocated.

Explanation: You are attempting to allocate a Parmlib

Dataset, but the data set cannot be allocated.

User response: Verify that the data set exists and is available for use.

CUZ014E Parmlib Dataset cannot be opened.

Explanation: You are attempting to open a Parmlib Dataset, but the data set cannot be opened.

User response: Verify that the data set name is spelled correctly. Also verify that the data set exists and is available for use.

CUZ015E Member does not exist in Parmlib - Press enter to create member or change the member name entered.

Explanation: You have typed a member name that does not exist in the Parmlib data set.

User response: If you want to create a new member using the name you typed, press Enter. If not, type a different member name.

CUZ016E Enter a "Y" to Abend on Errors or "N" Not to Abend on Errors.

Explanation: Indicate how you want to handle errors that may occur. You can choose to "abend" (stop) processing or allow the program to continue processing even if an error occurs. The default is "N".

User response: Type "N" to continue processing, even if an error occurs (default). Type "Y" to force the program to abend when an error occurs.

CUZ017E User abend code must be a numeric value between 01 and 99.

Explanation: The value you entered was either non-numeric or is not between 01 and 99.

User response: Type a number between 01 and 99 for the user abend code.

CUZ018E Debug Mode must be an "A" for debug All jobs, "J" to debug by Jobname mask (wildcarding) or "N" to turn off Debug Mode.

Explanation: You must specify a value for the Debug Mode option. The valid values are:

- A - Debug all jobs
- J - Debug only the jobs that match this jobname or mask. You can use an asterisk (*) in the mask.
- N - No, do not use debugging. Turn off Debug Mode.

User response: Type one of the values listed in the message (A, J, or N) to indicate which Debug Mode to use.

CUZ019E When Debug Mode is set to "J" (Jobs), a Jobname mask is required. Enter a specific Jobname or Jobname Mask (MYJOB*).

Explanation: This field requires a one- to eight-character job name.

User response: You must type a specific job name or a mask for the job name. For example, to debug all job names that begin with "MYJOB" you would type an asterisk at the end (MYJOB*).

CUZ020E Enter a "Y" to have Messages written to console or "N" to suppress Message writing to console. Warning: Setting to "Y" may cause flooding if Debug All is turned on.

Explanation: Indicate whether or not you want messages to be displayed on the console. The default is "N", which suppresses the writing of messages to the console. If you choose "Y" and Debug All is turned on, a large amount of messages will be sent to the console.

User response: While it is recommended that you use the default value of "N", you can change it to "Y" if you prefer.

CUZ021E Max Cloud Backup Generations must be a numeric value between 1 and 10. This is the nbr of generations that will be kept on the cloud server.

Explanation: When the same data is saved multiple times on the cloud, each version is referred to as a "generation". For example, if you save MYDATA for the first time on 11/1/2016, that is the first generation. If you save MYDATA on 11/2/2016, that is the second generation. Both generations of MYDATA are stored on the cloud and subsequent generations will be as well, up to the number you specify in the Max Cloud Backup Generations field. When the maximum number of generations is reached, the new version will be saved and the oldest generation will be deleted from the cloud and removed from the z/OS repository. The maximum number of generations is 10.

User response: Type a value between 1 and 10 for the number of generations that you want to be saved on the cloud server.

CUZ022E The Cell Pool Size must be numeric value between 25600000 and 99999999. This is the Memory Pools required for copying data to the cloud. The recommended value is 5524288.

Explanation: You must determine how large each memory cell pool must be to contain the data that will be stored in the cloud. The size must be between

25600000 and 99999999, and the recommended value is 5524288.

User response: Type a number between 25600000 and 99999999 to specify a size for the cell pools.

CUZ023E **The Primary and Secondary Nbr of Cells must be a numeric value between 10 and 9999. This is the nbr of Memory objects that can be obtained. These Memory Cells are not part of your Region size. The recommended value is 250.**

Explanation: You must determine how many primary memory cells and secondary memory cells you will need for the data that will be stored in the cloud. You can specify a number between 10 and 9999. The recommended value is 250.

User response: Type a number between 10 and 9999 to specify how many Primary and Secondary cells will be needed.

CUZ024E **The Memory Cell Extents must be a numeric value between 02 and 9999. 250 is the recommended value.**

Explanation: You must determine how many memory cell extents you want to allow if the maximum number of primary and secondary cells is exceeded. The recommended value is 250.

User response: Type a number between 02 and 9999 for the number of Memory Cell Extents that are needed.

CUZ025E **Please enter a "Y" to Stage backups to DASD or "N" to bypass staging and write directly to the Cloud.**

Explanation: Specify "Y" if you want to "stage" the data by saving it to a temporary file before sending it to the Cloud. If the connection to the cloud is lost, the staged backup could be used to continue the backup once the connection is restored. The recommended value is "Y" for this field.

Specify "N" if you want to write a backup directly to the Cloud. While this may seem to be the obvious choice, the process could be interrupted or disconnected if there are network issues. If a disconnection occurs, no data is saved to the cloud, which means you have two options:

- Restart the job.
- Add the data set to the Include/Exclude list to be backed up on a regularly scheduled basis, such as every hour.

Also copying directly to the cloud can be somewhat slow, based on the speed of the network connection. Therefore, it is recommended that you specify "Y" to stage the data before copying it to the cloud.

User response: Type a "Y" or an "N" as you prefer.

CUZ026E **The Stage Alias must be a valid z/OS Cataloged Alias.**

Explanation: The name of the Staging Dataset Alias is not valid because it is not cataloged. Either add the alias to a catalog or use a different alias name that is already cataloged. The default name is CUZSTAGE.

User response: Specify a one- to eight-character name for the Staging Dataset Alias or use the default name, CUZSTAGE.

CUZ027E **The Staging Allocation must be in "T" (Tracks) or "C" (Cylinders).**

Explanation: The only valid values for the Staging Dataset Allocation field on the Parmlib Staging Options screen are "C" for Cylinders or "T" for Tracks.

User response: Type either "T" or "C" in the Staging Dataset Allocation field to specify the type of storage you want to use.

CUZ028E **The Staging Primary/Secondary Allocations must be a numeric value between 1 and 99999999. Make sure this is large enough to handle all backups.**

Explanation: Staging is recommended to ensure no loss of data in case of connectivity issues with the cloud during the backup process. Consider how many primary and secondary space allocations you will need to stage backups before they are copied to the cloud. The numeric values you specify in the Primary Space Allocation field and the Secondary Space Allocation fields must be between 1 and 99999999.

The allocations must be large enough to handle any and all data sets being backed up. All unused space is freed at the end of the job and the staging data set is deleted after the data has been successfully written to the cloud.

User response: Type a value between 1 and 99999999 to indicate how many Staging Primary/Secondary Allocations should be assigned.

CUZ029E **The Retry count is the nbr of times we will attempt to write stage data to the Cloud when Cloud write errors occur. This must be a numeric value between 1 and 9999.**

Explanation: When you have staged data to DASD and attempt to copy that data to the Cloud, ideally the data will be copied without any issues. However, if the network connection to the Cloud is lost during the copy process, Cloud Tape Connector will continue to

try to copy the data to the Cloud based on the number of "retry attempts" you specify in the Error Retry Count field.

User response: On the Parmlib Staging Options screen, type a number between 1 and 9999 in the Error Retry Count field.

CUZ030E **The Retry Interval is the nbr of seconds to wait between Cloud write retries. This must be a valid numeric between 1 and 999 seconds.**

Explanation: One of the fields on the Parmlib Staging Options screen is the "Error Retry Interval Secs" field which specifies how many seconds to wait before attempting to copy data to the Cloud again. When you have staged data to DASD and attempt to copy that data to the Cloud, ideally the data will be copied without any issues. However, if the network connection to the Cloud is lost during the copy process, Cloud Tape Connector will continue to try to copy the data to the Cloud based on the number of "retry attempts" you specify in the Error Retry Count field. The amount of time between retry attempts is determined by the value you specify in the "Error Retry Interval Secs" field.

User response: Type a number between 1 and 999 to specify how many seconds to wait before attempting to write to the Cloud again.

CUZ031E **Invalid Line Command. Enter a "C" to Create a new Cloud Filter, "D" to Delete the Cloud Filter or "E" to Edit the Cloud Filter.**

Explanation: On the Cloud Filter Display screen, you can create a new cloud filter (C), edit an existing cloud filter (E), or delete a cloud filter (D). If you specify "C" in the Cmd field, you are asked to provide the following information about the new cloud filter:

- filter type
- name of the cloud
- retention period
- filter criteria

If you specify "E" or "D" in the Cmd field, another window appears where you can make changes to an existing filter or confirm the deletion of a filter.

User response: Type either a C, D, or E in the Cmd line, depending on what you want to do with a cloud filter.

CUZ032E **Invalid Filter Criteria - Please enter an "S" to filter by SMS Storage class, "D" to filter by Dataset, "E" to filter by Esoteric Unit, or "R" to backup Cloud Connector Repository.**

Explanation: The value you entered as the Filter Type is not valid. The Repository filter specifies where to save a backup of the entire Cloud Connector repository. No criteria is allowed for this filter type and only one Repository filter can be defined. A backup of the repository is performed every "n" minutes, based on the value you specified in the "Auto Bkup Repository Min" field on the General Options screen (under Product Settings).

User response: Type either "S" (SMS Storage Class), "D" (Dataset), "E" (Esoteric Unit), or "R" (Repository) to specify a Filter Type for this cloud filter.

CUZ033E **The Cloud Name entered has not been defined yet or is invalid. This parmlib member can not be saved until the cloud server is defined.**

Explanation: The Cloud Name you specified is either spelled incorrectly or it has not yet been "defined" to this product. Choose the "Settings" option on the Main Menu, and then select the "Cloud Servers" option to create a new cloud server definition.

User response: Type a different Cloud Name or add a new cloud definition, as needed.

CUZ034E **The Retention Period is invalid. Please enter the nbr of days to keep these backups on the cloud server.**

Explanation: When creating or editing filter criteria for a cloud backup, you must specify a value for the Retention Period field to indicate the number of days that you want to retain this data on the cloud. Valid numbers for the Retention Period are 0000 - 9999. A value of zero is helpful for testing so you can run the expire job and retest without having to wait days for the data sets to expire.

User response: Type a number between 0000 and 9999 in the Retention Period field.

CUZ035E **The Filter Criteria is invalid. Please enter valid filter options for capturing data to the cloud. Wildcarding is available here. Ex: Storage class filter - MYCLASS*.**

Explanation: You can filter data by SMS storage class, data set name, or an esoteric unit. You can also use an asterisk (*) as a wildcard for other characters. In the example, the filter MYCLASS* will select all items with a storage class that begins with "MYCLASS".

User response: Specify a different filter.

CUZ036E **Invalid Value - Please enter a "Y" to delete this filter criteria or "N" to bypass deletion.**

Explanation: On the Cloud Filter Display screen, you can choose to create, edit, or delete filter criteria for

cloud backups. When you type "D" to delete an existing filter, a window displays information about that filter. You must specify a value to either confirm that you want to delete this filter (Y) or return to the previous screen without deleting the filter (N).

User response: Type "Y" to confirm you want to delete this filter or "N" to keep this filter (not delete it).

CUZ037E **A Parmlib Member is required. Please enter a valid Parmlib member name.**

Explanation: Parmlib Member names must be one to eight characters long. The default Parmlib Member name is CUZ#PARM, which is in the sample PARMLIB data set, SCUZPARM.

User response: Type a name up to eight characters long in the Parmlib Member field. Use CUZ#PARM if you do not have a different Parmlib Member created for this purpose.

CUZ038E **Allocation Error - The ISPFILE DD is already allocated and cannot be deallocated - Process not completed.**

Explanation: The ISPFILE DD allocation failed. The DD is already allocated and cannot be unallocated for this TSO session. The process did not complete successfully.

User response: No response required.

CUZ039E **Allocation Error - An error was encountered allocating the ISPWRK1 or ISPWRK2 DD - Process not completed.**

Explanation: The ISPWRK1 or ISPWRK DD allocation failed. The process did not complete successfully.

User response: Verify TSO session parameters are set correctly for your site prior to allocation of these DD statements.

CUZ040E **An error occurred opening the file tailoring ISPWRK1 or ISPWRK2 DD.**

Explanation: An error occurred when attempting to open the ISPF work files: ISPWRK1 or ISPWRK2.

User response: Retry the operation. Contact IBM Technical Support for assistance, if needed.

CUZ041I **The column sizes have been reduced for initial display purposes. Enter command CSIZE to set the column widths you desire. Enter command CORDER to arrange the columns in the order you desire.**

Explanation: You can modify the column sizes and the column order to fit your purposes, or you can leave the display as it appears.

User response: No action is required, however you can resize or re-order the columns to suit your display preferences.

CUZ042E **No Cloud Servers have been defined. Saving a parmlib member without any cloud definitions is not allowed. Enter option "3" to define a cloud server.**

Explanation: There must be a filter criteria defined to be able to save a PARMLIB member.

User response: Select Option 1 (Settings) on the Main Menu and then Option 3 (Cloud Servers). Use the "C" (Create) line command to add a cloud server definition. This is the cloud that will hold the backup. You can add multiple cloud definitions.

CUZ043E **No Filter Criteria has been established. Saving a parmlib member without any filter definitions is not allowed. Enter option "4" to define a filter definition.**

Explanation: To save a PARMLIB member, define the filter criteria.

User response: At least one filter criteria must be defined before the started task can start. Without any cloud servers defined or filter criteria defined, the product has nothing to do. To save a PARMLIB member, define the filter criteria. Select Option 1 (Settings) on the Main Menu, then Option 4 (Backup Filter Criteria). Use the "C" (Create) line command to create filter criteria to select the data sets you want to backup onto the cloud.

CUZ044E **Cloud Name has already been defined. A Cloud Name used in a Cloud definition must be unique. Change the Cloud Name or delete the cloud with the same name.**

Explanation: You are creating a new cloud server definition, but the name you typed in the "Cloud Name" field is already used by a different cloud server definition. Each Cloud Name must be unique.

User response: Type a different Cloud Name for this new cloud definition or delete the existing cloud definition that uses the same name.

CUZ045E **Max Backup History Tasks must be a numeric value between 1 and 99. This is the nbr of datasets already created that will be backed up to the cloud at the same time. Set this to the max nbr of tape drives that can be allocated at the same time.**

Explanation: The number you specify in the "Max Backup History Tasks" field indicates the maximum number of tape drives that can be allocated at the same

time to write existing date sets to the cloud. This parameter will prevent Cloud Tape Connector from absorbing all of the tape units in your system.

User response: Type a number between 1 and 99 for the maximum number of tape drives that can be allocated at the same time to write existing data sets to the cloud.

CUZ046E The Restore Alias must be a valid z/OS Cataloged Alias.

Explanation: When restoring a data set that is currently saved to the cloud, you can either restore it to the existing data set name or you can use a different data set name, which is an "alias" name. In this case, the alias that you entered cannot be used because the alias is not cataloged.

User response: Either add the alias to the catalog or specify a different alias that is already cataloged.

CUZ047E Max Restore Tasks must be a numeric value between 1 and 99. This will regulate the nbr of tape drives that can be occupied at the same time.

Explanation: When restoring data sets from the cloud, setting the "Max Restore Tasks" parameter will allow you to control the number of tape drives that Cloud Connector can use at the same time. Each drive will be used to restore one data set. The default value is 5.

User response: Type a number between 1 and 99 for the maximum number of restore tasks that can occur simultaneously to restore data sets from the Cloud(s). Do not type a number that is higher than the actual number of tape drives you have at your site.

CUZ048E When Restore to DASD is set to Yes, a valid DASD device is required to restore. Please enter a valid DASD Device type.

Explanation: The "restore" process copies data from the cloud to DASD or tape. If you have a value of "Y" in the "Restore to DASD" field, you must specify a one- to eight-character device name in the "Restore DASD Unit" field. The default name is SYSALLDA. You can use this default or specify a DASD unit device that is appropriate for your site.

If the block size is greater than 32K, the restored data must be sent to tape rather than DASD. For this reason, you must also specify a value in the "Restore TAPE Unit" field. The default name is TAPE. You can use this default or specify a value that is appropriate for your site.

User response: Specify a DASD device in the "Restore DASD Unit" field or use the default, which is SYSALLDA. Also provide a value for the "Restore TAPE Unit" field or use the default, which is TAPE.

CUZ049E A Tape Device type is required for restoring datasets from the Cloud. Please enter a valid Tape Device type.

Explanation: When restoring data sets from the cloud, if a data set has a block size that is greater than 32K, the data set will be restored to tape. Also, if you specify an "N" in the "Restore to DASD" field, the data set will be restored to tape.

User response: Specify a one- to eight-character value for the "Restore TAPE Unit" field or use the default, which is TAPE.

CUZ050E The Retention Period is invalid. Please enter the nbr of days to keep the restored datasets on tape.

Explanation: The Retention Period indicates how long to keep the data on tape. The number of days can range from 0 - 9999. A value of zero is helpful for testing so you can run the expiration job and retest without having to wait days for the data set to expire.

User response: Type a number between 0 and 9999 for the number of days to keep the restored data on tape.

CUZ051E Invalid value. Please enter a "Y" to restore datasets to DASD or "N" to restore datasets on tape.

Explanation: The only valid values for this field are Y or N. Data sets from the cloud can be restored to a DASD unit as long as the block size (blksize) is less than 32K. If it is larger than 32K, the data set must be restored to tape.

User response: Type either "Y" to restore data sets to DASD or "N" for tape. If you type a "Y" in the "Restore to DASD" field, you must also provide values for the "Restore DASD Unit" and "Restore TAPE Unit" fields. You must always specify a value for the "Restore TAPE Unit" field.

CUZ052E Invalid value. Please enter a numeric value between 1 and 50. Nbr of IO Buffers default value is 10.

Explanation: When staging data on DASD before copying the data to the cloud, it is important to have several Input/Output Buffers so the job writing the data does not have to wait for server I/O. The default number of buffers is 10, but you can specify up to 50.

User response: Type a value from 1 - 50 in the "Nbr of IO Buffers" field for the number of I/O buffers for staging data to DASD. The default is 10.

CUZ053E Invalid Line Command - Enter "D" to Delete the DSN line, "I" to Insert a new DSN line or "R" to Repeat this line.

Explanation: When you choose Option 4, Backup History Datasets, on the Main Menu, you can create a list of data sets to include or exclude. The data sets on this list are copied to the cloud in the background processing of the Cloud Connector started task. The only valid line commands available on the Include/Exclude History screen are the following:

- I - Insert a blank line to create a new data set filter.
- D - Delete a blank line or an existing data set filter.
- R - Repeat this line.

User response: Type either "I" to insert a new filter, "D" to delete a filter, or "R" to repeat a line.

CUZ054E Invalid Include/Exclude indicator. Please enter an "I" to Include these Datasets or "E" to Exclude these Datasets.

Explanation: The only valid values for the Inc/Exc column are the following:

- I - Include these data sets when performing a backup.
- E - Exclude these data sets from a backup.

User response: Change the value you typed in the Inc/Exc column to an "I" or an "E".

CUZ055E Invalid Dataset Masking. Please enter valid Dataset Like criteria to include/exclude in history processing.

Explanation: The data set mask you entered as criteria on the History Include/Exclude screen is not valid.

User response: Type up to 44 characters for the data set name, data set mask, or data set filter you want to include or exclude during backups of history data sets. Use an asterisk (*) to indicate "any characters" are accepted. For example, if you typed `MYUSERID.MYOLDLIB.*` as the mask, all of the data sets owned by MYUSERID in the MYOLDLIB library would be selected for processing.

If an "I" is assigned to this data set mask, the data sets will be included in processing. If an "E" is specified, the data sets will be excluded from backup history processing.

CUZ056E Invalid Entry. Please enter a "Y" to restore this dataset, "N" to cancel restoring this dataset or "A" to restore all the datasets selected.

Explanation: On the Restore Dataset Confirmation window, you are asked whether you want to restore the data set that is listed in the window. If you typed an "R" on two or more lines on the Cloud Dataset Display screen, a confirmation window displays for each data set to verify that you want to restore it. If you selected a large number of data sets and are certain that you want to restore all of them, type "A" in the Restore Dataset field to restore them all.

User response: Specify "Y" (yes), "N" (no), or "A" (all) in the Restore Dataset field.

CUZ057E Invalid Restore Alias. The Restore Alias must be a valid z/O Cataloged Alias.

Explanation: You can restore the data set to the same name, a different name (alias), or to the default alias name (CUZRESTR).

User response: If you want to restore the data set to a different name, type up to eight characters for the alias. The default alias is CUZRESTR. If you prefer to use the original data set name, rather than an alias, leave this field blank.

CUZ058E Invalid Entry. Please enter a "Y" to delete this cloud backup, "N" to cancel deleting this cloud backup or "A" to delete all the cloud backups selected.

Explanation: On the Delete Cloud Backup Confirmation window, you are asked whether you want to delete the backup data set that is listed in the window.

- If you only selected this one backup data set to be deleted, type either "Y" (yes) or "N" (no) in the Delete Cloud Backup field.
- If you typed a "D" on two or more lines on the Cloud Dataset Display screen, a confirmation window displays for each data set to verify that you want to delete it.
- If you selected a large number of data sets and are certain that you want to delete all of them, type "A" in the Delete Cloud Backup field to delete them all.

User response: Type a "Y" (yes), an "N" (no), or an "A" (all) in the Delete Cloud Backup field. The default value is N.

CUZ059E Auto Bkup Repository minutes must be a numeric value between 05 and 9999. This will create a backup of the repository to the cloud every *n* minutes. It will also rebuild the Include / Exclude history list plus restart any failed cloud staging writes.

Explanation: A backup of the repository can be saved to the cloud on a regular basis. When this happens, the Include/Exclude history list is also rebuilt and any staging jobs that failed when attempting to write data to the cloud are also restarted.

User response: Type a number between 05 and 9999 for the number of minutes to wait between automatic

backups to the cloud repository. The default is 60.

CUZ060E **Cloud Name Required. A Cloud Name is required for all datasets in the include list. Please enter a valid pre-defined cloud name listed in the Parmlib options.**

Explanation: When creating a new data set filter on the Include/Exclude History screen, you must specify a Cloud Name so Cloud Tape Connector knows where to copy the data. This Cloud Name must have been previously defined to Cloud Tape Connector. To create a cloud server definition, select the "Settings" option on the Main Menu, then choose the "Cloud Servers" option on the Parmlib Options Main Menu.

User response: Type up to eight characters in the Cloud Name field to specify a name associated with this new filter.

CUZ061E **Invalid Primary command. Only ISPF primary commands are supported on this screen.**

Explanation: You are attempting to perform an operation that requires the use of an ISPF primary command.

User response: Type an ISPF primary command, not a line command.

CUZ062E **Repository Filter already created. Only 1 Repository Filter may be created per Cloud Connector subsystem.**

Explanation: You are attempting to create a cloud filter using "R" (repository) as the Filter Type, when another repository filter already exists. The repository can be backed up to only one cloud, so only one repository filter is allowed.

User response: Specify a different type of filter. Other filter types include Storage Class (S), Esoteric Unit (E), and Dataset (D).

CUZ063W **No Repository Filter was found. Please define a Repository Filter to enable backing up Cloud Connector repository to a cloud server. If you choose not to define a Repository Filter, auto repository backups will be disabled.**

Explanation: In this scenario, automatic backups to a repository on a cloud cannot be performed because no Repository Filter has been defined. No data sets are being written to the repository.

User response: Define a Repository Filter to enable the Cloud Connector repository to be automatically backed up to the cloud.

CUZ064E **Storage acquisition error obtaining another memory cell. There is not enough storage to display all datasets. Narrow down your dataset like criteria and re-enter.**

Explanation: The "Dataset Like" field on the Enter Dataset Criteria screen contains a value that results in too many data sets being selected for display.

User response: If you used an asterisk (*) in this field, try to be more specific with a data set name. To increase the number or size of memory cells, refer to “General Options” on page 20.

CUZ065E **Error building a storage cell pool. Check the region size of your TSO session and try again.**

Explanation: The cell pool requires more space than is currently available in the region.

User response: Increase the region size of your TSO session and try again.

CUZ066E **Invalid value. Please enter a "1" to define a Cleversafe cloud server, "2" for FTP, "3" for HCP, "4" for SFT, or "5" for S3.**

Explanation: The value you entered in the "Create Cloud Type" field is not supported. Valid cloud types include:

1. CLS - Cleversafe
2. FTP - File Transfer Protocol
3. HCP - Hitachi Control Platform
4. SFT- SoftLayer (IBM)
5. S3 - Simple Storage Service (Amazon)

User response: Specify one of the Cloud Types listed above.

CUZ067E **Invalid Dataset Name. The dataset name entered does not meet z/OS dataset naming standards. Cursor is pointing to location of dataset error location.**

Explanation: When saving your settings to a parameter member, you must provide the name of a data set where the member will be saved. The data set name can be up to 44 characters in length. The default data set name is SCUZPARM, which is the sample data set that is included with this product.

User response: Type up to 44 characters for the name of the data set that will contain the parameter member.

CUZ068E **Invalid Member Name. The member name entered does not meet z/OS dataset naming standards.**

Explanation: The Parmlib Member name you specified contains invalid characters. The SCUZPARM data set included with this product contains an example of a parameter member, CUZ#PARM.

User response: Type a one- to eight-character name for the parameter member. The default is CUZ#PARM.

CUZ069I **Member** *parameter member* **was successfully saved.**

Explanation: The listed Parmlib Member has been saved.

User response: No action is required..

CUZ070I **Member &PARMLMBR was not saved.**

Explanation: The Parmlib Member listed in the message was not saved.

User response: This is an informational message. No action is required.

CUZ071E **Invalid Value - Please enter a "Y" to delete this cloud server definition or "N" to bypass deletion**

Explanation: At this point, you must choose to go forward with deleting the cloud server definition (Y) or cancel it (N).

User response: The only valid entries for this field are "Y" (yes, delete this cloud server definition) or "N" (no, cancel the deletion and keep this cloud server definition).

CUZ072E **The Restore Alias can not be the same as the Staging Alias. Please enter an Alias different than the Staging Alias**

Explanation: The Restore Alias and the Staging Alias must be different Alias names.

User response: If you want to restore the data set to a different name, type up to eight characters for the Restore Alias. The default alias is CUZRESTR. If you prefer to use the original data set name, instead of an alias, leave this field blank.

CUZ073E **The filter criteria can not be more than 8 characters for storage class and esoteric unit filters**

Explanation: The name of an esoteric unit filter or a storage class filter can be up to eight characters. An asterisk (*) can be used as a wildcard.

User response: Specify filter criteria that is a maximum of eight characters for a storage class or an esoteric unit.

CUZ074E **The filter dataset mask does not meet z/OS dataset naming standards. Please enter a valid dataset mask**

Explanation: You typed characters in the data set mask that are not acceptable.

User response: Change the data set mask to ensure it meets naming standards.

CUZ075E **The restore dataset name does not meet z/OS dataset naming standards. Please enter a valid restore dataset name**

Explanation: You typed characters in the data set name that are not acceptable.

User response: Change the data set name to ensure it meets naming standards.

CUZ076E **Restoring to Disk is not supported when the block size exceeds 32768. This Dataset must be restored to tape**

Explanation: If the block size is greater than 32K, the restored data will be sent to tape rather than DASD.

User response: Specify a value in the "Restore TAPE Unit" field. The default name is TAPE. You can use this default or specify a tape value that is appropriate for your site.

CUZ077E **Invalid Restore Unit. Unit must be T for Tape or D for Disk**

Explanation: You have typed an invalid character in the Restore Unit Type field on the Restore Dataset Confirmation screen. You can choose to restore data to Tape (T) or to Disk (D).

User response: Type either a "T" (tape) or a "D" (disk) in the Restore Unit Type field.

CUZ078E **Restore Alias and Restore Dataset are mutually exclusive. Please enter an Alias or Dataset, but not both.**

Explanation: When restoring data, you can either specify up to 44 characters for a Restore Dataset or up to 8 characters for a Restore Alias, but not both.

User response: Specify either a Restore Dataset or a Restore Alias.

CUZ079E **Restoring dataset is a GDG without a GDG base. Option not allowed.**

Explanation: The data set being restored is part of a generation data group (GDG), but there is no base for

the GDG. In this case, restoration of the data set is not allowed.

User response: Define a GDG base for this data set alias or remove/change the last node so it does not meet GDG naming standards.

CUZ080E **Invalid DASD Unit parameter. Please enter a valid DASD Esoteric unit parameter.**

Explanation: The DASD unit your specified is not defined as a valid esoteric DASD unit at your installation.

User response: Enter a DASD esoteric unit parameter allowed by your installation.

CUZ081E **Invalid Tape Unit parameter. Please enter a valid Tape Esoteric unit parameter**

Explanation: The TAPE unit your specified is not defined as a valid esoteric TAPE unit at your installation.

User response: Enter a TAPE esoteric unit parameter allowed by your installation.

CUZ082E **Invalid value. Please enter a "Y" to delete the existing backup or "N" to bypass deleting the existing backup.**

Explanation: You are being asked to confirm that you want to delete an existing backup. The only valid entries in this field are:

- Y - Yes, delete the existing backup.
- N - No, cancel the deletion process and keep the existing backup.

User response: Specify either "Y" or "N" as you prefer.

CUZ083E **Restore will fail because the restore dataset is cataloged and delete old backups is set to No. Set delete old backups to Yes or manually delete the old backup.**

Explanation: If a new restore data set is already cataloged, the restore process will fail. The old backup data set must be deleted before the restore process is started.

User response: Either specify "Yes" in the "Delete Old Backups" field or manually delete the old backup so that the cataloged data set can be restored.

CUZ084E **The same dataset is being restored more than once. Please select only one dataset with the same name to be restored at one time.**

Explanation: Two data sets with the same name have been selected to be restored. However, only one of the data sets can be restored.

User response: Change your selections so that only one data set is restored.

CUZ085E **Option not allowed. You can not reply "All" when entering a restore to dataset name. Multiple restores to the same dataset name will fail.**

Explanation: The "All" value cannot be used in this case because the same data set name cannot be restored multiple times.

User response: Type a "Y" to restore the data set and a new screen will appear for the other selected data sets.

CUZ086E **Invalid Value. Cleversafe requires the Key ID to be a 16 to 32 byte alphanumeric string. Please enter a valid Key ID.**

Explanation: The Key ID is the server ID that is required for signing into this cloud. The Key ID must be 16 - 32 characters in length.

User response: Type a Key ID that is the proper length and that uses either alphabetic or numeric characters, or a combination of both.

CUZ087E **Invalid Value. Cleversafe requires the Secret Access Key to be a 32 to 64 byte alphanumeric string. Please enter a valid Secret Access Key.**

Explanation: The Secret Access Key is similar to a password and is associated with the Key ID that allows access to this cloud. The Secret Access Key must be 32 - 64 characters in length.

User response: Type a Secret Access Key that is the proper length and that uses either alphabetic or numeric characters, or a combination of both.

CUZ088E **Invalid Value. Cleversafe requires the IP Address to be a 1 to 128 byte alphanumeric string. Please enter a valid IP Address.**

Explanation: The Internet Protocol Address is used to connect to the cloud. The IP Address must be 1 - 128 characters in length.

User response: Type an IP Address that is the proper length and that uses either alphabetic or numeric characters, or a combination of both.

CUZ089E **Invalid Value. Cleversafe requires the Bucket Name to be a 3 to 63 byte alphanumeric string. Please enter a valid Bucket Name.**

Explanation: The Bucket Name is the name or location of the repository on the cloud where the data will be saved. The Bucket Name must be 3 - 63 characters in length.

User response: Type a Bucket Name that is the proper length and that uses either alphabetic or numeric characters, or a combination of both.

CUZ090E **Invalid Value. FTP requires the User ID to be a 1 to 64 byte alphanumeric string. Please enter a valid User ID.**

Explanation: The User ID is the server ID that is required for signing into this cloud. The User ID must be 1 - 64 characters in length.

User response: Type a User ID that is the proper length and that uses either alphabetic or numeric characters, or a combination of both.

CUZ091E **Invalid Value. FTP requires the Password to be a 1 to 64 byte alphanumeric string. Please enter a valid Password.**

Explanation: This password is associated with the User ID that allows access to this cloud. The password must be 1 - 64 characters in length.

User response: Type a password that is the proper length and that uses either alphabetic or numeric characters, or a combination of both.

CUZ092E **Invalid Value. FTP requires the IP Address to be a 1 to 128 byte alphanumeric string. Please enter a valid IP Address.**

Explanation: The Internet Protocol Address is used to connect to the cloud. The IP Address must be 1 - 128 characters in length.

User response: Type an IP Address that is the proper length and that uses either alphabetic or numeric characters, or a combination of both.

CUZ093E **Invalid Value. SoftLayer requires the User ID to be a 1 to 64 byte alphanumeric string. Please enter a valid User ID.**

Explanation: The User ID is the server ID that is required for signing into this cloud. The User ID must be 1 - 64 characters in length.

User response: Type a User ID that is the proper length and that uses either alphabetic or numeric characters, or a combination of both.

CUZ094E **Invalid Value. SoftLayer requires the Password to be a 1 to 64 byte alphanumeric string. Please enter a valid Password.**

Explanation: This password is associated with the User ID that allows access to this cloud. The password must be 1 - 64 characters in length.

User response: Type a password that is the proper length and that uses either alphabetic or numeric characters, or a combination of both.

CUZ095E **Invalid Value. SoftLayer requires the IP Address to be a 1 to 128 byte alphanumeric string. Please enter a valid IP Address.**

Explanation: The Internet Protocol Address is used to connect to the cloud. The IP Address must be 1 - 128 characters in length.

User response: Type an IP Address that is the proper length and that uses either alphabetic or numeric characters, or a combination of both.

CUZ096E **Invalid Value. S3 requires the Key ID to be a 16 to 32 byte alphanumeric string. Please enter a valid Key ID.**

Explanation: The Key ID is the server ID that is required for signing into this cloud. The Key ID must be 16 - 32 characters in length.

User response: Type a Key ID that is the proper length and that uses either alphabetic or numeric characters, or a combination of both.

CUZ097E **Invalid Value. S3 requires the Secret Access Key to be a 32 to 64 byte alphanumeric string. Please enter a valid Secret Access Key.**

Explanation: The Secret Access Key is similar to a password and is associated with the Key ID that allows access to this cloud. The Secret Access Key must be 32 - 64 characters in length.

User response: Type a Secret Access Key that is the proper length and that uses either alphabetic or numeric characters, or a combination of both.

CUZ099E **Invalid Value. S3 requires the Bucket Name to be a 3 to 63 byte alphanumeric string. Please enter a valid Bucket Name.**

Explanation: The Bucket Name is the name or location of the repository on the cloud where the data will be

saved. The Bucket Name must be 3 - 63 characters in length.

User response: Type a Bucket Name that is the proper length and that uses either alphabetic or numeric characters, or a combination of both.

CUZ100E **Invalid Value. HCP requires the User ID to be a 1 to 64 byte alphanumeric string. Please enter a valid User ID.**

Explanation: The User ID is the server ID that is required for signing into this cloud. The User ID must be 1 - 64 characters in length.

User response: Type a User ID that is the proper length and that uses either alphabetic or numeric characters, or a combination of both.

CUZ101E **Invalid Value. HCP requires the Password to be a 1 to 64 byte alphanumeric string. Please enter a valid Password.**

Explanation: This password is associated with the User ID that allows access to this cloud. The password must be 1 - 64 characters in length.

User response: Type a password that is the proper length and that uses either alphabetic or numeric characters, or a combination of both.

CUZ102E **Invalid Value. HCP requires the IP Address to be a 1 to 128 byte alphanumeric string. Please enter a valid IP Address.**

Explanation: The Internet Protocol Address is used to connect to the cloud. The IP Address must be 1 - 128 characters in length.

User response: Type an IP Address that is the proper length and that uses either alphabetic or numeric characters, or a combination of both.

CUZ103E **Authorization Failure - You are not authorized to view this dataset**

Explanation: You are attempting to access a data set that you do not have the authority to use.

User response: Either choose a different data set or talk to your System Administrator about granting you the proper authority.

CUZ104E **Authorization Failure - You are not authorized to write to this dataset. Saving this member is not allowed in this dataset.**

Explanation: You have attempted to save a member to a data set, but you do not have the authority to write to this data set.

User response: Either try saving this member to a different data set or contact your System Administrator about granting the authority you need to write to this data set.

CUZ105E **You cannot restore to a relative GDG "(+1)", it must be an absolute GDG or no GDG. Remove the relative GDG from the end of the dataset.**

Explanation: When specifying a data set name, use an absolute generation data group (the 0 generation), not a relative GDG. For example, if you are restoring a data set,`USERID.DISK.CUZ.GDG0`, you could restore it to `RESTR.DISK.CUZ.GDG0` (notice that "USERID" is changed to "RESTR"), but not to a relative data set, such as `RESTR.DISK.CUZ(+1)`.

User response: Either specify a data set name with an absolute GDG or one that does not have a GDG. Another option is to remove the relative GDG from the end of the data set name.

CUZ106E **Invalid Value. SoftLayer requires the Container to be a 1 to 128 byte alphanumeric string. Please enter a valid Container.**

Explanation: This type of server definition requires a "Container" as one of the values in the definition.

User response: Type up to 128 characters to identify the Container that will hold the saved data.

CUZ107I **Restore complete -** <*message*>

Explanation: The Restore Request you waited for is now complete. It may have completed with errors. <*Message*> is the message returned by the Restore process.

User response: If the message indicates that an error occurred, correct the error and re-submit the request.

CUZ108E **Authorization Failure - You must have alter authority on DSN** *Parmlib Data Set Name* **in order to restore it.**

Explanation: To restore a data set from the cloud back to z/OS, the TSO User ID must have alter RACF authority on the original data set. You received this message because your User ID does not does not have alter authority on the original data set.

User response: Either take steps to have alter RACF authority assigned to your User ID or use a TSO User ID that does have that type of authority. Contact IBM Technical Support for assistance, if needed.

CUZ111E **Invalid Value - Enter a "Y" to Catalog the backup to the cloud or "N" to keep backup cataloged as is**

Explanation: This parameter, **Catalog to Cloud**, determines whether Cloud Connector will re-catalog the data set on the cloud.

- If set to "Y", Cloud Connector will delete the disk data set or uncatalog the tape data set and re-catalog it with *volume serial* = CLOUD. The data set will be restored back to z/OS when allocated.
- If set to "N", a copy of the data set will reside on the cloud and the data set will also reside on z/OS.

User response: Type either "Y" or "N" as described above.

CUZ112E **Option not Allowed - Recataloging a repository backup filter is not supported.**

Explanation: This **Catalog to Cloud** option is not allowed on a Repository type filter. The repository backup data set is not cataloged and only resides on the cloud.

User response: Clear any value you specified for the **Catalog to Cloud** option for this repository.

CUZ113I **Dataset** *data set* **was successfully deleted and uncataloged from the cloud**

Explanation: Dataset *data set* was cataloged with *volume serial* = CLOUD. The data set was deleted from the cloud and was also uncataloged from z/OS.

User response: No action is required.

CUZ114E **An error occurred uncataloging dataset** *data set name* **from the cloud.**

Explanation: Data set *data set name* was cataloged with *volume serial* = CLOUD. An attempt was made to uncatalog the data set from z/OS, however, it could not be changed. The data set was deleted from the cloud, but is still cataloged to z/OS.

User response: Try to determine why the data set could not be uncataloged from z/OS. Contact IBM Technical Support for assistance, if needed.

CUZ115E **Enter "Y" to Reserve Repository or "N" Not to Reserve Repository**

Explanation: The "Reserve Repository on ENQ" field on the Parmlib General Options screen allows you to determine whether to replace ENQ's with RESERVE's. The default is N (no). Only turn on this feature if necessary.

User response: Specify either "Y" or "N". If you are uncertain, choose "N".

CUZ116E **Invalid Value - The Roll in GDG Base must be a "Y" to roll in the GDS, "N" to leave it in Defer (Not Rolled In), or "C" for Conditionally Roll in the GDS. Press F1 for a full explanation of these values.**

Explanation: The **Roll into GDG Base** field allows you to restore active or deferred generation data group files, and also to force the restoration of a GDS data set, if the situation requires it. Indicate whether to modify the generation data group (GDG) index. Valid values are:

- **Y** - For SMS-managed DASD and Tape data sets, the generation data set (GDS) will be rolled into the active generation data group (GDG) index, regardless of its current state. The dataset (GDS) can be referenced by a relative generation number.
- **N** - For SMS-managed DASD data sets, the GDS will be restored in Deferred state, regardless of its current state. For SMS-managed Tape data sets, the GDS will be restored, but the data set will be renamed from G####V## to G####X##.
- **C** - This is the default. The restore process varies, depending on the present state of the GDS.

For more information, you can press F1 for a help screen or see “Considerations for restoring GDG's” on page 70 for a detailed explanation of these values.

User response: Type "Y", "N", or "C" in the **Roll into GDG Base** field. If you do not know which value to choose, use the default value of "C".

CUZ117W **Encryption Failure - An error was encountered generating an encryption key. Refer to the z/OS Integrated Cryptographic Service Facility (ICSF) Application Programmer's Guide for a list of Return and Reason codes. RC=***return code* **RS=***reason code*

Explanation: The return code and reason code listed in the message may help you determine the source of the encryption key error. Refer to Appendix A in the *IBM z/OS Cryptographic Services: Integrated Cryptographic Service Facility (ICSF) Application Programmer's Guide* (SC14-7508) for a list of Return and Reason codes.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ118E **Invalid Value - Enter a "Y" to Encrypt the Cloud Definitions or "N" to save the Cloud Definitions in displayable format**

Explanation: When saving or updating a Parmlib member, you can choose to encrypt the cloud definitions. This prevents the actual information from being displayed, printed, or sent as write-to-operation (WTO) messages at startup.

User response: Specify "Y" or "N".

CUZ119E Encryption Services are not available. Encryption is disabled.

Explanation: The encryption process is not available at this time, so the cloud encryption feature has been disabled.

User response: Wait a few minutes and try again. Contact IBM Technical Support for assistance, if needed.

CUZ120E Encryption Failure - An error was encountered encrypting the parmlib values. Refer to the z/OS Integrated Cryptographic Service Facility (ICSF) Application Programmer's Guide for a list of Return and Reason codes. RC=*return code* RS=*reason code*

Explanation: The return code and reason code listed in the message may help you determine the source of the encryption error. Refer to Appendix A in the *IBM z/OS Cryptographic Services: Integrated Cryptographic Service Facility (ICSF) Application Programmer's Guide* (SC14-7508) for a list of Return and Reason codes.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ121W Display Limit Reached - The number of lines to display is larger than the screen can hold. Please refine your display list using the filter above (Jobname Like, Dataset Like or Cloud Like)

Explanation: There are too many items to display on the screen. You will need to specify filter criteria to reduce the number of lines displayed.

User response: To shorten the list, specify criteria based on job name, data set name, or cloud name.

CUZ901E The product load library could not be located.

Explanation: The load library for this product cannot be found. The default name for the load library is SCUZLOAD.

User response: Verify the location of the Cloud Connector load library. Check that it has been added to the APF list as mentioned in "Step 5: APF authorize SCUZLOAD on all systems" on page 11.

CUZ903E The default GDG base dataset name could not be located.

Explanation: The default name for the Generation Data Group (GDG) base data set could not be found.

User response: Check the spelling of the base data set name for the default generation data group (GDG) or create a new data set name.

CUZ904E The specified dataset could not be opened for I/O.

Explanation: A VSAM open error occurred while attempting to open the Control Data Set.

User response: Verify that the data set is accessible. Also verify the data set name.

CUZ909E Invalid value. Valid options are 1 and 2.

Explanation: The character or number you typed is not acceptable. The only values that are acceptable are 1 and 2.

User response: Type 1 or 2 to select the option you want.

CUZ910E An unexpected return code from VSAM was encountered while doing an add operation to the control file. RC1=*return code*

Explanation: A VSAM error occurred while attempting to perform an add operation to the Control Data Set.

User response: Review the return code to determine the type of error that has occurred.

CUZ911E No Find string specified.

Explanation: The FIND command requires specification of a target string.

User response: Type one or more characters that you want to locate using the FIND command.

CUZ912E Find string not found

Explanation: The requested find string was not found. If this is the string you were searching for, then it does not exist.

User response: Adjust the number of characters in the string you originally typed and try the search again or type a completely different string.

CUZ913I The control file record has been successfully updated.

Explanation: This message indicates that the update process was completed.

User response: No response is required.

CUZ914E An unknown column was specified using the SORT command.

Explanation: When using the SORT command, you must specify a column name that you want to use as the basis for sorting the table. The column you specified with the SORT command is not known.

User response: Verify that you correctly typed the name of the column or select another column.

CUZ915E SORT is not supported for the specified column.

Explanation: The column you attempted to SORT is not supported as a column on which to sort.

User response: Refer to the sort columns listed on the Define Sort Columns panel for a list of valid columns on which the sort can be based and redefine the sort.

CUZ916E Sort column not entered. Column name or number must be specified.

Explanation: A column was not specified with the SORT. A column name or number must be specified for the SORT command.

User response: If the column name is used, ensure that all spaces in the name are replaced with an underscore.

CUZ917E Put an ending quote at the end of the string.

Explanation: You must place a quotation mark at the end of the string.

User response: Type a quotation mark at the end of the string.

CUZ918I CHARS *string* not found. Press PF5 to continue from top.

Explanation: The indicated character string was not found.

User response: To continue searching for the character string from the top of the dialog, press PF5.

CUZ919I CHARS *string* not found. Press PF5 to continue from bottom.

Explanation: The indicated character string was not found.

User response: To continue searching for the character string from the bottom of the dialog, press PF5.

CUZ920E File tailoring open returned a file tailoring already in progress condition

Explanation: An attempt to perform file tailoring for utility customization failed. There was a file tailoring session already in progress. File tailoring sessions cannot be performed concurrently.

User response: No action is required.

CUZ921E File tailoring open returned the output file already in use condition -- ENQ failed

Explanation: An attempt to open the Control Data Set failed with an ENQ error. The data set is already open for output.

User response: Verify that you are the only user attempting to access this file.

CUZ922E File tailoring open returned the skeletal file or output file not allocated condition

Explanation: An attempt to perform file tailoring failed because either the tailoring skeleton file or output file is not allocated.

User response: Verify that all required files are allocated prior to performing file tailoring.

CUZ923E File tailoring open returned a severe error condition

Explanation: An attempt to perform file tailoring failed because a severe error condition was encountered on open.

User response: Verify that all required files are allocated and accessible prior to performing file tailoring.

CUZ924E File tailoring open returned an unknown code -- severe error

Explanation: An attempt to perform file tailoring failed because a severe error condition was encountered on open.

User response: Verify that all required files are allocated and accessible prior to performing file tailoring.

CUZ925E File tailoring close returned a file not open condition -- severe error

Explanation: An attempt to perform file tailoring failed because a File-Not-Open condition was encountered on close.

User response: Verify that all required files are allocated and accessible and that there are no other

tailoring sessions running concurrently with your session.

CUZ926E File tailoring close returned an output file in use condition

Explanation: An attempt to perform file tailoring failed because an Output-File-In-Use condition was encountered on close.

User response: Verify that all required files are allocated and accessible and that there are no other tailoring sessions running concurrently with your session.

CUZ927E File tailoring close returned a skeletal file or output file not allocated condition

Explanation: An attempt to close file tailoring failed because either a tailoring skeleton file or output file was not allocated.

User response: Verify that all required files are allocated and accessible and that there are no other tailoring sessions running concurrently with your session.

CUZ928E File tailoring close returned a severe error

Explanation: An attempt to perform file tailoring failed because a severe error condition was encountered on close.

User response: Verify that all required files are allocated and accessible prior to performing file tailoring.

CUZ929E File tailoring close returned an unknown code -- severe error

Explanation: An attempt to perform file tailoring failed because a severe error condition was encountered on close.

User response: Verify that all required files are allocated and accessible prior to performing file tailoring.

CUZ930E File tailoring close returned an output member exists in the output library and NOREPL was specified

Explanation: An attempt to perform file tailoring failed because the close process could not replace the pre-existing tailored member in the output file.

User response: Change the output member name to a new name or ensure that the output library allows for member replacement.

CUZ931E File tailoring include returned a skeleton does not exist condition

Explanation: An attempt to perform file tailoring failed because the tailoring process could not locate a required tailoring skeleton.

User response: Assure that all required files are allocated to perform file tailoring.

CUZ932E File tailoring include returned a skeleton in use -- ENQ failed condition

Explanation: An attempt to access a tailoring skeleton failed with an ENQ error (member-in-use).

User response: Verify that all required tailoring files are allocated and that there are no other tailoring sessions running concurrently.

CUZ933E File tailoring include returned a data truncation or skeleton library or output file not allocated condition

Explanation: An attempt to perform file tailoring failed because either the tailoring skeleton file or output file is not allocated.

User response: Verify that all required files are allocated prior to performing file tailoring.

CUZ934E File tailoring include returned a severe error condition

Explanation: An attempt to perform file tailoring failed because a severe error condition was encountered on an include operation.

User response: Verify that all required files are allocated and accessible prior to performing file tailoring.

CUZ935E File tailoring include returned an unknown condition -- severe error

Explanation: An attempt to perform file tailoring failed because a severe error condition was encountered on an include operation.

User response: Verify that all required files are allocated and accessible prior to performing file tailoring.

CUZ936E Allocation error - The ISPFILE DD is already allocated and cannot be deallocated - Process not completed

Explanation: The ISPFILE DD allocation failed. The DD is already allocated and cannot be deallocated for this TSO session. The process did not complete successfully.

User response: No action is required.

CUZ937E Allocation Error - An error was encountered allocating the ISPWRK1 or ISPWRK2 DD - Process not completed

Explanation: The ISPWRK1 or ISPWRK2 DD allocation failed. The process did not complete successfully.

User response: Verify TSO session parameters are set correctly for your site prior to allocation of these DD statements.

CUZ938E Field Required - The data set entered is a partitioned data set and the member name is required

Explanation: A required field was not specified. The data set entered is a PDS (partitioned data set) and a member in this PDS must be referenced

User response: Enter a valid member name for PDS access.

CUZ939E The only valid values are "T" for tracks and "C" for cylinders

Explanation: You specified an invalid value. The only valid values are "T" for tracks and "C" for cylinders

User response: Specify a valid value.

CUZ940E The specified data set could not be found in the MVS catalog.

Explanation: The specified data set could not be found in the MVS catalog.

User response: Ensure that the data set name is correct.

CUZ941I The RFIND key works only after a FIND character string is entered.

Explanation: A repeat FIND (RFIND) was issued before a FIND command was issued. You must issue FIND before RFIND will work.

User response: Issue FIND prior to attempting to issue RFIND.

CUZ942E Invalid Sort number. Enter a valid digit.

Explanation: An invalid character was entered in the Srt column. Valid characters are the digits 1, 2, 3,... up to 9, or the number of sortable columns, whichever is less.

User response: Specify a valid sort number.

CUZ943E Same Sort number entered twice

System action: The same sort number was entered for more than one column. The screen is positioned to the second instance. Sort sequence numbers must be unique.

User response: Specify a valid sort number.

CUZ944E Sort sequence skips a number.

Explanation: The selected sorting sequence skips a number. This is not allowed. The screen is positioned to a selection whose number is lacking an immediate predecessor. The sort sequence is completely rebuilt from the Cmd (and Dir) information. Any previously existing sort sequence is entirely replaced. It is not added to or extended by the new entries.

User response: Please specify a valid sort sequence that does not skip a number.

CUZ945E Invalid Dir entered. Must be A or D (ascending/descending).

Explanation: The selected sorting direction is invalid. Only A (ascending) or D (descending) can be specified. A blank indicates ascending (default).

User response: Specify a valid sorting direction.

CUZ946E Dir not valid without Ord.

Explanation: A sorting direction was selected for a column that was not selected to be sorted. Sorting direction is only a valid choice for selected columns.

User response: Select a sorting direction and order.

CUZ947E Max Sort Columns exceeded. Sorting first 10 columns.

Explanation: More columns were selected for sorting than are supported. Nine columns can be selected. Under certain circumstances the limit is less than nine, due to internal constraints. For example, sorting a date field can be implemented by three sorts of partial column fields. In that case, the column would count as three toward the maximum of nine, not one.

User response: Specify the appropriate allowable maximum number of sort columns.

CUZ948E Fix Columns cannot exceed screen size.

Explanation: More columns were selected to be fixed than will fit on the screen.

User response: Remove the (F) selection character from one or more columns.

CUZ950E Invalid selection character. "F" and "U" are valid.

Explanation: An invalid Cmd character was entered. Valid characters are F (fix) and U (unfix). Fix causes the column to move to the fixed area on the left side of the screen. Fixed columns do not scroll horizontally when LEFT or RIGHT scrolling commands are issued. Unfix moves the column out of the fixed area, and allows it to scroll horizontally when LEFT and RIGHT scroll commands are issued.

User response: Either remove the invalid character or enter a valid one.

CUZ951E Invalid entry. Must be numeric.

Explanation: An invalid Cmd value was entered. Cmd values must be numeric. If the column is fixed, the number must be in the fixed range. If the column is not fixed, the number must be in the unfixed range.

User response: Either remove the invalid number or enter a valid one.

CUZ952E Invalid entry for fixed column.

Explanation: An invalid Cmd value was entered for a fixed column. Valid selections for fixed column are up to the number of fixed columns.

User response: Either remove the invalid number or enter a valid one.

CUZ953E Invalid entry for unfixed column.

Explanation: An invalid Cmd value was entered for an unfixed column. The number must be less than the number of columns, and greater than the number of fixed columns.

User response: Either remove the invalid number or enter a valid one.

CUZ954E Invalid value entered for column size: non-numeric data.

Explanation: An invalid Cmd value was entered. This must be a number between the values in the MIN and MAX fields.

User response: Either remove the invalid number or enter a valid one.

CUZ955E Invalid value entered for column size: out of range.

Explanation: An invalid Cmd value was entered. This must be a number between the values in the MIN and MAX fields. MIN is the smallest acceptable value. MAX is the largest acceptable value.

User response: Either remove the invalid number or enter a valid one.

CUZ956E Total fixed column sizes cannot exceed screen size.

Explanation: The Cmd values entered would result in the sum of the fixed column sizes to exceed the screen size. This is not allowed. The fixed columns are those with an or in the Fix column. Fixed columns are always displayed, and so must fit on the screen.

User response: Either change the fixed column sizes so that the total is less than the screen size or cancel to return to the previous panel.

CUZ957E New configuration makes this column size invalid.

Explanation: The requested column sizes make at least one unfixed column unable to be displayed. The cursor is positioned on the value where the problem was detected. The unfixed area on the screen would be too small to show the column where the cursor is placed.

User response: Do one of the following:

- Make the column where the cursor is smaller so that it can fit in the available unfixed area.
- Set it to its maximum size (width).
- Make the fixed area smaller.
- Cancel to return to the previous panel.

CUZ958E Column does not fit in unfixed area in new configuration.

Explanation: The requested column sizes would make the unfixed column where the cursor is positioned undisplayable. The unfixed area on the screen would be too small to show this column.

User response: Shrink the fixed area by either unfixing columns or making fixed columns smaller. The column where the cursor is cannot be partially displayed (min-max) so its size cannot be changed.

CUZ959E New configuration makes this column size invalid.

Explanation: Fixing the requested columns would shrink the available area for unfixed columns unacceptably. One or more unfixed columns would not fit in the remaining unfixed area of the screen. The cursor is placed on a row that represents one such column. Therefore, the requested configuration is not allowed.

User response: To change column sizes, cancel out of the CFIX function and invoke the CSIZE function. Either cancel to exit CFIX with no change or blank out one or more FIX selections until an allowable fixed size is reached.

CUZ960E Invalid fixed selections. Would not leave enough space for this column.

Explanation: Fixing the columns requested would make at least one unfixed column undisplayable. The cursor is positioned on the row that represents one such unfixed column, whose minimum displayable size would not fit in the available screen area.

User response: Shrink the requested fixed area by either:

- Requesting fewer fixed columns.
- Unfixing one or more fixed columns.
- Cancel out of CFIX and invoke CSIZE in order to shrink one or more fixed columns enough so that all unfixed columns have the space they require.

CUZ962E Duplicate Cmd values entered.

Explanation: Duplicate Cmd numbers were entered. The cursor points to the second instance of a Cmd value.

User response: Either change this value, clear it, or exit the CORDER function.

CUZ963E Cursor not on data element.

Explanation: CEXPAND was issued and the cursor was not located on a valid (expandable) area. CEXPAND requires the cursor to be positioned on a data element (non-heading area) in the dynamic area of the display. Or CEXPAND can be issued specifying the row and column of the data element to expand.

User response: Ensure the cursor is located on a valid (expandable) area prior to issuing the CEXPAND command.

CUZ964E Invalid scroll amount for CRIGHT. Must be numeric.

Explanation: Invalid (non-numeric) parameter to CRIGHT specified. CRIGHT accepts one numeric parameter: the number of columns to scroll right. If no parameter is entered a value of 1 is assumed.

User response: Specify a numeric parameter to the CRIGHT command.

CUZ965E Invalid scroll amount for CLEFT. Must be numeric.

Explanation: Invalid (non-numeric) parameter to CLEFT specified. CLEFT accepts one numeric parameter: the number of columns to scroll left. If no parameter is entered, a value of 1 is assumed.

User response: Specify a numeric parameter to the CLEFT command.

CUZ966E Invalid parameter to ICRIGHT; must be numeric.

Explanation: A parameter to ICRIGHT is not numeric. ICRIGHT (inner column scroll right) accepts either zero, one, or two numeric parameters. ICRIGHT can be abbreviated as ICR.

User response: Specify a valid, numeric parameter for ICRIGHT.

CUZ967E Parameter to ICRIGHT too long. Invalid.

Explanation: A parameter to ICRIGHT is too long. ICRIGHT does not process more than eight digits in a parameter, which is more than double any reasonable value.

User response: Specify a valid parameter for ICRIGHT.

CUZ968E Parameter to ICRIGHT is zero. Invalid.

Explanation: A parameter to ICRIGHT has the value zero. This is not supported.

User response: Specify non-zero parameters to ICRIGHT.

CUZ969E ICRIGHT: unspecified column.

Explanation: ICRIGHT was invoked with no parameters and the cursor is not positioned in the dynamic panel area.

User response: Either put the cursor in the column that should be scrolled or specify the column by number. Column numbers can refer to visible columns (in the current display window) only. Number starts at 1, on the left side.

CUZ971E ICRIGHT: Column number specified is too big.

Explanation: A column number parameter to ICRIGHT must be between 1 and the number of columns currently on the display screen.

User response: To refer to a column by number you must first position the display window so that the desired column is visible.

CUZ972E Invalid parameter to ICLEFT; must be numeric.

Explanation: A parameter to ICLEFT is not numeric. ICLEFT (inner column scroll left) accepts either zero, one, or two numeric parameters. ICLEFT can be abbreviated as ICL.

User response: Specify a valid parameter for ICLEFT.

CUZ973E Parameter to ICLEFT too long. Invalid.

Explanation: A parameter to ICLEFT is too long. ICLEFT does not process more than eight digits in a parameter which is more than double reasonable value.

User response: Specify a parameter less than or equal to eight digits for ICLEFT.

CUZ974E Parameter to ICLEFT is zero. Invalid.

Explanation: A parameter to ICLEFT has the value zero. This is not supported.

User response: Specify a non-zero number for ICLEFT.

CUZ975E ICLEFT: unspecified column.

Explanation: ICLEFT was invoked with no parameters and the cursor is not positioned in the dynamic panel area.

User response: Either put the cursor in the column that should be scrolled or specify the column by number. Column numbers can refer to visible columns (in the current display window) only. Numbering starts at 1 on the left side.

CUZ976E Column selected not sortable. Sort selection list presented.

Explanation: You cannot preform a SORT on the column you selected. Valid sort columns are displayed in the sort selection list.

User response: Sort on one of the valid columns displayed in the selection list.

CUZ977E ICLEFT: Column number specified is too big.

Explanation: A column number parameter to ICLEFT must be between 1 and the number of columns currently on the display screen.

User response: To refer to a column by number, you must first position the display window so that the desired column is visible.

CUZ978E Invalid column number specified for SORT (not numeric).

Explanation: Invalid column number parameter to CSORT specified (non-numeric).

User response: Specify a column number parameter to CSORT that is between 1 and the number of columns currently on the display screen. This can be followed by a direction value A or D (ascending/descending).

CUZ979E Invalid column number specified. Too many digits.

Explanation: Invalid parameter to CSORT specified. More than eight digits were specified. Parsing stops at eight digits.

User response: Specify a column number parameter between 1 and the number of columns currently on the display screen. This can be followed by a direction value A or D (ascending/descending).

CUZ980E Invalid column number specified: zero.

Explanation: Invalid parameter to CSORT was specified (zero).

User response: Specify a column number parameter to CSORT that is between 1 and the number of columns currently on the display screen. This can be followed by a direction value A or D (ascending/descending).

CUZ981E Invalid column number specified: out of range.

Explanation: Invalid parameter to CSORT was specified.

User response: Specify a column number parameter to CSORT that is between 1 and the number of columns currently on the display screen. This can be followed by a direction value A or D (ascending/descending).

CUZ982E Invalid view. View adjusted.

Explanation: The current view was adjusted but not deleted. The saved view did not match the report requirements. This could be caused by the report changing or the view file getting corrupted.

User response: The adjusted view will be used. You can issue CSET to modify the view.

CUZ983E Invalid view. View deleted.

Explanation: Invalid data was found in a view for this report. The view was deleted and contents ignored. This could be caused by the report changing or the view file getting corrupted.

User response: You can issue CSET to create a view that will match current report.

CUZ984E Unexpected return code from TBSTATS: *rc*

Explanation: An unexpected failure issuing TBSTATS was received.

User response: Refer to *ISPF Services Guide* (SC34-4819-03) for (hex) return code descriptions. Also, review the ISPTLIB and ISPTABL allocations. For

information about ISPTLIB and ISPBABL see the ISPF manuals.

CUZ985E View Library not allocated.

Explanation: A view input library has not been allocated. In order for a user to save and use report customizations that are created via the CSET command, ISPTABL and ISPTLIB must be allocated.

User response: Refer to *ISPF Services Guide* (SC34-4819) for information on ISPTLIB and ISPTABL.

CUZ986E TBCREATE failed. RC=*rc*

Explanation: TBCREATE was issued to create a view. It failed with a (hex) return cod as indicated in the message.

User response: Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819).

CUZ987E TBOPEN failed. RC=*rc*

Explanation: TBOPEN was issued to open a view. It failed with a (hex) return code as indicated in the message.

User response: Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819).

CUZ988E TBGET failed. RC=*rc*

Explanation: A TBGET produced a return code (as indicated in the message).

User response: Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819).

CUZ989E TBMOD failed. RC=*rc*

Explanation: A TBMOD produced an error and return code (as indicated in the message).

User response: Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819).

CUZ990E TBCLOSE failed. RC=*rc*

Explanation: TBCLOSE failed with a (hex) return code as indicated in the message.

User response: Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819).

CUZ991E TBDELETE failed. RC=*rc*

Explanation: TBDELETE failed with a (hex) return code as indicated in the message.

User response: Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819).

CUZ992E Invalid selection.

Explanation: A command that is not supported on this panel was selected.

User response: Issue a valid command for the panel.

CUZ993E Permanent view not supported

Explanation: Something is preventing views from being saved. The permanent view flag cannot be set to Y. The most likely cause of this is that either ISPTLIB or ISPTABL (or both) have not been properly allocated.

User response: Review ISPTLIB allocation and data set characteristics. Review security controlled access to ISPTLIB data sets. For information about return codes, refer to *ISPF Services Guide* (SC34-4819).

CUZ994E Invalid row number.

Explanation: CEXPAND was issued with an invalid parameter of zero. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted) The column number is counted from left to right, starting with the left column in the current display window.

User response: Specify a valid parameter count for use with CEXPAND.

CUZ995E Invalid column number.

Explanation: CEXPAND was issued with an invalid parameter of zero. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted) The column number is counted from left to right, starting with the left column in the current display window.

User response: Specify a valid parameter count for use with CEXPAND.

CUZ996E Invalid digits

Explanation: CEXPAND was issued with an invalid parameter of zero. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted) The column number is counted from left to right, starting with the left column in the current display window.

User response: Specify a valid parameter count for use with CEXPAND.

CUZ997E Too many digits.

Explanation: CEXPAND was issued with an invalid parameter of zero. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted) The column number is counted from left to right, starting with the left column in the current display window.

User response: Specify a valid parameter count for use with CEXPAND.

CUZ998E Zero parameter invalid.

Explanation: CEXPAND was issued with an invalid parameter of zero. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted) The column number is counted from left to right, starting with the left column in the current display window.

User response: Specify a non-zero parameter.

CUZ999E Invalid parameter count: must be either two or zero parms.

Explanation: CEXPAND was issued with an invalid number of parameters. CEXPAND can be issued with no parameters and the cursor on a data field, or with two parameters. The two parameters are the row number, followed by the column number of the data element to be expanded. The row number is counted down from the top, starting with the first scrollable row (heading not counted) The column number is counted from left to right, starting with the left column in the current display window.

User response: Specify a valid parameter count for use with CEXPAND.

Started Task Messages

This section lists all of the messages that may display if an error occurs while initiating the started task to launch this product. The started task messages are listed below.

CUZ0001E CUZ Started Task is not APF Authorized

Explanation: The started task for this product has not been APF authorized so it is not allowed to continue.

User response: Add CUZ to the list of products that are APF authorized.

CUZ0002E Invalid Parameter Specified - MBR=

Explanation: The member name (MBR) specified in the parameter is not valid.

User response: Correct the member name and retry. Also verify that this parameter uses a member name.

CUZ0003E Cloud Connector Initialization Failed

Explanation: This message informs you that there was a problem with the initialization process when starting Cloud Connector.

User response: Additional messages will be issued to assist in locating and correcting the error. Correct the error and submit the job again. Contact IBM Technical Support for assistance, if needed.

CUZ0004I CUZ Started Task Terminated

Explanation: The started task will terminate after an APF Authorization test failure.

User response: Look for additional messages for more information.

CUZ0005E STEPLIB DDNAME REQUIRED

Explanation: The Cloud Connector started task requires a STEPLIB.

User response: Add the product load library to the STEPLIB. Ensure that the STEPLIB is APF authorized.

CUZ0006E UNABLE TO OBTAIN SUBPOOL 241 STORAGE

Explanation: The Cloud Connector started task will permanently load some modules in CSA subpool 241. There might be a CSA shortage.

User response: Check CSA usage for shortages.

CUZ0007I Cloud Connector for z/OS Termination in Progress

Explanation: Cloud Connector is shutting down.

User response: No action is required.

CUZ0008E STARTED TASK INIT FAILURE: MISSING MODULE *module name*

Explanation: The Cloud Connector started task was attempting to load the module listed in the message, but it was missing.

User response: Contact IBM Technical Support for assistance, if needed..

CUZ0009I Cloud Connector for z/OS Initialization Started.

Explanation: This message informs you of the status of this process.

User response: No action is required.

CUZ0010E Cloud Connector for z/OS Already Active

Explanation: The product is already running so there is no need to start it again.

User response: No action is required.

CUZ0011I Cloud Connector for z/OS Initialization is Complete

Explanation: This message informs you of the status of this process.

User response: No action is required.

CUZ0012I Cloud Connector for z/OS Termination is complete

Explanation: This message informs you of the status of this process.

User response: No action is required.

CUZ0013I INSTALL ****** EP: **********

Explanation: This message is for your information only and is part of a series of messages listing modules that are being installed and the address entry point (EP).

User response: No action is required.

CUZ0014I INSTALL ****** EP: **********

Explanation: This message is for your information only and is part of a series of messages listing modules that are being installed and the address entry point (EP).

User response: No action is required.

CUZ0015I INSTALL DLPA ****** LP: ******** EP: ******** L: **********

Explanation: This message is for your information only and is part of a series of messages listing modules that are being installed and the address entry point (EP).

User response: No action is required.

CUZ0016E INSTALL DLPA ****** LP: ******** EP: ******** L: ******** Dynamic LPA ADD failed, RC(**), RS(********)**

Explanation: This message is issued when a call to the dynamic LPA service routine fails. The return and reason code are included in the message text.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ0017E Need Update Auth on RACF Facility Class CSVDYLPA.ADD.**

Explanation: The product cannot ADD to CSVDYLPA because it does not have UPDATE authority in RACF.

User response: Change the RACF authority to UPDATE to allow adding modules with CSVDYLPA.ADD.**.

CUZ0018W *module name* **- No Filter Criteria was found in Parmlib**

Explanation: This message is issued by module *module name*. The Parmlib member offers several different types of parameters for setting general options, staging options, defining cloud servers, and backup and restore options. None of these options have been set in the Parmlib member, which means that Cloud Connector is not able to perform any functions.

User response: Use Option 1 on the Cloud Connector Main Menu to specify settings for the Parmlib options.

CUZ0019W *module name* **- SVC Hooks are disabled**

Explanation: This message is issued by module *module name*. It indicates that the hooks for the supervisor call (SVC) are not available or have been removed from use.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ0020I *module name* **- Terminating all tasks**

Explanation: This message is issued by module *module name*. It displays when Cloud Connector is shutting down all of the tasks that are running. This message is accompanied by message CUZ0021I, which lists the tasks that Cloud Connector is detaching.

User response: No action is required.

CUZ0021I *module name* **- Detaching** *module*

Explanation: This message is issued by module *module name*. It lists a *module* that is being detached so that all tasks can be terminated.

User response: No action is required.

CUZ0022I *module name* **- Closing CUZ.OUT DD**

Explanation: This message is issued by module *module name*.

User response: No action is required.

CUZ0023I *module name* **- Termination Complete**

Explanation: This message is issued by module *module name*. It informs you of the status of this process.

User response: No action is required.

CUZ0024E *module name* **- Error Obtaining ASID Vector Table**

Explanation: This message is issued by module *module name*. An address space identifier (ASID) vector table could not be accessed, causing an error.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ0025E *module name* **- Open failed for CUZOUT**

Explanation: This message is issued by module *module name*. The CUZOUT data set could not be opened.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ0026I *module name* **- zIIP Processing Disabled**

Explanation: This message is issued by module *module name*. The IBM z Systems Integrated Information Processor (zIIP) provides an option to help free-up general computing capacity in your processor. If your processor is zIIP-enabled, Cloud Connector can take advantage of this feature. You can enable or disable zIIP processing. This message indicates that the zIIP processing has been disabled.

User response: No action is required. If you would like more information on how to enable and disable zIIP processing, refer to “Managing zIIP processing” on page 76.

CUZ0027I *module name* **- zIIP Processing Enabled**

Explanation: This message is issued by module *module name*. The IBM z Systems Integrated Information Processor (zIIP) provides an option to help free-up general computing capacity in your processor. If your processor is zIIP-enabled, Cloud Connector can take advantage of this feature. You can enable or disable zIIP processing. This message indicates that the zIIP processing has been enabled.

User response: No action is required. If you would like more information on how to enable and disable zIIP processing, refer to “Managing zIIP processing” on page 76.

CUZ0028E *module name* **- Parmlib errors prohibit cloud processing**

Explanation: This message is issued by module *module name*. It indicates that there is a problem with settings that are specified in the Parmlib and the problem is preventing cloud processing.

User response: You can modify Parmlib settings and verify that cloud servers have been defined for use by Cloud Connector. Refer to “Cloud Connector Settings (Parmlib Options)” on page 19 for more information.

CUZ0029W *module name* **- DCB Nodes are active at shutdown waiting 15 Seconds**

Explanation: This message is issued by module *module name*. It indicates that more time is needed before Cloud Connector can shut down.

User response:

CUZ0030I *module name* **- Waiting for Stage to Cloud to Finish**

Explanation: This message is issued by module *module name*. It informs you of the status of this process. The backup was staged to DASD and is now being copied to the cloud.

User response: No action is required.

CUZ0031I *module name* **- Waiting for Repository Mnt to Finish**

Explanation: This message is issued by module *module name*. It indicates that a tape for this repository is being mounted.

User response: No action is required.

CUZ0032I *module name* **- Waiting for Message Print to Finish**

Explanation: This message is issued by module *module name*. It indicates that a message or message file is being printed. Processing will continue when printing is done.

User response: No action is required.

CUZ0101I *module name* **- Stage to copy process completed successfully**

Explanation: This message is issued by module *module name*. It indicates that the stage to copy processed successfully.

User response: No action is required.

CUZ0102I *module name* **- Cloud Processing Bypassed**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector bypassed the stage to copy process. This is typically the result of an attempt to process a data set with an unsupported data set organization (DSORG).

User response: No action is required.

CUZ0103E *module name* **- Error Allocating Staging File**

Explanation: This message is issued by module *module name*. It indicates that a problem occurred when attempting to allocate a file for staging data, which is copying a backup to DASD before moving it to the cloud.

User response: Review the Staging Options in the Parmlib member to see if any changes need to be made, especially the size of the staging space. On the Main Menu, choose Option 1 (Parmlib Options), then Option 2, Staging Options. Contact IBM Technical Support for assistance, if needed.

CUZ0104E *module name* **- Error Allocating Staging File for Deletion**

Explanation: This message is issued by module *module name*. It indicates that a problem occurred when attempting to delete a staging file after the backup file was copied to the cloud.

User response: Review the Staging Options in the Parmlib member to see if any changes need to be made. On the Main Menu, choose Option 1 (Parmlib Options), then Option 2, Staging Options. Contact IBM Technical Support for assistance, if needed.

CUZ0105E *module name* **- Error Freeing Staging File**

Explanation: This message is issued by module *module name*. It indicates that a problem occurred when attempting to free a file that was used to copy data to DASD, referred to as staging. After the staged data is moved to the cloud, the staging file can be freed for future use.

User response: Review the Staging Options in the Parmlib member to see if any changes need to be made. On the Main Menu, choose Option 1 (Parmlib Options), then Option 2, Staging Options. Contact IBM Technical Support for assistance, if needed.

CUZ0106E *module name* **- Cloud Processor Retry in progress - Setting Timer**

Explanation: This message is issued by module *module name*. It indicates that a problem occurred when attempting to copy a staging file (backup) from DASD to the cloud. One or more attempts will be made to copy to the cloud, based on the value you specified in the "Error Retry Count" field. The amount of seconds between retry attempts is specified in the "Error Retry Interval Secs" field on the Staging Options parameter screen.

User response: Review the Staging Options in the Parmlib member to see if any changes need to be made. On the Main Menu, choose Option 1 (Parmlib Options), then Option 2, Staging Options. Contact IBM Technical Support for assistance, if needed.

CUZ0201E *module name* **- ASID Table not good**

Explanation: This message is issued by module *module name*. It indicates that the ASID vector table ID was incorrect. This is an internal error indicative of a corrupted ASID vector table.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ0202E *module name* **- DCBS Head Ptr is zeroes**

Explanation: The message is issued by module *module name*. It indicates that the head pointer in the DCBS contained all zeroes. This is an internal error indicative of a processing error.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ0203E *module name* **- STC has been cancelled-Staging Aborting**

Explanation: The message is issued by module *module name*. It indicates that the started task was cancelled, so the process of staging data to DASD has also been cancelled.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ0204E *module name* **- FORMAT-1 CCWs in use**

Explanation: The message is issued by module *module name*. It indicates that Format 1 CCWs are in use.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ0205E *module name* **- EXCPVR CCWs in use**

Explanation: The message is issued by module *module name*. It indicates that EXCPVR CCWs are in use.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ0206E *module name* **- non-zero RC from CUZ#DATA**

Explanation: The message is issued by module *module name*. It indicates that the return code generated from the CUZ#DATA module was greater than zero, which indicates an error.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ0207E *module name* **- non-zero CLEANUP RC**

Explanation: The message is issued by module *module name*. The CUZ#DATA CLEANUP function completed with a return code greater than zero.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ0208E *module name* **- Command Chain bit is off**

Explanation: This message is issued by module *module name*. It indicates that the CCW Command Chain bit is off.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ0209E *module name* **- Channel Processor Close in Progress**

Explanation: This message is issued by module *module name*. It indicates that Channel Processor Close is in progress.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ0401E *module name* **- COMPARE PROGRAM TERMINATED WITH ERROR**

Explanation: This message is issued by module *module name*. The CUZJCOMP utility program compares two data sets to see if they are the same. However, the job ended with an error instead of producing a report.

User response: The CUZJCOMP job in the SCUZSAMP library must be modified for your environment prior to use. Review the instructions at the top of the CUZJCOMP job to make changes to the job before you submit it. Contact IBM Technical Support for assistance, if needed.

CUZ0402E *module name* **- TWO DATASETS COMPARED WERE NOT EQUAL**

Explanation: This message is issued by module *module name*. The CUZJCOMP job in the SCUZSAMP library is used to compare two data sets, such as a data set on tape and the same data set stored on the cloud. This comparison showed that the two data sets are not the same. When the CUZJCOMP job is run, it produces a "Dataset Compare Report" that describes the results of the comparison.

User response: Review the "Dataset Compare Report" and the accompanying "Dataset Analysis Report" to determine which block contains the data that is different. See the “Tape Compare Utility” on page 103 for more information.

CUZ0403E *module name* **- MISMATCHED BLOCK COUNT ERROR, TMC COUNT=**

Explanation: This messages is issued by module *module name*. The CUZJCOMP job in the SCUZSAMP library is used to compare two data sets, such as a data set on tape and the same data set stored on the cloud. This comparison showed that the two data sets do not have the same number of blocks. When the CUZJCOMP job is run, it produces a "Dataset Compare Report" that describes the results of the comparison.

User response: Review the "Dataset Compare Report" and the accompanying "Dataset Analysis Report" to see if there is any additional information that will help you resolve the error. See the “Tape Compare Utility” on page 103 for more information.Contact IBM Technical Support for assistance, if needed.

CUZ0404E *module name* **- ABEND S237-04 SUPPRESSED BY DCB ABEND EXIT**

User response: This message was issued by module *module name*.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ0405E *module name* **- ABEND S413-5C SUPPRESSED BY DCB ABEND EXIT**

Explanation: This message is issued by module *module name*.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ0406E *module name* **- ABEND S637-B4 SUPPRESSED BY DCB ABEND EXIT**

Explanation: This message is issued by module *module name*.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ0407E *module name* **- ABEND S637-B8 SUPPRESSED BY DCB ABEND EXIT**

Explanation: This message is issued by module *module name*.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ0408E *module name* **- VOLSER OF TAPE WAS CHANGED DURING OPEN**

Explanation: This message is issued by module *module name*.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ0409I *module name* **- TAPE ANALYZE USED SCOPE=VOLUME. IOS000I MESSAGES OK**

Explanation: This message was issued by module *module name*. It indicates the status of this process.

User response: No action is required.

CUZ0410E *module name* **- OPEN OF DATASET FAILED**

Explanation: This message is issued by module *module name*. When the CUZJCOMP job in the SCUZSAMP library tried to compare two data sets, one of the data sets could not be opened. Check the CUZJCOMP job to see if the data set names and directory paths were specified correctly.

User response: If generated, review the "Dataset Compare Report" and the accompanying "Dataset Analysis Report" to see if there is any additional information that will help you resolve the error. See the “Tape Compare Utility” on page 103 for more information.Contact IBM Technical Support for assistance, if needed.

CUZ0411E *module name* **- DSN1 DATASET IS NOT ON A TAPE DEVICE**

Explanation: This message is issued by module *module name*. When the CUZJCOMP job, located in the SCUZSAMP library, tried to compare two data sets, the first data set listed in the job could not be found on a tape drive. Check the CUZJCOMP job to see if the data set name and directory path were specified correctly.

User response: If generated, review the "Dataset Compare Report" and the accompanying "Dataset Analysis Report" to see if there is any additional information that will help you resolve the error. See the “Tape Compare Utility” on page 103 for more information.Contact IBM Technical Support for assistance, if needed.

CUZ0412E *module name* **- DSN2 DATASET IS NOT ON A TAPE DEVICE**

Explanation: This message is issued by module *module name*. When the CUZJCOMP job, located in the SCUZSAMP library, tried to compare two data sets, the second data set listed in the job could not be found on a tape drive. Check the CUZJCOMP job to see if the data set name and directory path were specified correctly.

User response: If generated, review the "Dataset Compare Report" and the accompanying "Dataset Analysis Report" to see if there is any additional information that will help you resolve the error. See the “Tape Compare Utility” on page 103 for more information.Contact IBM Technical Support for assistance, if needed.

CUZ0501E Parmlib processing had errors

Explanation: The sample library, SCUZSAMP, has a default parameter library (Parmlib) member, CUZ#PARM. To make changes to the default settings in CUZ#PARM, choose Option 1, Cloud Connector Settings, on the Main Menu.

User response: After modifying the CUZ#PARM member, try the job again. Contact IBM Technical Support for assistance, if needed.

CUZ0502E INVALID OPERAND FOR COMMAND

Explanation: Several commands are provided to manage tasks and processing options. The operand specified for this command is either the wrong operand or has an incorrect value specified for the operand.

User response: Refer to Chapter 4, “Operational Considerations,” on page 67 for a list of commands and operands. Contact IBM Technical Support for assistance, if needed.

CUZ0503E Restore processing had errors.

Explanation: An attempt to copy a data set from the cloud to a tape device had processing errors. Several commands are provided to manage tasks and processing options, including the Restore process.

User response: Refer to Chapter 4, "Operational Considerations," on page 67 for a list of commands and operands, and for additional information on how to restore a data set. Contact IBM Technical Support for assistance, if needed.

CUZ0504E INVALID COMMAND

Explanation: Several commands are provided to manage tasks and processing options. A command was not specified correctly or was not valid for this process.

User response: Refer to Chapter 4, "Operational Considerations," on page 67 for a list of commands and operands for various processes. Contact IBM Technical Support for assistance, if needed.

CUZ0505E VERIFY COMMAND FAILED: INVALID SYNTAX

Explanation: The VERIFY command is used as part of the compare process to ensure that the data on the cloud matches the data on tape. In this case, the syntax for the VERIFY command was incorrect, perhaps listing the wrong data set to compare.

User response: Review the VERIFY command in the job to ensure that the data set names are typed correctly. Contact IBM Technical Support for assistance, if needed.

CUZ0506E RESET COMMAND FAILED: INVALID SYNTAX

Explanation: The RESET command is used as part of the compare process, which ensures that the data on the cloud matches the data on tape. In this case, the syntax for the RESET command was incorrect.

User response: Review the RESET command in the job. Contact IBM Technical Support for assistance, if needed.

CUZ0507I RESET ALL COMMAND COMPLETE

Explanation: This message informs you of the status of this process.

User response: No action is required.

CUZ0508I RESET SVC COMMAND COMPLETE

Explanation: This message informs you of the status of this process.

User response: No action is required.

CUZ0509I SVC DEBUG ACTIVE FOR JOBNAME *jobname*

Explanation: This is a status message for the *jobname* listed in the message.

User response: No action is required.

CUZ0510I zIIP Processing is now Enabled

Explanation: The IBM z Systems Integrated Information Processor (zIIP) provides an option to help free-up general computing capacity in your processor. If your processor is zIIP-enabled, Cloud Connector can take advantage of this feature. zIIP processing will be set based on the presence of the NOZIIP DD in the CUZCLOUD started task JCL procedure. If the DD is not present or is commented out, zIIP processing will be active by default.

User response: For more information on how to enable or disable zIIP processing, refer to "Managing zIIP processing" on page 76. If you do not want to change the current setting, no action is required.

CUZ0511I zIIP Processing is now Disabled

Explanation: The IBM z Systems Integrated Information Processor (zIIP) provides an option to help free-up general computing capacity in your processor. If your processor is zIIP-enabled, Cloud Connector can take advantage of this feature. zIIP processing will be set based on the presence of the NOZIIP DD in the CUZCLOUD started task JCL procedure. If the DD is not present or is commented out, zIIP processing will be active by default.

User response: For more information on how to enable or disable zIIP processing, refer to "Managing zIIP processing" on page 76. If you do not want to change the current setting, no action is required.

CUZ0512I SVC DEBUG DISABLED

Explanation: This message informs you of the status of this process.

User response: No action is required.

CUZ0513E Invalid Data Set Name value

Explanation: The data set name is not the correct length or contains characters that are not allowed.

User response: Change the data set name to meet requirements. Contact IBM Technical Support for assistance, if needed.

CUZ0514E Invalid Cloud name value

Explanation: A cloud name can be from 1 - 8 characters in length. Clouds are defined for use through the Option 1, Cloud Connector Settings (Parmlib Options), on the Main Menu, and then with Option 3, Cloud Servers.

User response: Refer to “Cloud Server Options” on page 23 for more information.

CUZ0515E Invalid Generation value

Explanation: When specifying which data set to restore, you can specify the most recent backup (generation 0) or a previously saved backup of the data set, referred to as a generation. You set the maximum number of generations you want to save to a cloud backup by specifying a value from 1 - 10 on the Parmlib General Options screen. When performing Restore processing, you can specify which generation you want to restore from the cloud, with 0 referring to the current version, 1 is the previous version, and so on. However, if a generation value is specified, but a matching prior backup version does not exist, you will receive an error.

User response: Refer to “General Options” on page 20 and to “Restore commands” on page 81 for more information.

CUZ0516E Invalid Cloud list value

Explanation: When restoring a repository, a Cloud List specifies a "fixed" file name for the backup copy of the repository. The file name currently specified is not acceptable.

User response: Refer to “Restoring a Repository” on page 87 for more information on how to construct a Cloud List file name.

CUZ0517E Invalid Cloud restore subparameter

Explanation: When restoring a cloud data set or a complete repository, you can use different commands and parameters for that process. One of the parameters used was not acceptable.

User response: Refer to “Restoring a data set” on page 68 and to “Restoring a Repository” on page 87 for more information on Restore commands and parameters.

CUZ0518I CUZ. DIAGNOSTIC DISPLAY:

Explanation: This message is combined with other messages to provide diagnostic data.

User response: No action is required.

CUZ0519I SDA ADDRESS *address*

Explanation: This message contains information that you may find helpful.

User response: No action is required.

CUZ0520E INVALID COMMAND SYNTAX

Explanation: One of the commands in the job was typed incorrectly.

User response: Review the commands in Chapter 4, “Operational Considerations,” on page 67 to determine the correct syntax. Contact IBM Technical Support for assistance, if needed.

CUZ0601E *module name* **Abend Detected**

Explanation: This message is issued by module *module name*, and indicates that an abend occurred while using *module name*.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ0701I *message text*

Explanation: The text varies for this message, but is informational in nature and does not require a response.

User response: No action is required.

CUZ0702E *module name* **- Cloud Connector STC Not Active - Processing bypassed**

Explanation: This message is issued by module *module name*. It indicates that the product's started task is not running so processing is bypassed.

User response: Start the started task for Cloud Connector.

CUZ0703E *module name* **- Non numeric retention period set to 7**

Explanation: This message is issued by module *module name*. The value specified for the Retention Period was not a number so the value was set to 7. Valid numbers for the Retention Period are 0000 - 9999. A value of zero is helpful for testing as it enables you to run the expiration job and retest without having to wait days for the data sets to expire.

User response: Type a number between 0000 and 9999 in the Retention Period field. Contact IBM Technical Support for assistance, if needed.

CUZ0801E *module name* **- STC is not active. Cloud copy bypassed**

Explanation: This message is issued by module *module name*. The started task for Cloud Connector has not been started yet so a copy process cannot be performed.

User response: Start the started task and try the copy job again. Contact IBM Technical Support for assistance, if needed.

CUZ0803E *module name* **- Parmlib DD Missing**

Explanation: This message is issued by module *module name*. An attempt to call the Parmlib member, CUZ#PARM, failed because the DD statement specifying the Parmlib was missing from the started task. The CUZ#INEX job, which backs up history data sets, was not run due to the missing Parmlib DD.

User response: Correct the Parmlib DD statement in CUZCLOUD and try again. Contact IBM Technical Support for assistance, if needed.

CUZ0804E *module name* **- History Mbr Missing-Processing Bypassed**

Explanation: This message is issued by module *module name*. The History Member, normally CUZ#INEX, is needed for backing up history data sets. However, this member cannot be located so the job that backs up history data sets to the cloud could not be run.

User response: Specify a History Member. Refer to "General Options" on page 20 and to Chapter 5, "Backing up existing data sets," on page 95 for more information.

CUZ0805E *module name* **- CUZ#INEX DD Missing-Initialization Failed**

Explanation: This message is issued by module *module name*. It indicates that the DD statement for CUZ#INEX is missing so the initialization of the job failed.

User response: Refer to "General Options" on page 20 and to Chapter 5, "Backing up existing data sets," on page 95 for more information about the Include/Exclude History data set and member. Contact IBM Technical Support for assistance, if needed.

CUZ0806E *module name* **- Error Opening CUZ#INEX DD**

Explanation: This message is issued by module *module name*. It indicates that an error occurred while attempting to open the DD for CUZ#INEX, which is normally used for backing up history data sets.

User response: Refer to "General Options" on page 20 and to Chapter 5, "Backing up existing data sets," on page 95 for more information about the Include/Exclude History data set and member. Contact IBM Technical Support for assistance, if needed.

CUZ0807E *module name* **- Member not found in CUZ#INEX DD**

Explanation: This message is issued by module *module name*. It indicates that a member name was not listed in the CUZ#INEX DD statement.

User response: Refer to "General Options" on page 20 and to Chapter 5, "Backing up existing data sets," on page 95 for more information about the Include/Exclude History data set and member. Contact IBM Technical Support for assistance, if needed.

CUZ0808E *module name* **- Error allocating Parmlib Member**

Explanation: This message is issued by module *module name*. It indicates that a problem occurred when attempting to allocate CUZ#INEX.

User response: Refer to "General Options" on page 20 and to Chapter 5, "Backing up existing data sets," on page 95 for more information about the Include/Exclude History data set and member. Contact IBM Technical Support for assistance, if needed.

CUZ0809E *module name* **- Error Obtaining Storage for DCBS Node**

Explanation: This message is issued by module *module name* to indicate that it was unable to obtain storage for a DCBS control block. The DCBS is a multifaceted block of storage used in many areas of Cloud Connector. Processing for *module name* does not continue and the service requesting the DCBS fails.

User response: If the problem persists, contact IBM Technical Support for assistance.

CUZ0810E *module name* **- Error Acquiring Cloud API Storage**

Explanation: This message is issued by module *module name*. It indicates that a problem occurred when attempting to access storage on a cloud for history backup data sets.

User response: If the problem persists, contact IBM Technical Support for assistance.

CUZ0901E *module name* **- Parmlib DD Missing**

Explanation: This message is issued by module *module name*. It indicates that a DD statement is missing for the CUZ#PARM parameter library.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ0902E *module name* **- CUZ#PARM DD Missing - Initialization Failed**

Explanation: This message is issued by module *module name*. It indicates that a DD statement is missing for the CUZ#PARM parameter library, which caused the initialization to fail.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ0903E *module name* **- Error Opening CUZ#PARM DD**

Explanation: This message is issued by module *module name*. It indicates that while attempting to open the DD statement for CUZ#PARM, an error occurred. The DD statement may need to be revised.

User response: Refer to "General Options" on page 20 for more information about this Parmlib member. Contact IBM Technical Support for assistance, if needed.

CUZ0904E *module name* **- Member not found in CUZ#PARM DD**

Explanation: This message is issued by module *module name*. It indicates that a member name must be specified in the DD statement for CUZ#PARM. The DD statement may need to be revised.

User response: Refer to "General Options" on page 20 for more information about the Parmlib member. Contact IBM Technical Support for assistance, if needed.

CUZ0905E *module name* **- Error allocating Parmlib Member**

Explanation: This message is issued by module *module name*. It indicates that a problem occurred when attempting to allocate CUZ#PARM, which is the Parmlib member.

User response: Refer to "General Options" on page 20 for more information about the Parmlib member. Contact IBM Technical Support for assistance, if needed.

CUZ1001E **Cross memory initialization failure: Missing SDA**

Explanation: The message is issued by module CUZ#PCRI. It indicates that Cloud Connector failed to initialize its Cross Memory facility because it was unable to find the SDA control block. This is indicative of an internal error.

User response: Retry initialization. Contact IBM Technical Support for assistance, if needed.

CUZ1101E *module name* **execution failure: Missing or invalid SDA**

Explanation: This message is issued by module *module name*. It indicates that Cross Memory module *module name* could not locate the SDA control block. This is indicative of an internal failure.

User response: Restart the Cloud Connector address space. Contact IBM Technical Support for assistance, if needed.

CUZ1201E *module name* **- ASID Table not good**

Explanation: This message is issued by module *module name*. It indicates that the acronym for the ASID table control block was invalid. This is indicative of an internal error.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ1202E *module name* **- DCBS Head Ptr is zeroes**

Explanation: This message is issued by module *module name*. It indicates that the DCBS Head pointer is zero. This is indicative on an internal error.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ1203E *module name* **- STC has been cancelled - Staging Aborting**

Explanation: This message is issued by module *module name*. It indicates that the started task was cancelled so the process of staging data to DASD has also been cancelled.

User response: Restart the started task if you did not intend to cancel it. Contact IBM Technical Support for assistance, if needed.

CUZ1204E *module name* **- FORMAT-1 CCWs in use**

Explanation: The message is issued by module *module name*. It indicates that Cloud Connector detected the use of FORMAT-1 CCWs and recorded this in the DCBS internal control blocks.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ1205E *module name* **- EXCPVR CCWs in use**

Explanation: The message is issued by module *module name*. It indicates that Cloud Connector detected EXCPVR CCW usage and recorded this in the DCBS internal control blocks.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ1206E *module name* **- non-zero CLEANUP RC**

Explanation: This message is issued by module *module name*. A return code greater than zero was returned from the CLEANUP process, indicating an error.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ1207W *module name* **- Command Chain bit is off**

Explanation: This message is issued by module *module name*. It indicates that the Command Chain bit is off but the CCW is not the last one. This is an internal error possibly indicative of a premature end of the channel program.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ1208I *module name* **- Channel Processor Close in Progress**

Explanation: This message is issued by module *module name*. It indicates that channel processor close is in progress for a data set processed by Cloud Connector.

User response: No action is required.

CUZ1209I *module name* **- DCBS node not found**

Explanation: Explanation: The message is issued by module *module name*. It indicates that there was no DCBS control block structure suggesting that the data set be processed by Cloud Connector .

User response: No action is required.

CUZ1501W *module name* **- Invalid Auto Backup Minutes Parm-Setting to 60**

Explanation: This message is issued by module *module name*. It indicates that the `Auto Backup Repository Minutes` field on the "Parmlib General Options" screen allows you to specify a value between 05 - 9999. This message indicates that a value outside that range was entered in the field and is not valid. The setting was changed to 60 minutes.

User response: For more information, see “General Options” on page 20. Contact IBM Technical Support for assistance, if needed.

CUZ1502E *module name* **- Error Opening SYSIN DD**

Explanation: This message is issued by module *module name*. It indicates that while attempting to open the DD for SYSIN, an error occurred.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ1503I *module name* **- Shutdown in Progress**

Explanation: The message is issued by module *module name*. It indicates that IBM Cloud Connector is shutting down.

User response: No action is required.

CUZ1504E *module name* **- Invalid Return code calling History Processor**

Explanation: This message is issued by module *module name*. It indicates that when processing a backup history data set, a return code was generated that is not allowed for the CUZ#REPM module, possibly as a result from a call to the CUZ#INEX module.

User response: Look for warning and error messages produced by module CUZ#INEX, which is called by CUZ#REPM during history processing. You may have included data sets with DSORG types that are not supported in the "include" list, such as VSAM or PDS file types. The DSORG for a copy to the cloud must be a sequential file. Contact IBM Technical Support for assistance, if needed.

CUZ1505E *module name* **- Error Obtaining Staging DCB Buffer Storage**

Explanation: This message is issued by module *module name*. It indicates that an error occurred while attempting to locate storage for the Data Control Block (DCB) buffer that is needed for the staging process, which copies data to DASD before sending the data to a cloud.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ1901E *module name* **- Cloud Connector Errors - Job Abending**

Explanation: This message is issued by module *module name*. It is accompanied by message CUZ1902E, which has additional instructions on how to determine what error has caused the job to abend.

User response: No action is required.

CUZ1902E *module name* **- Look in CUZOUT DD in STC for Abend Reason**

Explanation: This message is issued by module *module name*. It indicates that the explanation for why the job abended is listed in the CUZOUT DD in the started task.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ1903I *module name* **- Open Detected for DDNAME** *ddname*

Explanation: This message is issued by module *module name*. It provides the name of a DD that has been opened.

User response: No action is required.

CUZ2001I *module name* **- Close Detected for DDNAME**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector detected a Close for the DDNAME it is processing.

User response: No action is required.

CUZ2002I *module name* **- Close Hook Successfully Disabled**

Explanation: The message is issued by module *module name*. It indicates that the Cloud Connector Close intercept is disabled and will not perform any processing.

User response: No action is required.

CUZ2003E *module name* **- Invoking z/OS Repository had errors**

Explanation: This message is issued by module *module name*. It indicates that when Cloud Connector was attempting to call a z/OS Repository, multiple errors occurred.

User response: Verify the Repository name and the directory path for the z/OS Repository. On the Main Menu, choose Option 1 (Parmlib), then choose Option 3 (Cloud Servers), to edit the Repository information currently specified for an existing cloud server definition.

CUZ2004I DCB Cloud Node Found

Explanation: This message indicates that during Close processing, Cloud Connector found a DCBS node for the data set, and therefore will process the data set.

User response: No action is required.

CUZ2005I *module name* **- Closing the DCB is complete RC=0**

Explanation: This message is issued by module *module name*. It indicates that no errors were encountered while closing the data control block, which is why the return code is 0.

User response: No action is required.

CUZ2006E *module name* **- Closing the DCB has completed with errors**

Explanation: This message is issued by module *module name*. It indicates that when Cloud Connector attempted to close a data control block (DCB), multiple errors occurred.

User response: Try to determine the reason for the errors. Contact IBM Technical Support for assistance, if needed.

CUZ2007I *module name* **- Cloud Processing Ended with Success**

Explanation: The message is issued by module *module name*. It indicates that Cloud Connector processing completed successfully. The selected data set has been copied to the cloud or staged for later processing.

User response: No action is required.

CUZ2008I *module name* **- Cloud Processing Ended with errors**

Explanation: This message is issued by module *module name*. It indicates that when Cloud Connector attempted to save data to or retrieve data from a cloud, multiple errors occurred.

User response: No action is required. If you want to verify the Cloud name and the directory path, choose Option 1 (Parmlib) on the Main Menu, then choose option 3, Cloud Servers, to edit the cloud server definition or to create a new definition.

CUZ2009E *module name* **- Cloud Process has Abended**

Explanation: This message is issued by module *module name*. It indicates that when Cloud Connector attempted to save data to or retrieve data from a cloud, the process did not complete, resulting in an abend.

User response: Verify the Cloud name and the directory path. On the Main Menu, choose Option 1 (Parmlib), then choose Option 3 (Cloud Servers) to edit the cloud server definition or to create a new definition. Contact IBM Technical Support for assistance, if needed.

CUZ2010E *module name* **- Cloud Process Ended via ECB Post**

Explanation: This message is issued by module *module name*. It indicates that when Cloud Connector attempted to save data to or retrieve data from a cloud, the process ended due to an Event Control Block (ECB) post.

User response: Verify the Cloud name and the directory path. On the Main Menu, choose Option 1 (Parmlib), then choose Option 3 (Cloud Servers) to edit

the cloud server definition or to create a new definition. Contact IBM Technical Support for assistance, if needed.

CUZ2011I *module name* **- Waiting for Cloud ECB to Post-30 secs**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector is waiting for Cloud activity to complete.

User response: No action is required.

CUZ2012E *module name* **- Post Error Routing Executing**

Explanation: This message is issued by module *module name*. It indicates that a POST attempt encountered an error and is executing its Error Return Routine (ERRET). This is possibly the result of an internal error.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ2013E *module name* **- Cloud Connector Errors-Job Abending**

Explanation: This message is issued by module *module name*. It indicates that when Cloud Connector attempted to save data to or retrieve data from a cloud, the job ended before the process was complete.

User response: Verify the Cloud name and the directory path. On the Main Menu, choose Option 1 (Parmlib), then choose Option 3 (Cloud Servers) to edit the cloud server definition or to create a new definition. Contact IBM Technical Support for assistance, if needed.

CUZ2014E *module name* **- Look in CUZOUT DD in STC for A+**

Explanation: This message is issued by module *module name*. Review the CUZOUT DD statement in the started task for more information.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ2101E CUZSDA REQUEST FAILURE: UNKNOWN

Explanation: This message indicates that the Cloud Connector service responsible for managing the SDA control block received an unknown request. This is indicative of an internal error.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ2102E CUZSDA CREATE FAILURE: APF AUTHORIZATION

Explanation: This message indicates that the Cloud Connector load modules do not have the necessary APF authorization. This is indicative of an incomplete installation and configuration. Review the configuration instructions and ensure the Cloud Connector load module is APF authorized.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ2103E CUZSDA CREATE FAILURE: STORAGE OBTAIN

Explanation: TBD

User response: Contact IBM Technical Support for assistance, if needed.

CUZ2104E CUZSDA CREATE FAILURE: IEANTCR RC(********)

Explanation: TBD

User response: Contact IBM Technical Support for assistance, if needed.

CUZ2105E CUZSDA DELETE FAILURE: APF AUTHORIZATION

Explanation: TBD

User response: Contact IBM Technical Support for assistance, if needed.

CUZ2106E CUZSDA DELETE FAILURE: IEANTDL RC(********)

Explanation: TBD

User response: Contact IBM Technical Support for assistance, if needed.

CUZ2201E CUZ.SVC22 - Cloud Connector Errors - Job Abending

Explanation: This message is accompanied by message CUZ2202E, which has additional instructions on how to determine what error has caused the job to abend.

User response: No action is required.

CUZ2202E *module name* **- Look in CUZOUT DD in STC for Abend Reason**

Explanation: This message is issued by module *module name*. The explanation for why the job abended is listed in the CUZOUT DD in the started task.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ2203I *module name* **- Open Detected for DDNAME** *ddname*

Explanation: This message is issued by module *module name*. It provides the name of a DD that has been opened.

User response: No action is required.

CUZ2401I *module name* **- Shutdown in Progress**

Explanation: This message is issued by module *module name*. It indicates that the Cloud Connector address space is shutting down.

User response: No action is required.

CUZ2402I *module name* **- Waiting for Initialization to complete**

Explanation: This message is issued by module *module name*. It indicates that this task is waiting for the Cloud Connector address space initialization to complete.

User response: No action is required.

CUZ2403E *module name* **- Invalid Cloud End Status / ECB Post encountered**

Explanation: This message is issued by module *module name*. It indicates an internal processing error.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ2404E *module name* **- Error Releasing Storage for DCBS Definition**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector encountered an error while releasing storage for a DCBS control block.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ2405I *module name* **- Shutdown in Progress**

Explanation: This message is issued by module *module name*. It indicates that the Cloud Connector address space is being shutdown.

User response: No action is required.

CUZ2501E SVC INSTALLATION ERROR: NOT APF AUTHORIZED

Explanation: The product needs to be APF authorized before it can be installed.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ2502E *module name* **SVC PROCESSING: INVALID REQUEST**

Explanation: This message is issued by module *module name*. It indicates that the Cloud Connector SVC intercept initialization encountered an internal error.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ2503E SVC Installation Error: No Steplib

Explanation: This message indicates that Cloud Connector detected an internal error during SVC intercept installation. The Cloud Connector address space does not contain the appropriate STEPLIB and is unable to find the necessary load modules.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ2504E SVC Installation Error: Load

Explanation: This message indicates that Cloud Connector detected an internal error during SVC intercept installation.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ2505E SVC INSTALLATION ERROR: SVC ROUTINE CSA AREA SIZE

Explanation: This message indicates that Cloud Connector detected an error while installing its SVC intercepts.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ2506I SVC INSTALLATION: REPLACE DETECTED FOR ********

Explanation: This message contains information that you may find helpful.

User response: No action is required.

CUZ2507E SVC INSTALLATION ERROR: CUZSDA VALIDATION

Explanation: This message indicates that Cloud Connector encountered an error while attempting to install its SVC intercepts.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ2508E SVC INSTALLATION ERROR: LOAD CUZSVCHK

Explanation: This message indicates that Cloud Connector encountered an error while installing its SVC intercepts.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ2509E SVC INSTALLATION ERROR: NO STEPLIB

Explanation: This message indicates that Cloud Connector encountered an error while installing its SVC intercepts.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ2510E SVC INSTALLATION ERROR: ALCSVCHK SP241 STORAGE OBTAIN.

Explanation: This message indicates that Cloud Connector encountered an error while installing its SVC intercepts.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ2511E SVC INSTALLATION ERROR: SVCUPDTE RC(*return code*)

Explanation: This message indicates that Cloud Connector encountered an error while installing its SVC intercepts. SVCUPDTE failed with RC value *return code*.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ3001E *module name* **- Invalid WTO Message Parm Passed**

Explanation: This message is issued by module *module name*. It indicates that a parameter that was passed in a write-to-operator message is not valid.

User response: Correct the parameter name or value and try again. Contact IBM Technical Support for assistance, if needed.

CUZ3002E *module name* **- No DCB or LCB passed.**

Explanation: This message is issued by module *module name*. It indicates that the message request did not include a DCB or LCB control block. This is indicative of an internal error.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ3003E *module name* **- Message Number:**

Explanation: This message is issued by module *module name*. It provides the message number of the message that failed to display as a result of the error reported in message CUZ3002E. It is displayed along with message CUZ3002E.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ3101E *module name* **- DCB Not Open-Messages print stopped**

Explanation: This message is issued by module *module name*. It indicates that when attempting to print messages, a Data Control Block could not be opened, which caused printing to stop.

User response: Try to determine what prevented the DCB from being open. Contact IBM Technical Support for assistance, if needed.

CUZ3102I *module name* **- STC Shutdown in progress**

Explanation: This message is issued by module *module name*. It indicates that a shutdown of the Cloud Connector address space is in progress.

User response: No action is required.

CUZ3201E BLOCK READ EXCEEDS 65535 BYTES AND NOT LBI

Explanation: Cloud Connector detected a block size that exceeded the maximum value for processing that is not using the Large Block Interface (LBI).

User response: Contact IBM Technical Support for assistance, if needed.

CUZ3202E BLOCK READ EXCEEDS 256K BYTES USING LBI

Explanation: Cloud Connector detected a block size that exceeded the maximum value for processing that is not using the Large Block Interface (LBI).

User response: Contact IBM Technical Support for assistance, if needed.

CUZ3203E INVALID VALUE ON SCOPE PARAMETER

Explanation: This message describes a control card error. Correct the statement and try again.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ3204E INVALID VALUE ON ACTION PARAMETER

Explanation: This message describes a control card error. Correct the statement and try again.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ3205E INVALID VALUE ON MODE PARAMETER

Explanation: This message describes a control card error. Correct the statement and try again.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ3206E ACTION CONTROL CARD NOT SUPPLIED

Explanation: This message describes a control card error. Correct the statement and try again.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ3207E SCOPE CONTROL CARD NOT SUPPLIED

Explanation: This message describes a control card error. Correct the statement and try again.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ3208E MODE CONTROL CARD NOT SUPPLIED

Explanation: This message describes a control card error. Correct the statement and try again.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ3209E INVALID CONTROL CARD VERB

Explanation: This message describes a control card error. Correct the statement and try again.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ3210E INVALID VALUE ON PRINT PARAMETER

Explanation: This message describes a control card error. Correct the statement and try again.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ3211E INVALID VALUE ON PRINT-FORMAT PARM

Explanation: This message describes a control card error. Correct the statement and try again.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ3212E INVALID VALUE ON PRINT-BEGIN PARM

Explanation: This message describes a control card error. Correct the statement and try again.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ3213E INVALID VALUE ON PRINT-END PARAMETER

Explanation: This message describes a control card error. Correct the statement and try again.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ3214E PRINT END NUMBER < PRINT BEGIN NUM

Explanation: Change the value for PRINT END to a number that is greater than the PRINT BEGIN number.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ3215E PARM MUST BEGIN BEFORE COL. 60

Explanation: This message describes a control card error. Correct the statement and try again.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ3216E SUB-PARM MUST BEGIN BEFORE COL. 66

Explanation: This message describes a control card error. Correct the statement and try again.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ3217E PRINT WITH SCOPE=VOLUME REQUIRES BLP

Explanation: This message describes a control card error. Correct the statement and try again.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ3218I RECORD PRINTING IS SUPPRESSED

Explanation: This message describes a control card error. Correct the statement and try again.

User response: No action is required.

CUZ3219E COMPARE NOT VALID WITH SCOPE=VOLUME

Explanation: This message describes a control card error. Correct the statement and try again.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ3301E *module name* **- Error Obtaining Working Storage**

Explanation: This message is issued by module *module name*. It indicates that while attempting to "stage" (copy) the data to DASD before placing it on a cloud, there was a problem in obtaining working storage.

User response: Try increasing the amount of space that is allocated by adjusting the values on the Parmlib Staging Options screen. See “Staging Options” on page 22 for more information. Contact IBM Technical Support for assistance, if needed.

CUZ3302E *module name* **- Error Obtaining Work Buffer Area**

Explanation: This message is issued by module *module name*. It indicates that while attempting to "stage" (copy) the data to DASD before placing it on a cloud, there was a problem in obtaining a work buffer area.

User response: Try increasing the amount of space that is allocated by adjusting the values on the Parmlib Staging Options screen. See “Staging Options” on page 22 for more information. Contact IBM Technical Support for assistance, if needed.

CUZ3303E *module name* **- Error Obtaining DCB Buffer Area**

Explanation: This message is issued by module *module name*. It indicates that while attempting to "stage" (copy) the data to DASD before placing it on a cloud, there was a problem in obtaining a DCB buffer area.

User response: Try increasing the amount of space that is allocated by adjusting the values on the Parmlib Staging Options screen. See “Staging Options” on page 22 for more information. Contact IBM Technical Support for assistance, if needed.

CUZ3304E *module name* **- Invalid Function Code in DCBS Node**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector detected an error during DCBS processing. It is indicative of an internal error.

User response: Try increasing the amount of space that is allocated by adjusting the values on the Parmlib Staging Options screen. See “Staging Options” on page 22 for more information. Contact IBM Technical Support for assistance, if needed.

CUZ3305I *module name* **- Cleanup in Progress-Waiting for Post**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector stage processing is waiting for a termination request.

User response: No action is required.

CUZ3306I *module name* **- Hit End of Linklist-Waiting for Post**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector processing is complete and waiting for a Post.

User response: No action is required.

CUZ3307I *module name* **- Entered PLO Restart Logic**

Explanation: This message is issued by module *module name*. It indicates PLO Restart Logic is processing.

User response: No action is required.

CUZ3308I *module name* **- Channel Appendage has ended**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector Channel Appendage has ended.

User response: No action is required.

CUZ3309I *module name* **- Waiting 2 Seconds for Appendage Post**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector is waiting for its Appendage to Post.

User response: No action is required.

CUZ3310E *module name* **- Error Allocating Staging File for Deletion**

Explanation: This message is issued by module *module name*. It indicates that an error occurred when the staging process attempted to delete the staging file after

copying the data to the cloud.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ8001E *module name* **- Error Obtaining Storage for CELL Pool Definition**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector detected an error obtaining storage for a cell pool.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ8002I *module name* **- Reusing a Cell**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector cell pool processing is reusing an available, unused cell pool.

User response: No action is required.

CUZ8003I *module name* **- Obtaining a New Cell**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector detected an error obtaining a new cell pool.

User response: No action is required.

CUZ8004E *module name* **- Cell Pool Get Failed**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector detected an error while attempting to get a cell pool.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ8005E *module name* **- Error Obtaining Storage for CELL Pool Definition**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector detected an error while obtaining storage for a Cell Pool Definition.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ8006E *module name* **- Error Releasing Storage for CELL Pool Definition**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector detected an error while releasing storage for a Cell Pool Definition.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ8101E *module name* **- Error Obtaining Storage for DCBS Local Control Block**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector detected an error while obtaining storage for a DCBS local control block.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ8102E *module name* **- Error Obtaining Storage for DCBS Definition**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector detected an error while obtaining storage for a DCBS Definition.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ8103E *module name* **- Error Releasing Storage for DCBS Definition**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector detected an error while releasing storage for a DCBS Definition.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ8104E *module name* **- Error Releasing Storage for DCBS Definition**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector detected an error while releasing storage for a DCBS Definition.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ8201E *module name* **- Error Obtaining Storage for Cloud Definition**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector detected an error while obtaining storage for a Cloud Definition.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ8202E *module name* **- Error Obtaining Storage for Cloud Definition**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector detected an error while obtaining storage for a Cloud Definition.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ8203E *module name* **- Error Releasing Storage for CLOUD Definition**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector detected an error while releasing storage for a Cloud Definition.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ8204E *module name* **- Error Releasing Storage for CLOUD Definition**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector detected an error while releasing storage for a Cloud Definition.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ8301E *module name* **- Error Obtaining Storage for FILTER Definition**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector detected an error while obtaining storage for a Filter Definition.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ8302E *module name* **- Error Obtaining Storage for FILTER Definition**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector detected an error while obtaining storage for a Filter Definition.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ8303E *module name* **- Error Releasing Storage for Filter Definition**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector detected an error while releasing storage for a Filter Definition.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ8304E *module name* **- Error Releasing Storage for Filter Definition**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector detected an error while releasing storage for a Filter Definition.

User response: Contact IBM Technical Support for assistance, if needed.

CUZ9999E *module_name* **- Recovery Cleanup Invoked**

Explanation: The module listed at the beginning of the message has invoked the recovery cleanup process.

User response: No action is required. If you need more information, review the messages issued by this module.

FEC Scroll Messages

This section lists all of the messages that may display while attempting to use scroll commands with this product. The FEC Scroll messages are listed below

CUZA900E Invalid Column Function value. Valid values: 1, 2, 3, 4

Explanation: An invalid character was entered in the Column Function field.

User response: Specify a valid character (1, 2, 3, or 4).

CUZA901E Invalid Permanent View value. Valid values: Y, N

Explanation: An invalid value was entered in the Permanent View field.

User response: Correct the value or cancel. Valid values are Y and N.

CUZA902E Invalid Reset View value. Valid values are Y, N

Explanation: An invalid character was entered in the Reset View field. Valid characters are Y and N.

User response: Specify a valid value or cancel. Valid values are:

- Y - Resets all customizations.
- N - Customizations are not reset.

CUZA903E Invalid Stop Sorting value. Valid values: Y, N

Explanation: The specified stop sorting value is not valid. Valid values are:

- Y - Indicates that sorting will be stopped.
- N - Indicates that sorting will continue.

User response: Specify a valid value or cancel.

CUZA904E Invalid command in FORM display

Explanation: The command you issued when viewing the FORM display was not valid.

User response: Valid commands for FORM display include NROW and PROW.

CUZA905E FORM command not supported from CSETUP function

Explanation: The FORM command was issued from a CSETUP function. FORM is not supported while in a CSETUP function (CSETUP functions include CFIX, CORDER, CSIZE and CS).

User response: No action is required.

CUZA906E Invalid parameter for NROW. Must be numeric.

Explanation: The parameter you specified for NROW (next row) was not numeric and is therefore invalid.

User response: Specify a numeric value corresponding to the number of rows to advance. The default value for NROW is 1.

CUZA907E Invalid parameter for PROW. Must be numeric.

Explanation: The parameter you specified for PROW (previous row) was not numeric and is therefore invalid.

User response: Specify a numeric value corresponding to the number of rows to scroll back. The default value for PROW is 1.

CUZA908E Invalid parameter for NROW. Too many digits.

Explanation: An invalid parameter for the NROW (next row) keyword was specified. More than eight digits were specified. Parsing stops at eight digits.

User response: A parameter of NROW must be between 1 and the number of rows in the current report display. If no parameter is specified, 1 is assumed.

CUZA909E Invalid parameter for PROW. Too many digits.

Explanation: Invalid parameter to PROW (previous row) specified. More than eight digits were specified. Parsing stops at eight digits.

User response: A parameter of PROW must be between 1 and the number of rows in the current report display. If no parameter is specified, 1 is assumed.

CUZA910E CSETUP command not supported from FORM function

Explanation: CSETUP functions are not supported while in the FORM display. CSETUP functions include CFIX, CORDER, CSIZE, CSORT, and CSETUP (CSET).

User response: Exit the current FORM function before issuing a CSETUP function.

CUZA911E Invalid ICR command. Use RIGHT command.

Explanation: ICR is only valid with columns that are not their maximum size. You can see the column's current and maximum sizes by issuing CSIZE.

User response: RIGHT and LEFT commands can be used to see all parts of this column.

CUZA912E Invalid ICL command. Use LEFT command.

Explanation: ICL is only allowed with columns that are not their maximum size. You can see the column's current and maximum sizes by issuing CSIZE.

User response: RIGHT and LEFT commands can be used to see all parts of this column.

CUZA913E Format mix data element not updated.

Explanation: Format MIX data cannot be updated when only part of the data is displayed.

User response: No action is required.

CUZA914E FORM command not supported from FORM function

Explanation: FORM was issued from within a FORM display. This is not supported.

User response: No action is required.

CUZA915E FORM PF keys set; NROW = *nrow* **PROW =** *prow*

Explanation: The NROW (next row) and PROW (previous row) commands are used to move the FORM display window to another row. The UP, DOWN, LEFT, and RIGHT commands move the FORM display window within the current row.

Row, as mentioned above, refers to the row from the original report display, not any reformatted FORM display row.

By default, NROW advances the FORM display to the next row. If `NROW n` is issued, the FORM display will advance *n* rows.

Similarly, PROW moves the FORM display window to the immediately prior row PROW n moves the current FORM display window to the nth prior row.

User response: No action is required.

CUZA916E Invalid CNUM parm. Valid parms are ON, OFF, or blank.

Explanation: CNUM was issued with an invalid parameter. Issuing CNUM with no parameter acts as an ON/OFF toggle. ON and OFF are the only parameters accepted. ON turns the CNUM display on. OFF turns the CNUM display off.

User response: Use a valid CNUM parameter (ON, OFF, or blank).

CUZA917E Report width for print too large.

Explanation: The report width exceeds the maximum print width.

User response: The maximum report width that is currently supported is 32,760.

CUZA918E *string* **not found. Press PF5 to continue from top.**

Explanation: The indicated character string was not found.

User response: To continue searching for the character string from the top of the dialog, press PF5.

CUZA920I Chars *chars* **found** *n* **times**

Explanation: Indicates the number of times the specified character was found.

User response: No action is required.

CUZA921I Chars chars found n times

Explanation: Indicates the number of times the specified character was found.

User response: No action is required.

CUZA922I Search for CHARS *chars* **was successful.**

Explanation: Indicates the search for the indicated characters produced matches.

User response: No action is required.

CUZA923E Check for misspelled keywords or embedded blanks in search string.

Explanation: Indicates there may be invalid keywords or blanks embedded within the search string.

User response: Verify and correct the search string to remove embedded blanks or to correct keywords.

CUZA924E *string1* **and** *string2* **cannot both be specified for FIND command.**

Explanation: You specified two strings for the FIND command.

User response: You must specify one FIND string at a time.

CUZA925E Put quotes (" ") around the string of characters to be displayed.

Explanation: The string of characters is not enclosed in quotes.

User response: Place the string of characters in side quotes.

CUZA926E Maximum parameter length is 80

Explanation: The parameter you specified is too long.

User response: Place the string of characters in side quotes.

CUZA927E Invalid COLS parm. Valid parms are ON, OFF, or blank

Explanation: COLS was issued with an invalid parameter. Issuing COLS with no parameters acts as an ON/OFF toggle. ON and OFF are the only parameters accepted.

User response: Enter `COLS ON` to turn on the COLS display or `COLS OFF` to turn off the COLS display.

CUZA930I No columns eligible for resizing

Explanation: You cannot re-size any columns.

User response: No action is required.

CUZA931I No columns eligible for sorting

Explanation: You cannot sort any columns.

User response: No action is required.

CUZA932E TBMOD failed. RC=*return code*

Explanation: An unexpected return code occurred during TBMOD.

User response: Suggested diagnostics:

- See TBMOD in the *z/OS ISPF Services Guide*.
- Review ISPTLIB allocation.
- Review security-controlled access to ISPTLIB data sets.

CUZA933E Invalid column name: missing quote

Explanation: SORT or CSORT was issued with a parameter that had an initial quotation character, but not a second closing quotation character.

User response: Either clear the command line and select the desired sort column(s) from the displayed selection list or correct the command on the command line.

CUZA934E More than 9 columns specified

Explanation: SORT or CSORT was issued with too many columns specified as sort columns. A maximum of 9 sort columns can be specified.

User response: Either clear the command line and select the desired sort column(s) from the displayed selection list or correct the command on the command line.

CUZA935E Invalid column name

Explanation: SORT or CSORT was issued with a column parameter that does not match any column name. A list of the correct column names is seen in the SORT selection panel.

User response: Either clear the command line and select the desired sort column(s) from the displayed selection list or correct the command on the command line.

CUZA936E Invalid row selection character

Explanation: An invalid selection character was entered in the SSID selection list. The only valid selection character is S. Alternatively, place the cursor on the desired line and press ENTER (without a line selection character).

User response: Clear the invalid character.

CUZA937E Only one row selection allowed

Explanation: More than one SSID was selected from the SSID selection list. A maximum of one SSID can be selected.

User response: Clear all, or all but one row selection character.

CUZA938E Invalid command

Explanation: An invalid command was entered on the SSID selection list panel.

User response: Clear the command.

CUZA939E Read of control file failed

Explanation: Reading the control data set failed.

User response: Check the product setup (accessed from the main menu) to view the control data set currently in use. Verify that the data set name is correct.

CUZA943E Invalid command

Explanation: An invalid command was issued. It is not supported on the current panel.

User response: Check the command for typographical error. Clear or correct the command.

CUZA944I Empty History

Explanation: This is an informational message. The history database is empty. If commands were previously entered, then either HCLEAR was issued or the size of the history database was set to 0. If ISPTABL and ISPTLIB are not allocated, history is not remembered across sessions, and each new session has an empty history database.

User response: No action is required. To verify allocation of ISPTLIB and ISPTABL, ISRDDN and ISPLIBD can be useful; refer to the ISPF manuals for information on ISRDDN and ISPLIBD.

CUZA945E Invalid history size limit

Explanation: An invalid character was found in the History Size Limit field. Only numeric values from 0-999 are valid.

User response: Enter a valid value in the History Size Limit field.

CUZA948E TBOPEN failed. RC=*return code*

Explanation: TBOPEN for the history table failed. return code is the return code from the TBOPEN service.

User response: Check ISPTLIB allocation. Verify the data sets in ISPTLIB. Verify it is a valid PDS. See ISPF manuals for ISPTLIB requirements.

CUZA951E History cleared

Explanation: History was cleared either by issuing the HCLEAR command or by setting the History Size Limit to 0.

User response: No action is required.

CUZA954E Invalid command

Explanation: An invalid command was issued from the data sharing members list/selection panel.

User response: Clear the command.

CUZA955E No member selected

Explanation: You exited the data sharing member selection panel without selecting a data sharing member.

User response: No action is required.

CUZA956E Invalid row selection character

Explanation: An invalid selection character was entered in the History output display. A command listed in the History display can be selected for execution either by selecting it with an "S" selection character, or by placing the cursor anywhere on a line within the command and pressing Enter.

When selecting by cursor placement, the cursor can be on the line selection input line, which also has a command number, or on a line with some command text.

User response: Clear the invalid character.

CUZA957E Only one row selection allowed

Explanation: More than one command was selected from the History display. Only one History command can be selected.

User response: Clear all, or all but one row selection character.

CUZA958E Invalid row selection character

Explanation: An invalid selection character was entered in the displayed list of data sharing members. A data sharing member in this display can be selected by selecting it with an "S" selection character, or by placing the cursor anywhere on the desired row and pressing Enter.

User response: Clear the invalid character.

CUZA959E Only one row selection allowed

Explanation: More than one member was selected from the list of displayed data sharing members.

User response: Clear all, or all but one row selection character.

CUZA960E Cannot list commands without SSID

Explanation: A command was issued to select a command syntax diagram, but no SSID has been selected. Syntax diagrams cannot be displayed until an SSID has been selected.

User response: Select an SSID. You can generate a list of SSIDs by clearing the SSID field, or entering a ? (question mark).

CUZA964E Invalid parameter

Explanation: An invalid parameter was used with a command.

User response: Clear the parameter.

CUZA966E Sort column specified more than once. Selection panel invoked.

Explanation: You cannot specify the same sort column twice. The selection panel displays the columns you can choose to sort.

User response: Specify a different column for the sort process.

CUZA966E Sort column specified more than once. Selection panel invoked.

Explanation: You cannot specify the same sort column twice. The selection panel displays the columns you can choose to sort.

User response: Specify a different column for the sort process.

CUZA969E A name of a valid partitioned data set and member name are required.

Explanation: This field requires that you specify the name of a partitioned data set (PDS) and the name of a member in the PDS.

User response: Specify the name of a PDS and a member name.

CUZA970E A problem was encountered in allocating the files necessary for ISPF file tailoring. Please try again.

Explanation: An error occurred when dynamically allocating the ISPF work files ISPFILE, ISPWRK1, or ISPWRK2.

User response: Retry the operation. Contact IBM Software Support if the problem persists.

CUZA971I Display MEPL Job *jobname* successfully submitted

Explanation: This is an informational message. The job listed in the message was submitted for processing

User response: No action is required.

CUZA972E Command is not supported on this screen. Please enter a valid command or clear the primary command line.

Explanation: An invalid command was entered in the Option line.

User response: Correct the command or clear the Option line.

CUZA973E Allocation error. An error was encountered allocating the ISPFILE DD. Attempting to continue.

Explanation: While attempting to allocate the ISPFILE DD, and error occurred. Cloud Connector is trying to continue processing.

User response: Check to see if the ISPFILE DD is already allocated.

CUZA974E Display MEPL internal error - at least one DSN required

Explanation: TBA

User response: Specify a data set name.

CUZA975E Display MEPL internal error - Invalid eyecatcher length

Explanation: TBA

User response: Specify a different value for the length.

Product Messages

This section lists all of the messages that may display while using the product. The messages are listed below.

CUZS001I *prodname* **Starting. Version** *v.r.mm*

Explanation: The Cloud Connector address space is initiating and has starting reading its parameter library (Parmlib). The *v.r.mm* specifies the Version, Release, and Modification level of the executing product.

User response: No action is required.

CUZS002I *prodname* **complete. RC=***return code*

Explanation: This message informs you that the product, *prodname*, has completed the start up process and also lists the return code.

User response: No action is required.

CUZS003I **Parmlib Cards:**

Explanation: This message indicates the start of the control cards read from the Parmlib. An image of each control card read is displayed in message CUZS004I.

User response: No action is required.

CUZS004I *message*

Explanation: This message is the second of two messages that display parameter library (parmlib) information.

User response: No action is required.

CUZS005I *module name* **- Jobname** *job name* **DCB** *data control block* **- Cloud Connector filtering has started**

Explanation: This message is issued by module *module name*. It indicates that filtering process has initiated to determine if Jobname *job name* DCB *data control block* should be processed. If filtering is successful, data written to DCB *data control block* will also be copied to the cloud storage destination named in the matching filter criteria.

User response: No action is required.

CUZS006I *module name* **- Jobname** *job name* **DCB** *data control block* **- DCB Rejected because DD was not opened for output.**

Explanation: This message is issued by module *module name*. It indicates that Jobname *job name* DCB *data control block* will not be processed by Cloud Connector. Although the filter criteria matched, the data set is being opened for "input". Cloud Connector only intercepts "output" data sets.

User response: No action is required.

CUZS007I *module name* **- Jobname** *job name* **DCB** *data control block* **- DCB Rejected because Dataset is on Disk**

Explanation: This message is issued by module *module name*. It indicates that job *job name* DCB *data control block* will not be processed by Cloud Connector. Although filter criteria matched, the data set is written to DASD. Cloud Connector only intercepts data sets written to Tape.

User response: No action is required.

CUZS008I *module name* **- Jobname** *job name* **DCB** *data control block* **- DCB Rejected because no Dataset Name was assigned to DD**

Explanation: This message is issued by module *module name*. It indicates that job *job name* DCB *data control block* will not be processed by Cloud Connector. Although filter criteria matched, the DD does not specify a data set.

User response: No action is required.

CUZS009I *module name* **- Jobname** *job name* **DCB** *data control block* **- Dataset retrieved from DCB is** *data set name*

Explanation: This message is issued by module *module name* to report the backup data set *data set name* referenced by DCB *data control block*. This data set will be copied to a cloud storage location as designated by the filter criteria that caused its selection.

User response: No action is required.

CUZS010I *module name* **- Jobname** *job name* **DCB** *data control block* **- DCB Rejected because no Esoteric Unit was assigned to DD**

Explanation: This message is issued by module *module name* to indicate that job *job name* DCB *data control block* will not be processed. Although filter criteria matched, the DD does not specify a valid esoteric unit.

User response: If the data set is one that should be copied to the cloud, verify the catalog information describing the data set. Otherwise, no action is necessary.

CUZS011I *module name* **- Jobname** *job name* **DCB** *data control block* **- Esoteric Unit retrieved from DCB is** *esoteric unit*

Explanation: This message is issued by module *module name* to report the esoteric unit name *esoteric unit* referenced by DCB *data control block*. This information describes the original device type used for the backup data set, which is recorded in the repository record for optional use in restore processing

User response: No action is required.

CUZS012I *module name* **- Jobname** *job name* **DCB** *data control block* **- SMS Storage Class retrieved from DCB is** *storage class*

Explanation: This message is issued by module *module name* to report the SMS Storage Class *storage class* referenced by DCB *data control block*. This information describes the original storage class used for the backup data set, which is recorded in the repository record for optional use in restore processing.

User response: No action is required.

CUZS013I *module name* **- Jobname** *job name* **DCB** *data control block* **- DCB Rejected because it did not match any Filter Criteria in Parmlib**

Explanation: This message is issued by module *module name* to indicate that job *job name* DCB *data control block* will not be processed. There was no matching filter criterion.

User response: No action is required.

CUZS014I *module name* **- Jobname** *job name* **DCB** *data control block* **- DCB Has been selected for Cloud Processing based on Storage Class**

Explanation: This message is issued by module *module name* to indicate that the Storage Class referenced by job *job name* DCB *data control block* matches filter criteria contain in the Parmlib. The backup data set will be copied to the cloud storage location designated on the matching filter criteria.

User response: No action is required.

CUZS015I *module name* **- Jobname** *job name* **DCB** *data control block* **- DCB Has been selected for Cloud Processing based on Dataset Name**

Explanation: This message is issued by module *module name* to indicate that the Dataset Name referenced by job *job name* DCB *data control block* matches filter criteria contain in the Parmlib. The backup data set will be copied to the cloud storage location designated on the matching filter criteria.

User response: No action is required.

CUZS016I *module name* **- Jobname** *job name* **DCB** *data control block* **- DCB Has been selected for Cloud Processing based on Esoteric Unit**

Explanation: This message is issued by module *module name* to indicate that the Esoteric Unit name referenced by job *job name* DCB *data control block* matches filter criteria contain in the Parmlib. The backup data set will be copied to the cloud storage location designated on the matching filter criteria.

User response: No action is required.

CUZS017I *module name* **- Cloud Name** *cloud name* **was successfully connected to**

Explanation: This message is issued by module *module name*. It indicates that the Cloud Connector address space contacted and established a connection to Cloud Name *cloud name*. This cloud storage location can now be used as a target for backup copy operations.

User response: No action is required.

CUZS018E *module name* **- Cloud Name** *cloud name* **connection error -** *error*

Explanation: This message is issued by module *module name*. The product was unable to connect to cloud *cloud name*. The connection failure returns error *error*.

User response: Confirm that the cloud definition information in the parameter member is correct. If the problem persists, contact IBM Technical Support.

CUZS019I *module name* **- Jobname** *job name* **DCB** *data control block* **- DCB Has been successfully opened for Cloud Processing**

Explanation: IBM Cloud Connector has successfully connected to job *job name* and will copy data written to DCB *data control block* to the cloud named in the filter criteria that selected this DCB.

User response: No action is required.

CUZS020E *module name* **- Jobname** *job name* **DCB** *data control block* **- Cloud Name** *cloud name* **in Filter Criteria was not defined in Parmlib**

Explanation: This message is issued by module *module name*. Cloud Connector was unable to connect to job *job name* DCB *data control block* because Cloud *cloud name* was not defined.

User response: Confirm that the cloud definition information in the parameter member is correct. Make sure that the cloud definitions include all the cloud names used any filter criteria. If the problem persists, contact IBM Technical Support.

CUZS021I *module name* **- Jobname** *job name* **DCB** *data control block* **- DCB will be written to Cloud Name** *cloud name*

Explanation: This message is issued by module *module name*. Cloud Connector will copy all data written to DD *data control block* of job *job name* to Cloud name *cloud name*.

User response: No action is required.

CUZS022E *module name* **- Jobname** *job name* **DCB** *data control block* **- Cloud Name** *cloud name* **has encountered Connection issues - Process Bypassed**

Explanation: This message is issued by module *module name*. Cloud Connector encountered an error while attempting to connect or write to Cloud *cloud name*. Data written to DCB *data control block* of job *job name* will not be written to the designated cloud destination.

User response: Check your communications network for errors or contact your Network administrator, providing them with the connection information regarding Cloud *cloud name*. If the problem persists, contact IBM Technical support.

CUZS023E *module name* **- Cloud Name** *location* **has not been defined - History Processing Bypassed**

Explanation: This message is issued by module *module name* to indicate that it was unable to find the designated cloud storage location *location*. The historical backups will not be copied to cloud storage.

User response: Confirm that the cloud definition information in the parameter member is correct. Make sure that the cloud definitions include all cloud names used any filter criteria. If the problem persists, contact IBM Technical Support.

CUZS024W *module name* **- Jobname** *job name* **DCB** *data control block* **DCB has BLKSIZE>32K. May cause Aux Storage Consumption.**

Explanation: This message is issued by module *module name* to indicate that DCB *data control block* use of a BLKSIZE greater than 32K will force Cloud Connector to utilize additional storage for staging processing. If you are using staging, data destined for cloud storage is first copied to temporary DASD locations and later moved to cloud storage destinations. Although a block size of greater than 32K is allowed for tape, MVS does not allow it for DASD. Because of this, *data control block* requires additional processing and storage utilization to create the temporary DASD staging data sets.

User response: To avoid this, turn off the Stage-to-DASD option. You may however need to weigh performance in using Stage-to-DASD versus not using it.

CUZS025E *module name* **- Jobname** *job name* **DCB** *data control block* **- Staging Data Failure. Cloud copy bypassed.**

Explanation: This message is issued by module *module name* to indicate that it encountered an I/O failure while attempting to write to the staging data set. The data set allocated to DCB *data control block* will not be copied to its designated cloud storage location. This error with be accompanied by z/OS MVS messages related to I/O failures, but the most common cause of this is lack of DASD space availability.

User response: You may want to review and adjust the "Staging Options" that are set in the Parmlib Options, which is Option 1 on the Main Menu. Check to ensure that the values specified for the primary and secondary space allocations are large enough to stage the cloud data.

CUZS026I *module name* **- Jobname** *job name* **DCB** *data control block* **Cloud Connector Processor has Successfully Started**

Explanation: This message is issued by module *module name*. The product has started successfully.

User response: No action is required.

CUZS027E *module name* **- Jobname** *job name* **DCB** *data control block* **All Memory Cells Exhausted. Processing stopped.**

Explanation: This message is issued by module *module name*. The amount of memory cells that were specified in the Parmlib are not large enough to continue cloud processing. Increase the number of primary cells to be greater than 30.

User response: Update the amount of memory cells and the cell pool size in the Parmlib. Select **Option 1 (Settings)** on the Main Menu, then select **Option 1 (General Options)** on the Parmlib Options screen. Change the value in the **Memory Primary Cells** field to a number greater than 30.

CUZS028I *module name* **- Jobname** *job name* **DCB** *data control block* **- Channel End Appendage has Started**

Explanation: This message is issued by module *module name*. This message is for your information only.

User response: No action is required.

CUZS029I *module name* **- Jobname** *job name* **- Waiting for job to complete before completing STC Shutdown**

Explanation: This message is issued by module *module name* to inform you that the Cloud Connector started task will be shutdown after the job *job name* completes.

User response: No action is required.

CUZS029I *module name* **- Jobname** *job name* **- Waiting for job to complete before completing STC Shutdown**

Explanation: This message is issued by module *module name* to inform you that the Cloud Connector started task will be shutdown after the job *job name* completes.

User response: No action is required.

CUZS030E *module name* **- Cloud Connector Initialization task has abended - Abend code:** *code*

Explanation: This message is issued by module *module name*. There is a problem with the initialization task. An abend code is listed in the message to help determine what type of problem occurred.

User response: Use the abend code listed in the message to determine what caused the abend and correct the problem. Contact IBM Technical Support for assistance, if needed.

CUZS031E *module name* **- Cloud Connector Initialization error -***error text*

Explanation: This message is issued by module *module name*. An error occurred while attempting to initialize Cloud Connector. The *error text* provides additional information on this error.

User response: Refer to the additional information in the message to determine how to correct the error. Contact IBM Technical Support for assistance, if needed.

CUZS032E *module name* **- No valid Cloud Connections found - All processing disabled**

Explanation: This message is issued by module *module name* and indicates that Cloud Connector could not connect to any cloud servers so all processing was stopped. A cloud definition has not been created for any cloud servers.

User response: Create one or more cloud definitions so that Cloud Connector can locate a cloud and connect to it. Choose Option 1, Cloud Connector Settings (Parmlib Options), on the Main Menu. On the Parmlib Options Menu, choose the Cloud Servers option and use the "C" line command to create a new cloud definition.

CUZS033D *module name* **- Jobname** *job name* **DCB** *data control block* **- Waiting 5 seconds for Channel End to post**

Explanation: This diagnostic message informs you that Cloud Connector is waiting five seconds for the Channel End to post.

User response: No action is required.

CUZS034I *module name* **- Jobname** *job name* **DCB** *data control block* **- Cloud Write Function has completed successfully**

Explanation: This message is issued by module *module name*. This message informs you that data was written to the cloud successfully.

User response: No action is required.

CUZS035E *module name* **- Jobname** *job name* **DCB** *data control block* **- Cloud Write Function has Abended - Abend Code:** *abend code*

Explanation: This message is issued by module *module name*. An error occurred while attempting to write data to the cloud. An abend code is provided in this message.

User response: Refer to the abend code to determine why the write process generated an error. Contact IBM Technical Support for assistance, if needed.

CUZS036I *module name* **- Jobname** *job name* **DCB** *data control block* **- Waiting for Cloud Write process to complete**

Explanation: This message is issued by module *module name*. Data is being written to the cloud and the program is waiting for this process to finish.

User response: No action is required.

CUZS037E *module name* **- Jobname** *job name* **DCB** *data control block* **- Cloud Finish Bypassed - Process Abnormal End**

Explanation: This message is issued by module *module name*. The job *job name* was attempting to finish a cloud process, but the process ended abnormally.

User response: Contact IBM Technical Support for assistance, if needed.

CUZS038E *module name* **- Jobname** *job name* **DCB** *data control block* **- Cloud Process Bypassed due to previous errors**

Explanation: The cloud process that is normally performed by the job listed in the message has been bypassed due to errors that occurred previously.

User response: Contact IBM Technical Support for assistance, if needed.

CUZS039I *module name* **- Jobname** *job name* **DCB** *data control block* **- Cloud Staging Process has Started**

Explanation: This message informs you that the cloud staging process has started.

User response: No action is required.

CUZS040E *module name* **- Jobname** *job name* **DCB** *data control block* **- Cloud Staging Process has Abended - Abend Code:** *abend code*

Explanation: This message is issued by module *module name*. An error occurred while attempting to stage data that is being sent to the cloud. An abend code is provided in this message.

User response: Refer to the abend code to determine why the staging process generated an error. Contact IBM Technical Support for assistance, if needed.

CUZS041E *module name* **- Jobname** *job name* **DCB** *data control block* **- Channel Program Terminated - Stage/Cloud not running**

Explanation: This message is issued by module *module name*. An error occurred while attempting to stage data that is being sent to the cloud.

User response: Contact IBM Technical Support for assistance, if needed.

CUZS042E *module name* **- Jobname** *job name* **DCB** *data control block* **- Error Obtaining Cell Pool - Check cell pool sizes in Parmlib**

Explanation: This message is issued by module *module name*. There is an issue with the size of the cell pool, which is causing a problem with this job. The cell pool size can be adjusted on the Parmlib General Options screen.

User response: Choose Option 1, Cloud Connector Settings (Parmlib Options), on the Main Menu. On the Parmlib Options Menu, choose General Options and type a larger value in the "Memory Cell Pool Size" field.

CUZS043E *module name* **- Jobname** *job name* **DCB** *data control block* **-** *text*

Explanation: This message is issued by module *module name*. There is an issue with this job, which is explained in the text listed at the end of the message.

User response: Try to correct the error, if possible. Contact IBM Technical Support for assistance, if needed.

CUZS044E *module name* **- Jobname** *job name* **DCB** *data control block* **- Failed to open, bypassing Cloud Processing**

Explanation: This message is issued by module *module name*. The job *job name* did not open so cloud processing did not occur.

User response: Try to correct the error, if possible. Contact IBM Technical Support for assistance, if needed.

CUZS045E *module name* **- Dataset** *data set name* **- No Cloud Server found, bypassing Cloud Processing**

Explanation: This message is issued by module *module name*. The data set *data set name* did not contain a cloud server definition so cloud processing did not occur.

User response: Create a cloud definition so that Cloud Connector can locate the cloud and connect to it. Choose Option 1, Cloud Connector Settings (Parmlib Options), on the Main Menu. On the Parmlib Options Menu, choose the Cloud Servers option and use the "C" line command to create a new cloud definition.

CUZS046E *module name* **- Repository backup bypassed. No Repository Filter criteria found**

Explanation: This message is issued by module *module name*. The Repository filter specifies where to save a backup of the entire repository. No criteria is allowed for this filter type and only one Repository filter can be defined. A backup of the repository is performed every "n" minutes, based on the value you specified in the "Auto Bkup Repository Min" field on the General Options screen (under Parmlib Settings). If you specify a value in the "Auto Bkup Repository Min" field, but do not create a Repository filter to specify where the repository backup should be saved, this error message displays.

User response: Create a Repository Backup filter. Choose Option 1, Cloud Connector Settings (Parmlib Options), on the Main Menu. On the Parmlib Options Menu, choose the Backup Filter Criteria option and use the "C" line command to create a new Repository Backup filter.

CUZS047I *module name* **- Dataset** *data set name* **- Has been selected for Cloud Processing - Dataset Name**

Explanation: This message is issued by module *module name* and informs you that the data set name listed in the message has been selected for cloud processing.

User response: No action is required.

CUZS048E *module name* **- Cloud Name** *cloud name* **Not found for backing up Cloud Connector Repository**

Explanation: This message is issued by module *module name*. The cloud *cloud name* was supposed to be used for a backup of the repository, but the cloud name was not found. This may indicate that the wrong cloud name was used or that cloud has not been defined for use by Cloud Connector.

User response: Verify the spelling of the cloud name and that a Repository Filter has been created. Only one repository is allowed. If there is no cloud definition for this cloud name, you must make one. Create a cloud definition so that Cloud Connector can locate the cloud and connect to it. Choose Option 1, Cloud Connector Settings (Parmlib Options), on the Main Menu. On the Parmlib Options Menu, choose the Cloud Servers option and use the "C" line command to create a new cloud definition.

CUZS049E *module name* **- Dataset** *data set name* **not found - Cloud Processing bypassed**

Explanation: This message is issued by module *module name*. The data set *data set name* is supposed to be used in cloud processing, but the data set could not be found.

User response: Verify the data set name. Also use Option 3, Cloud Datasets, on the Main Menu to enter selection criteria to determine which data sets you want to process.

CUZS050I *module name* **- Dataset** *data set name* **- Has been excluded from Cloud Processing - Exc List**

Explanation: TThis message is issued by module *module name*. The data set *data set name* listed in the message has been placed on the "Exclude" list for cloud processing.

User response: No action is required.

CUZS051I *module name* **- Dataset** *data set name* **- Has already been backed up to the cloud, processing bypassed**

Explanation: This message is issued by module *module name* and informs you that the data set *data set name* has already been copied to the cloud. No additional processing of this data set is required.

User response: No action is required.

CUZS052E *module name* **- Jobname** *job name* **DCB** *data control block* **- Error writing data to repository**

Explanation: This message is issued by module *module name*. An error occurred while job *job name* tried to write data to the repository.

User response: Check to see if there is a connectivity issue with that cloud. If the connection went down during the repository backup, that could cause an error. If that is the case, submit the job again. Contact IBM Technical Support for assistance, if needed.

CUZS053E *module name* **- Jobname** *job name* **DCB** *data control block* **- Write to Cloud retry count exceeded**

Explanation: This message is issued by module *module name*. The job *job name* has attempted to write to the cloud multiple times and has now exceeded the amount of retry attempts allowed.

User response: Attempt to determine why the job cannot write to the cloud. Perhaps there is a connectivity issue. If you want to increase the number of times the job should attempt to write to the cloud before generating this error message, you can adjust that value. Choose Option 1, Cloud Connector Settings (Parmlib Options), on the Main Menu. On the Parmlib Options Menu, choose the Staging Options and change the number in the "Error Retry Count" field. The maximum value is 9999.

CUZS054I *module name* **- Jobname** *job name* **DCB** *data control block* **- Staging to Cloud Write Restart Started**

Explanation: This message is issued by module *module name*. The job *job name* has restarted the process of writing staged data to the cloud.

User response: No action is required.

CUZS055E *module name* **- Jobname** *job name* **DCB** *data control block* **- STC has been Cancelled. Cloud Process Terminating**

Explanation: This message is issued by module *module name*. The job *job name* has cancelled the started task and any cloud processing is now ending.

User response: No action is required.

CUZS056I *module name* **- Cloud Connector Repository being backed up to Cloud** *cloud name*

Explanation: This message is issued by module *module name* to indicate that the Cloud Connector VSAM Repository has been written to Cloud *cloud name*. This is part of the process used to create a copy of the Cloud Connector VSAM repository at a cloud storage destination designated by Repository Backup Filter criteria. Refer to “Repository Restore” for more information.

User response: Record the cloud name for future reference.

CUZS057E *module name* **- Error invoking IDCAMS on Repository backup to Cloud** *location*

Explanation: This message is issued by module *module name*. An error occurred when calling IDCAMS while performing a backup of the Cloud Connector Repository to the cloud storage *location*.

User response: Contact IBM Technical Support for assistance, if needed.

CUZS058I *module name* **- Dataset** *data set name* **was successfully deleted from Cloud**

Explanation: This message is issued by module *module name* and indicates that the data set *data set name* was deleted from the cloud.

User response: No action is required.

CUZS059D *module name* **- Jobname** *job name* **DCB** *data control block* **- Open Attempt on DCB in Progress**

Explanation: This is a diagnostic message. This type of message only displays when DEBUG is turned ON. Only use DEBUG when expressly told to do so by IBM Technical Support. The information in this message will help them to determine the cause of the problem you are experiencing.

User response: No action is required, unless specifically requested by IBM Technical Support. Change **DEBUG** to OFF on the **Parmlib General Options** screen (Option 1.1 from Main Menu).

CUZS060D *module name* **- Jobname** *job name* **DCB** *data control block* **- Macro Format** *format*

Explanation: This is a diagnostic message. This type of message only displays when DEBUG is turned ON. Only use DEBUG when expressly told to do so by IBM Technical Support. The information in this message will help them to determine the cause of the problem you are experiencing.

User response: No action is required, unless specifically requested by IBM Technical Support. Change DEBUG to OFF on the Parmlib General Options screen.

CUZS061D *module name* **- Jobname** *job name* **DCB** *data control block* **- Macro Format Qualified for Cloud Process**

Explanation: This is a diagnostic message regarding the macro format of the Data Control Block (DCB). In this case, the macro format does qualify for cloud processing. This type of message only displays when DEBUG is turned ON. Only use DEBUG when expressly told to do so by IBM Technical Support. The information in this message will help them to determine the cause of the problem you are experiencing.

User response: No action is required, unless specifically requested by IBM Technical Support. Change **DEBUG** to OFF on the **Parmlib General Options** screen (Option 1.1 from Main Menu).

CUZS062D *module name* **- Jobname** *job name* **DCB** *data control block* **- Macro Format Not Qualified for Cloud Process**

Explanation: This is a diagnostic message regarding the macro format of the Data Control Block (DCB). Cloud Connector only processes DCB's with a macro format of "puts" or "writes". The macro format provided in this diagnostic message is the internal hexadecimal format. This type of message only displays when DEBUG is turned ON. Only use DEBUG when expressly told to do so by IBM Technical Support. The information in this message will help them to determine the cause of the problem you are experiencing.

User response: No action is required, unless specifically requested by IBM Technical Support. Change **DEBUG** to OFF on the **Parmlib General Options** screen (Option 1.1 from the Main Menu).

CUZS063E *module name* **- Jobname** *job name* **DCB** *data control block* **- Move Data to Cell Pool Failed**

Explanation: This message is issued by module *module name*. The job *job name* uses the specified DCB. An attempt to move data to a cell pool failed.

User response: Contact IBM Technical Support for assistance, if needed.

CUZS064I *module name* **- Jobname** *job name* **DCB** *data control block* **- Attaching** *module name* **Module**

Explanation: This message is issued by module *module name*. The job *job name* uses the specified DCB *data control block* and is attaching the module *module name*.

User response: No action is required.

CUZS065I *module name* **- Jobname** *job name* **DCB** *data control block* **- Dataset opened with DISP=MOD Cannot be Processed**

Explanation: This message is issued by module *module name*. The job name listed in the message uses the specified DCB. The data set that was opened cannot be processed because of the DISP=MOD command.

User response: No action is required.

CUZS066I *module name* **- Cloud Write tasks still active - Waiting 10 seconds**

Explanation: This message is issued by module *module name*. The tasks that write to the cloud are still working. The job will wait 10 seconds.

User response: No action is required.

CUZS067I *module name* **- Max History Tasks Reached - Waiting 30 Seconds for retry**

Explanation: This message is issued by module *module name*. The maximum number of history tasks has already been reached. The job will wait 30 seconds before trying again.

User response: No action is required. However, you could increase the maximum number of history tasks by changing the value specified in the "Max Backup History Tasks" field on the Parmlib General Options screen.

CUZS068I *module name* **- Enq failure on Volume - Waiting for other tasks to finish**

Explanation: This message is issued by module *module name*. This message informs you that the program must wait for other tasks to finish before attempting to queue another task for this volume.

User response: No action is required.

CUZS069I *module name* **- History Dataset** *data set* **is scheduled to be written to Cloud** *location*

Explanation: This message is issued by module *module name* and informs you that the existing history data set *data set name* is currently scheduled to be written to Cloud *location*.

User response: No action is required.

CUZS070E *module name* **- Cross memory initialization failure: Missing SDA**

Explanation: This message is issued by module *module name* when it is unable to locate the SDA or the SDA is corrupted. The SDA is the principle storage control block for Cloud Connector

User response: Restart the Cloud Connector address space. If the problem persists, contact IBM Technical Support for assistance.

CUZS071E *module name* **- Execution failure: Missing SDA**

Explanation: This message is issued by module *module name* when it is unable to locate the SDA or the SDA is corrupted. The SDA is the principle storage control block for Cloud Connector

User response: Restart the Cloud Connector address space. If the problem persists, contact IBM Technical Support for assistance.

CUZS072E *module name* **- Cross memory initialization failure: Invalid function**

Explanation: This message is issued by module *module name* when it is unable to establish its PC environment. In this case, it encountered an invalid function in the parameter list.

User response: Restart the Cloud Connector address space. If the problem persists, contact IBM Technical Support for assistance.

CUZS073E *module name* **- Cross memory initialization failure: Linkage Index Reserve failure**

Explanation: This message is issued by module *module name* when it is unable to establish its PC environment. In this case, it encountered an error while attempting to reserve a linkage index.

User response: Restart the Cloud Connector address space. If the problem persists, contact IBM Technical Support for assistance.

CUZS074E *module name* **- Cross memory initialization failure: Index Set failure**

Explanation: This message is issued by module *module name* when it is unable to establish its PC environment. In this case, it encountered an error while attempting to set the authorization index.

User response: Restart the Cloud Connector address space. If the problem persists, contact IBM Technical Support for assistance.

CUZS075E *module name* **- Cross memory initialization failure: Entry Table Create failure**

Explanation: This message is issued by module *module name* when it is unable to establish its PC environment. In this case, it encountered an error while attempting to create an entry table.

User response: Restart the Cloud Connector address space. If the problem persists, contact IBM Technical Support for assistance.

CUZS076E *module name* **- Cross memory initialization failure: Entry Table Connect failure**

Explanation: This message is issued by module *module name* when it is unable to establish its PC environment. In this case, it encountered an error while attempting to connect its entry table.

User response: Restart the Cloud Connector address space. If the problem persists, contact IBM Technical Support for assistance.

CUZS077I *module name* **- Cross memory environment initialized**

Explanation: This message is issued by module *module name* to indicate that Cloud Connector has successfully constructed its Program Call (PC) environment.

User response: No action is required.

CUZS078E *module name* **- Cross memory initialization failure; PC routine** *routine name* **failed to load**

Explanation: This message is issued by module *module name* when it is unable to establish its PC environment. In this case, it was unable to load the necessary load modules.

User response: Confirm that the Cloud Connector address space has access to its product load modules. Restart the Cloud Connector address space. If the problem persists, contact IBM Technical Support for assistance.

CUZS079I *module name* **- Cross memory environment cleanup completed**

Explanation: This message is issued by module *module name* to indicate it has completed removal of the Cloud Connector cross-memory environment.

User response: No action is required.

CUZS080E *module name* **Execution failure: DCBS storage obtain failed**

Explanation: This message is issued by module *module name* to indicate it was unable to obtain storage for a DCBS control block. The DCBS is a multifaceted block of storage used in many areas of IBM Cloud Tape Connector. Processing for module *module name* does not continue and the service requesting the DCBS fails.

User response: If the problem persists, contact IBM Technical Support for assistance.

CUZS081E *module name* **Execution failure: Invalid RSTR block**

Explanation: This message is issued by module *module name* to indicate that a restore requestor provided an invalid Restore Request block (RSTR). This is an internal error.

User response: Contact IBM Technical Support.

CUZS082I *module name* **Initialized**

Explanation: This message is issued by module *module name* to indicate that it has successfully completed initialization processing.

User response: No action is required.

CUZS083E *module name* **Execution failure: Invalid function**

Explanation: This message is issued by module *module name* to indicate that the module, a PC routine, was called with an invalid function or invalid parameter list. Execution terminates. This is an internal error.

User response: Contact IBM Technical Support.

CUZS084I *module name* **Scheduling restore, DSN=***data set name*

Explanation: This message is issued by module *module name* to indicate it has scheduled a restore for data set *data set name* at the user's request.

User response: No action is required.

CUZS085I *module name* **Completing restore request, DSN=***data set name*

Explanation: This message is issued by module *module name* to indicate it has completed restore processing for data set *data set name*.

User response: No action is required.

CUZS086E *module name* **Delete failed: DCBS OBTAIN failed, U (***userid***)**

Explanation: This message is issued by module *module name* to indicate it was unable to obtain the DCBS control block. This control block is needed to instruct the cloud storage location to delete the backup data set that is being deleted from the repository. User *userid* initiated the request.

User response: Retry the request. If the problem persists, contact IBM Technical Support.

CUZS087E *module name* **Delete failed: Cloud node not found, U (***userid***)**

Explanation: This message is issued by module *module name* to indicate it was unable to delete the backup data set because the cloud name listed as the backup's location cannot be found. User *userid* initiated the request.

User response: Confirm the contents of your cloud definitions. Ensure your cloud definitions contain the cloud name listed on the backup data set repository record. Retry the request. Contact IBM Technical Support if the problem persists.

CUZS088E *operation* **Failure, FDBK(***feedback***), U (***userid***),** *type* **KEY(***key***)**

Explanation: This message is issued to indicate that a VSAM error occurred. The operation will be PNT, GET, PUT, ERS, or UNK. The *feedback* is the RPLDFDBK field from the RPL. The *userid* is that of the user making the request. The *type* indicates whether this is a profile or discrete entry. The *key* is the key of the record being processed when Cloud Connector encountered the error.

User response: Retry the request. If the problem persists, contact IBM Technical Support.

CUZS089I *module name* **Restore requested, GEN=***ggg***, DSN=***data set name*

Explanation: This message is issued by module *module name* to indicate that a Restore operator command has been used to initiate a restore request. The data set to restore is *data set name* and the generation requested is *ggg*. The generation specification indicates how far back version selection should go.

User response: No action is required.

CUZS090I **Entry deleted, U=***userid***, T=***type***, D=***dataset*

Explanation: User *userid* successfully deleted backup data set *dataset* from the repository and the cloud. The *type* will be either DATA or PROF. A DATA entry defines a specific data set backup. A PROF entry is a profile of a group of specific data set discrete entries. The PROF entry is created by the Cloud Connector address space when the first backup is created, and deleted when the last backup is deleted from the repository.

User response: No action is required.

CUZS091E *module name* **Request failed, Cloud does not contain the requested data set**

Explanation: This message is issued by module *module name* to indicate that the specified backup data set cannot be restored. The cloud storage location does not contain it.

User response: Retry the request. Confirm your request. Make sure you specified the correct name.

CUZS092I **Restore successful, U=***userid***, D=***dataset***, CF=***cloudfile*

Explanation: The Restore request did not encounter any errors. The request was initiated by User *userid* for Data Set *dataset* that resides in Cloud file *cloudfile.*

User response: No action is required.

CUZS093E **Restore failed, RC (***nn***), U=***userid***, DSN=***data set*

Explanation: This message indicates that the restore request initiated by User *userid* for backup data set *data set* failed with return code (RC) *nn*.

User response: Retry the request. An attempt to restore to DASD could encounter space problems.

CUZS094E *module name* **Restore failed: Dynamic allocation failed for backup**

Explanation: This message is issued by module *module name* to indicate that the restore request was unable to allocate the output data set. If restoring to DASD, this could be the result of insufficient available space. You could also have an issue with the device unit name; it might be incorrectly specified in the restore request. Review the system log for allocation messages related to this request.

User response: Correct any errors that caused the failure and retry the request.

CUZS095E *module name* **Restore failed: Open failed for backup**

Explanation: This message is issued by module *module name* to indicate that the restore request was unable to open the output data set. Review the system log for any allocation errors.

User response: Correct any errors and retry the request.

CUZS096E *module name* **Restore failed: DCBS OBTAIN failed**

Explanation: This message is issued by module *module name* to indicate that the restore request was unable to obtain a DCBS control block. This control block is required to request and obtain the backup data set from the cloud storage location.

User response: Increase the Cloud Connector address space region size. If problem persists, contact IBM Technical Support.

CUZS097E *module name* **Restore failed: Cloud node not found**

Explanation: This message is issued by module *module name* to indicate that the restore request was unable to find the cloud node named in the backup data set repository record.

User response: Confirm the contents of your cloud definitions. Ensure your cloud definitions contain the cloud name listed on the backup data set repository record. Retry the request. If the problem persists, contact IBM Technical Support.

CUZS098E *module name* **Restore failed, CUZ1CLDI failed,** *data set name*

Explanation: This message is issued by module *module name* to indicate that the interface responsible communicating with cloud storage failed. In this case a Restore Request or an attempt to retrieve data from cloud storage failed. The message text describes the specific error.

User response: Correct the error described in the message text if possible and retry. If the problem persists, contact IBM Technical Support.

CUZS098E *module name* **Restore failed, CUZ1CLDI failed,** *data set name*

Explanation: This message is issued by module *module name* to indicate that the interface responsible communicating with cloud storage failed. In this case a Restore Request or an attempt to retrieve data from cloud storage failed. The message text describes the specific error.

User response: Correct the error described in the message text if possible and retry. If the problem persists, contact IBM Technical Support.

CUZS099E *module name* **Restore ALL failed**

Explanation: An error occurred while attempting to restore multiple data sets, which caused the restore process to fail.

User response: Try choosing fewer data sets to restore, instead of all of them. Contact IBM Technical Support for assistance, if needed.

CUZS101I *module name* **Placing Repository restore request on queue**

Explanation: This message is issued by module *module name* to indicate that a request to restore the Cloud Connector VSAM Repository has been placed on the request queue. Refer to "Restoring a Repository" on page 87 for more details.

User response: No action is required.

CUZS102I *module name* **Cloud Connector Repository List staged to** *data set name*

Explanation: This message is issued by module *module name* to indicate that the Cloud Connector "List" has been written to data set *data set name*. Once this "staged" data set is copied to the designated cloud location, it is deleted. This is part of the process used to create a copy of the Cloud Connector VSAM repository at a cloud storage destination designated by Repository Backup Filter criteria. This "List" is a fixed name file that resides on cloud storage only and contains a list of repository records describing the VSAM Repository.

Refer to "Restoring a Repository" on page 87 for more information.

User response: Record the list name *data set name* for future reference.

CUZS103W *module name* **- Output DSN Allocation failed on DASD - Allocating on Tape**

Explanation: This message is issued by module *module name*. It is a warning message that an attempt was made to allocate a restore data set on disk, but the allocation failed. An attempt will now be made to allocate a restore data set on tape.

User response: Contact IBM Technical Support for assistance, if needed.

CUZS104I **Entry deleted due to new generation, D=***data set*

Explanation: This message indicates that the backup data set *data set* was deleted from the repository and cloud due to generation processing. A newly created backup caused the number of available backup data sets to exceed the maximum number of generations. Thus, the Cloud Tape Connector address space deletes the oldest version of the backup data set.

User response: No action is required. However, you can change the Max Cloud Backup Gens to increase or reduce the number of backup generations.

CUZS105I **ALESERV failure prevented Restore response**

Explanation: The Cloud Connector address space was unable to report Restore results back to the cross-memory requester. In this instance, the requester will not receive a return code or a message regarding the status of the request. Messages regarding the results of the Restore request are still reported in the Cloud Connector started task address space and on the System log. This could result from the Requester's address space being terminated before the Restore request was complete.

User response: Review the Cloud Connector started task address space or System log for more information. If the problem persists, contact IBM Technical Support.

CUZS106E *module name* **- Error retrieving WTDE**

Explanation: The message is issued by module *module name*. It indicates an internal error occurred that prevented Cloud Connector Repository operations.

User response: Contact IBM Technical Support for assistance, if needed.

CUZS107I *module name* **- Repository task ready**

Explanation: This message is issued by module *module name*. It indicates that the Cloud Connector task responsible for managing the VSAM Repository is ready for processing.

User response: No action is required.

CUZS108I *module name* **- Repository task terminating**

Explanation: This message is issued by module *module name*. It indicates that the task managing access to the Cloud Connector VSAM repository is terminating. This is typically due to a shutdown request, but it can also occur as a result of a catastrophic failure.

User response: No action is required if the message displayed due to a shutdown request. However, if this is not the result of a shutdown request, review the system log for error messages describing a possible failure. Contact IBM Technical Support for assistance, if needed.

CUZS109E *module name* **- CUZCLOUD DD open failed, RC(***rc***)**

Explanation: The message is issued by module *module name* to indicate an error occurred during initialization. Cloud Connector was unable to OPEN the VSAM Repository and failed with return code *rc*. This can occur as a result of an incomplete installation or damage to the VSAM Repository data set.

User response: Confirm the successful completion of all installation and configuration steps. Confirm that the VSAM Repository allocated to the CUZCLOUD DD statement exists and is accessible. Review the system log for additional error messages related to this failure, including security and IOS failures. Contact IBM Technical Support for assistance, if needed.

CUZS111I *module name* **- Repository Cross System Sharing active**

Explanation: This message is issued by module *module name*. It indicates that the VSAM data set assigned to the CUZCLOUD DD statement in the Cloud Connector address space (i.e. The Repository) was opened with `DISP=SHR`. With that, the data set will be shared with other Cloud Connector address spaces on other z/OS MVS images. This is contingent upon all the Cloud Connector address spaces using `DISP=SHR`.

User response: No action is required.

CUZS112I *module name* **- Restore task ready**

Explanation: This message is issued by module *module name*. It informs you that the Cloud Connector task responsible for Restore requests is ready for processing.

User response: No action is required.

CUZS113E *module name* **- Error retrieving RTDR**

Explanation: The message is issued by module *module name*. It indicates an internal error occurred while attempting to process a Restore request.

User response: Contact IBM Technical Support for assistance, if needed.

CUZS114I *module name* **- Restore scheduler task terminating**

Explanation: The message is issued by module *module name*. It indicates that the Cloud Connector task responsible for scheduling Restore processing is terminating. This is usually because of a shutdown request.

User response: No action is required if the message displayed due to a shutdown request. However, if this is not the result of a shutdown request, review the system log for error messages describing a possible failure. Contact IBM Technical Support for assistance, if needed.

CUZS115I *module name* **- Termination waiting on restore tasks.**

Explanation: This message is issued by module *module name*. A request to terminate the Cloud Connector address space has been delayed because there are active Restore tasks. Once those Restore tasks complete, the Cloud Connector address will terminate.

User response: No action is required.

CUZS116I *module name* **- Attaching restore for DSN=***data set name*

Explanation: This message is issued by module *module name*. It indicates that the Cloud Connector task responsible for managing Restore processing has initiated a specific restore request. In this case, the request to restore *data set name* executes as a sub-task of the Cloud Connector address space.

User response: No action is required.

CUZS117E *module name* **- Error retrieving RTCR**

Explanation: The message is issued by module *module name*. It indicates an internal error occurred while attempting to process a request to free the storage used for a particular Restore request.

User response: Contact IBM Technical Support for assistance, if needed.

CUZS118I *module name* **- Restore task cleanup ready**

Explanation: This message is issued by module *module name*. It informs you that the Cloud Connector task responsible for freeing storage used by Restore tasks is ready to process requests.

User response: No action is required.

CUZS119I *module name* **- Restore task cleanup terminating**

Explanation: This message is issued by module *module name*. It informs you that the task that frees storage acquired by the Restore task is terminating. Usually, this is a result of a shutdown request. However, it could be the result of a failure.

User response: No action is required if this message is due to a shutdown request. However, if this is not the result of a shutdown request, review the log for error conditions. Contact IBM Technical Support if needed.

CUZS120I *module name* **- Restore task cleanup complete for DSN=***data set name*

Explanation: This message is issued by module *module name*. It indicates that any storage obtained for Restore processing for *data set name* has been freed.

User response: No action is required.

CUZS121I *module name* **- Jobname** *job name* **DCB** *data control block* **- Cell Pool - I/O Flagged for Suspension**

Explanation: This message is issued by module *module name*. This message indicates that all of the memory cells are full and I/O is being suspended until either staging or the cloud writer process catches up. When the other task catches up, the I/O process will be resumed.

User response: No action is required.

CUZS122I *module name* **- Jobname** *job name* **DCB** *data control block* **- I/O Has Been Temporarily Suspended**

Explanation: This message is issued by module *module name*. This is an informational message that all memory cells are full and IO has been suspended. You will receive another message, CUZS0123I, when staging or the cloud writer catches up and IO is resumed.

User response: No action is required.

CUZS123I *module name* **- Jobname** *job name* **DCB** *data control block* **- I/O Has Been Resumed**

Explanation: This message is issued by module *module name*. Previously the I/O process had been suspended due to the memory cells being full during the staging or cloud writing process. However, there is no longer an issue and the I/O process has now been resumed.

User response: No action is required.

CUZS124I *module name* **- Staging Dataset** *data set name* **successfully allocated for cloud copy**

Explanation: This message is issued by module *module name*. It indicates that the staging data set *data set name* was successfully allocated as an interim location. The data set being copied to the cloud will reside in this staging data set until the copy-to-cloud operation completes successfully, at which time Cloud Connector will delete the staging data set.

User response: No action is required.

CUZS125I *module name* **- Disk Dataset** *data set name* **successfully allocated for cloud copy**

Explanation: This message is issued by module *module name*. It indicates that Cloud Connector successfully allocated an existing data set, *data set name*, in preparation for copying this data set to the Cloud. However, Cloud Connector will not delete this data set once copy-to-cloud operations complete.

User response: No action is required.

CUZS126W *module name* **- Dataset** *data set name* **contains a DSORG of** *value* **which is not supported for cloud processing**

Explanation: This message is issued by module *module name*. The only data set organization values allowed for cloud processing are PS (Physical Sequential), DA (Direct Access), and U (Undefined). However the DSORG value associated with this data set is not allowed for cloud processing.

User response: No action is required.

CUZS127W *module name* **- Dataset** *data set name* **is not a sequential file - Cloud processing bypassed**

Explanation: This message is issued by module *module name*. The data sets you add to the include history list must have the data set organization of PS (Physical Sequential) or U (Undefined). Partitioned data sets (PDS and PDSE) and VSAM files are not supported.

User response: To copy a VSAM file or partitioned data set to the cloud, you will first need to run a utility program, such as IDCAMS, to create a sequential data set and then have that output data set sent to the cloud, either by filter criteria or through the use of the History Include/Exclude data set list. Contact IBM Technical Support for assistance, if needed.

CUZS128E *module name* **- Jobname** *job name* **Error allocating Staging file - Cloud processing bypassed**

Explanation: This message is issued by module *module name*. One option for capturing data while it is being written to tape is Staging data to DASD. This option allows you to quickly save the data to a DASD data set called a staging file. After the batch job has completed, the contents of the staging file are written to the cloud by the Cloud Connector Started Task. Unfortunately, an error occurred while the job listed in the message attempted to allocate a staging file, causing Cloud Connector to bypass the staging process completely.

User response: Modify the staging values on the Parmlib Staging Options screen and try again. Contact IBM Technical Support for assistance, if needed.

CUZS129E *module name* **- Jobname** *job name* **Error allocating Staging file - Process aborting**

Explanation: This message is issued by module *module name*. One option for capturing data while it is being written to tape is Staging data to DASD. This options allows you to quickly save the data to a DASD data set called a staging file. After the batch job has completed, the contents of the staging file are written to the cloud by the Cloud Connector Started Task. Unfortunately, an error occurred while the job listed in the message attempted to allocate a staging file, and the file cannot be opened.

User response: Modify the staging values on the Parmlib Staging Options screen and try again. Contact IBM Technical Support for assistance, if needed.

CUZS130W *module name* **- Jobname** *job name* **Unable to Page-Fix DECB Buffer Storage areas**

Explanation: This message is issued my module *module name* to indicate that it was unable to page fix the storage areas used to optimize I/O performed to staging processing. The "Number of IO Buffers" Staging option (Parmlib Options) determines the size of a circular buffer queue used when reading the staging data sets. These storage areas require a Page-Fix specification.

User response: Reduce the Number of IO Buffers in the Staging Options. If problem persists, contact IBM Technical Support.

CUZS131I *module name* **- Dataset** *data set name* **is restarting Stage to Cloud** *data set name* **copy**

Explanation: This message is issued by module *module name* to indicate that it is restarting the staging process for data set *data set name* that previously failed.

User response: No action is required.

CUZS132E *module name* **- Error Allocating Cloud Connector Repository DSN** *data set name*

Explanation: This message is issued by module *module name* to indicate that it experienced an error attempting to allocate staging data set *data set name*. As a result, it discontinues the process. Review the system log for possible causes. This is part of the process used to create a copy of the Cloud Connector VSAM Repository at a cloud storage destination designated by Repository Backup Filter criteria. Refer to"Restoring a Repository" on page 87 for more information.

User response: Correct errors that caused the failure. If the problem persists, contact IBM Technical Support.

CUZS133E *module name* **- Error Allocating Cloud Connector List Staging DSN** *data set name*

Explanation: This message is issued by module *module name* to indicate that it experienced an error attempting to allocate "List" staging data set *data set name*. As a result, it discontinues the process. Review the system log for possible causes. This is part of the process used to create a copy of the Cloud Connector VSAM Repository at a cloud storage destination designated by Repository Backup Filter criteria. This "List" is a fixed name file that resides on cloud storage only and contains a list of repository records describing the VSAM Repository. Refer to "Restoring a Repository" on page 87 for more information.

User response: Correct errors that caused the failure. If the problem persists, contact IBM Technical Support.

CUZS134E *module name* **- Error Opening Cloud Connector List Staging DSN** *data set name*

Explanation: This message is issued by module *module name* to indicate that it experienced an error attempting to open "List" staging data set *data set name*. As a result, it discontinues the process. Review the system log for possible causes. This is part of the process used to create a copy of the Cloud Connector VSAM Repository at a cloud storage destination designated by Repository Backup Filter criteria. This "List" is a fixed name file that resides on cloud storage only and contains a list of repository records describing the VSAM Repository. Refer to "Restoring a Repository" on page 87 for more information.

User response: Correct errors that caused the failure. If the problem persists, contact IBM Technical Support.

CUZS135E *module name* **- Error Allocating Cloud Connector Staging DSN** *data set name*

Explanation: This message is issued by module *module name* to indicate that it experienced an error attempting to allocate staging data set *data set name*. As a result, it

discontinues the process. Review the system log for possible causes. This is part of the process used to create a copy of the Cloud Connector VSAM Repository at a cloud storage destination designated by Repository Backup Filter criteria.

User response: Correct errors that caused the failure. If the problem persists, contact IBM Technical Support.

CUZS136E *module name* **- Error Opening Cloud Connector Staging DSN** *data set name*

Explanation: This message is issued by module *module name* to indicate that it experienced an error attempting to open staging data set *data set name*. As a result, it discontinues the process. Review the system log for possible causes. This is part of the process used to create a copy of the Cloud Connector VSAM Repository at a cloud storage destination designated by Repository Backup Filter criteria.

User response: Correct errors that caused the failure. If the problem persists, contact IBM Technical Support.

CUZS137E *module name* **- Error Freeing Staging DSN** *data set name*

Explanation: This message is issued by module *module name* to indicate that it experienced an error trying to free staging data set *data set name*. As a result, it discontinues processing for this data set. However, as de-allocation is the last function performed in copying a backup data set to a cloud destination, the data set has been copied.

User response: If the problem persists, contact IBM Technical Support.

CUZS138E *module name* **- Error Allocating Staging DSN** *data set name*

Explanation: This message is issued by module *module name* to indicate that it experienced an error trying to allocate staging data set *data set name*. As a result, it discontinues processing for this data set. Review the system log to determine a possible cause for this failure. The most common cause of allocation failures is insufficient DASD space.

User response: Resolve the issue that caused the failure and retry the request. If the problem persists, contact IBM Technical Support.

CUZS139E *module name* **- Error on Catalog Superlocate for DSN** *data set name*

Explanation: This message is issued by module *module name* to indicate it failed during an attempt to gather information from the catalog for data set *data set name*. As a result, it discontinues processing for this data set. Review the system log to determine a possible cause for this failure.

User response: Retry the request. If the problem persists, contact IBM Technical Support.

CUZS140E *module name* **- Error Opening Staging DSN** *data set name*

Explanation: This message is issued by module *module name* to indicate that it encountered an error attempting to open staging data set *data set name*. As a result, it discontinues processing for this data set. Review the system log to determine the possible cause for the Open error.

User response: Correct the cause of the Open error if possible. If the problem persists, contact IBM Technical Support.

CUZS141E *module name* **- End of File Encountered reading Staging DSN** *data set name*

Explanation: This message is issued by module *module name* to indicate that it encountered an unexpected end-of-file (EOF) indication while reading the staging data set *data set name*. As a result, it will discontinue processing this data set.

User response: Retry the request. If the problem persists, contact IBM Technical Support.

CUZS142E *module name* **- Staging file** *file name* **found with no CUZ#REPO record**

Explanation: This message is issued by module *module name* to indicate that it found a data set named *data set name* that appears to be a staging file, but it does not have proper control information. A CUZ#REPO record is included as the first block of any backup data set copied to the cloud. This data set does not have such a record. This can happen if a non-staging data set is inadvertently allocated under the High Level Qualifier (HLQ) defined for staging data sets.

User response: If this is truly not a staging data set, change the HLQ so that it is not treated as such. If the problem persists, contact IBM Technical Support.

CUZS143I *module name* **- Dataset** *data set name* **is scheduled to be written to Cloud** *cloud name* **from Staging File**

Explanation: This message is issued by module *module name* to indicate that a currently staged data set *data set name* is scheduled to be written to the cloud storage location *cloud name* designated by its matching filter criteria.

User response: No action is required.

CUZS144I *module name* **- Dataset** *data set name* **successfully written to Cloud** *location*

Explanation: This message is issued by module *module name* to indicate that it has successfully written the backup data set *data set name* to the cloud storage location named *location*.

User response: No action is required.

CUZS145D *module name* **- Jobname** *job name* **DCB** *data control block* **- Cell Pool Cleanup in progress. Wait for Post**

Explanation: This is a diagnostic message indicating that Cloud Connector is cleaning up the allocated cell pools and making them available for reuse. This type of message only displays when DEBUG is turned ON. Only use DEBUG when expressly told to do so by IBM Technical Support. The information in this message will help them to determine the cause of the problem you are experiencing.

User response: No action is required, unless specifically requested by IBM Technical Support. Change **DEBUG** to OFF on the **Parmlib General Options** screen (Option 1.1 on the Main Menu).

CUZS146D *module name* **- Jobname** *job name* **DCB** *data control block* **- Cell Pool Contention. Wait for Post**

Explanation: This is a diagnostic message indicating that the Cloud Connector is experiencing cell pool contention, which could potentially cause the job to slow down. The module writing the data to the cell pool cannot be used by the "staging" or "cloud write" function until the cell is full. This type of message only displays when DEBUG is turned ON. Only use DEBUG when expressly told to do so by IBM Technical Support. The information in this message will help them to determine the cause of the problem you are experiencing.

User response: No action is required, unless specifically requested by IBM Technical Support. Change **DEBUG** to OFF on the **Parmlib General Options** screen (Option 1.1. on the Main Menu).

CUZS147I *module name* **- Dataset** *data set name* **successfully Staged to DASD**

Explanation: This message is issued by module *module name*. It informs you that the process of writing the data set *data set name* to DASD for staging has finished successfully. Now the stage-to-cloud copy process is running under the started task.

User response: No action is required.

CUZS148I *module name* **- Dataset** *data set name* **- Error determining current backup status, processing bypassed**

Explanation: This message is issued by module *module name* and informs you that the data set *data set name* will not be copied to the cloud. Cloud Connector encountered an unexpected error while attempting to determine if a record of this data set already exists in cloud storage.

User response: Review the system log for other error messages describing potential problems with the VSAM repository. Retry the request. Contact IBM Technical Support if the problem persists.

CUZS149I *module name* **- Retry count exceeded for Dataset** *data set name variable*

Explanation: This message is issued by module *module name* and indicates that the maximum number of attempts to copy data to data set *data set name* has been reached.

User response: No action is required. However, if you would like to increase the retry count, see "Staging Options" on page 22.

CUZS150I *module name* **- Restarting Cloud Copy for Dataset** *data set name variable*

Explanation: This message is issued by module *module name* and indicates that the another attempt is being made to copy the data set *data set name* to the cloud

User response: No action is required.

CUZS151I *API program name***-Func** *function code* **-RC** *return code*

Explanation: The API program listed in the message performed a function, such as restore (R) data. The return code indicates whether the function was processed successfully. A return code of 0 indicates a successful completion, 8 indicates a run time error, and 12 indicates an internal error.

User response: No action is required.

CUZS152E *API program name***-Func** *function code* **-Error:-***number***-Connecting to cloud** *cloud name*

Explanation: An error occurred when the program listed in the message tried to connect to the specified cloud.

User response: Check the cloud name to ensure the name is valid. If it is valid, try to determine the cause of the connectivity issue with this particular cloud.

CUZS153E *API program name*-**Func** *function code* **-Error:-***number*-**Building list from cloud** *cloud name*

Explanation: An error occurred when the API program tried to create a list of the data sets that are currently located on the specified cloud.

User response: Check the cloud name to ensure the name is valid. If it is valid, there may be no data sets on that specific cloud or there may be an issue with the program listed in the message. Contact IBM Technical Support for assistance, if needed.

CUZS155E *API program name*-**Func** *function code* **-Invalid Function Code Passed in APIB Block. Process Aborted**

Explanation: An error occurred when a function code was passed to the specified program that is not valid for use in this program. The program stopped and ended all processing.

User response: Change the function code to a valid one for this program.

CUZS156E *API program name*-**Func** *function code* **-Cloud Name** *cloud name* **was not found in Cloud Connector Started Task**

Explanation: The specified cloud is not listed in the started task for Cloud Connector. The default name for the started task is CUZCLOUD.

User response: Either change the cloud name to one that is in the started task or add the cloud name to the started task. Also the CUZCLOUD started task must be active in order for data sets to be written to or restored from the cloud.

CUZS157E *API program name*-**Func** *function code* **-Catl Loc Failure on DSN** *data set name***.**

Explanation: The specified data set could not be located in the catalog, which resulted in the program being unable to perform the specified function.

User response: Change the data set name to one that is known to be in the catalog or choose a different catalog. Contact IBM Technical Support for assistance, if needed.

CUZS158E *API program name*-**Func** *function code* **-Copy to DSN not supplied in APIB Block. Process Aborted.**

Explanation: The program could not copy the data set as expected, so the program stopped the process.

User response: Contact IBM Technical Support for assistance, if needed.

CUZS159E *API program name*-**Func** *function code* **-Restore to Tape/Disk not equal to "T" or "D". Process Aborted**

Explanation: The program could not restore the tape or disk because a character other than "T" or "D" was specified.

User response: Try running the program again using "T" for tape or "D" for disk.

CUZS160E *API program name*-**Func** *function code* **-Delete old Restore DSN not equal to "Y" or "N". Process Aborted'**

Explanation: The program could not delete the old data set that was used for restore processes because a character other than "Y" or "N" was specified.

User response: Try running the process again using "T" for tape or "D" for disk.

CUZS161E *API program name*-**Func** *function code* **-Restore Alias / DSN are mutually exclusive. Process Aborted.**

Explanation: You cannot specify both an alias and a data set name for this restore process. The restore process was not performed.

User response: Specify an alias or a data set name, but not both, and try the restore process again.

CUZS162E *API program name*-**Func** *function code* **-Restore Alias / DDNAME are mutually exclusive. Process Aborted.**

Explanation: You cannot specify both an alias and a DD name for this restore process. The restore process was not performed.

User response: Specify an alias or a DD name, but not both, and try the restore process again.

CUZS163E *API program name*-**Func** *function code* **-Restore to DSN / DDNAME are mutually exclusive. Process Aborted.**

Explanation: You cannot specify both a data set name and a DD name for this restore process. The restore process was not performed.

User response: Specify a data set name or a DD name, but not both, and try the restore process again.

CUZS164E *API program name*-**Func** *function code* **-Restore** *keyword* **is a Required Keyword for this Restore. Process Aborted.**

Explanation: The restore process was not performed because the keyword listed in the above message is missing from the RESTORE command.

User response: Ensure you include the missing keyword and try the restore again.

CUZS165E *API program name*-**Func** *function code* **-DASD Unit** *unit name* **is not a valid DASD Device. Process Aborted.**

Explanation: The function was not performed because the DASD device listed in the above message is not valid. The default is SYSALLDA.

User response: Check the name of the DASD unit or enter a different DASD unit and try the restore again.

CUZS166E *API program name*-**Func** *function code* **-Tape Unit** *unit name* **is not a valid Tape Device. Process Aborted.**

Explanation: The function was not performed because the Tape device listed in the above message is not valid. The default is CART.

User response: Check the name of the Tape unit or enter a different Tape unit and try the process again.

CUZS167E *API program name*-**Func** *function code* **-Restore Wait for Completion NE "Y" or "N. Process Aborted.**

Explanation: The restore function was not performed because it expected a "Y" or "N" to indicate whether to wait for the restore to complete. An invalid character was specified.

User response: Change the value to "Y" or "N" and try the restore process again.

CUZS168E *API program name*-**Func** *function code* **- Restore to DSN** *data set name* **Cataloged with Delete Old = "N". Process Aborted.**

Explanation: The restore function was not performed because a value of "N" indicated that the restore process should not delete the old data set. A value of "Y" is required to delete the old data set.

User response: Change the value to "Y" and try the restore process again.

CUZS169I *API program name*-**Func** *function code* **-DSN** *data set name* **Scheduled for Restore from Cloud** *cloud name***.**

Explanation: This message informs you that you have successfully scheduled the specified data set to be restored from the specified cloud.

User response: No action is required.

CUZS170I *API program name*-**Func** *function code* **-DSN** *data set name* **Successfully copied to cloud** *cloud name***.**

Explanation: This message informs you that you have successfully copied the specified data set to the cloud.

User response: No action is required.

CUZS171I *API program name*-**Func** *function code* **-DSN** *data set name* **Successfully Restored from cloud** *cloud name***.**

Explanation: This message informs you that you have successfully restored this data set from the specified cloud.

User response: No action is required.

CUZS172E *API program name*-**Func** *function code* **-DSN** *data set name* **Restore Failed from cloud** *cloud name***.**

Explanation: An attempt to restore this data set from the specified cloud was not successful.

User response: Verify the data set name and the cloud name and try the process again. There also may be connectivity issues with the cloud at this time.

CUZS173E *API program name*-**Func** *function code* **-DDNAME Specified is not Allocated - Process Aborted.**

Explanation: The DD name is not allocated so the function cannot be performed.

User response: Either allocate the DD name or choose a different DD name that is already allocated, and try again.

CUZS174E *API program name*-**Func** *function code* **-DSN** *data set name* **Specified was not found in repository. Process Aborted.**

Explanation: The data set name cannot be found in the repository. There is only one repository so that indicates that the data set name is either invalid or was not included as part of the repository.

User response: Verify the spelling of the data set name or specify a different data set name from this repository.

CUZS175E *API program name*-**Func** *function code* **-GEN** *generation number* **was not found in repository. Process Aborted.**

Explanation: The specific generation (backup) of the data set could not be located in the repository.

User response: Specify a different generation number that is a part of this repository.

CUZS176I *API program name*-**Func** *function code* **-DSN** *data set name* **was successfully deleted from cloud** *cloud name*

Explanation: This message informs you this data set was deleted from the specified cloud.

User response: No action is required.

CUZS177E *API program name*-**Func** *function code* **-DSN** *data set name* **was not found on cloud** *cloud name***.**

Explanation: The specified cloud does not contain this data set.

User response: Verify that you have the correct data set name or try looking for the data set on a different cloud.

CUZS178E *API program name*-**Func** *function code* **-An Error was encountered deleting DSN** *data set name* **from cloud** *cloud name***.**

Explanation: An error occurred while attempting to delete this data set from the specified cloud.

User response: Verify that you have the correct data set name. Also check to ensure that there are no connectivity issues with this cloud.

CUZS179E *API program name*-**Func** *function code* **-Error creating cloud list** *list***.**

Explanation: An error occurred while attempting to create a list of defined clouds.

User response: Contact IBM Technical Support for assistance, if needed.

CUZS180I *API program name*-**Func** *function code* **-Cloud List Filter** *filter criteria* **Returned** *data set name* **Dataset (s)**

Explanation: The data sets that match the filter criteria are listed in this message.

User response: No action is required.

CUZS181E *module or API program name* **- Func** *function code* **- Not Authorized to Restore Dataset** *data set name*

Explanation: You do not have the type of RACF authority that allows you to allocate the restore data set.

User response: Contact your System Administrator to be given the appropriate RACF authority.

CUZS182D *module name* **- Jobname** *job name* **DCB** *data control block* **- Processing Close**

Explanation: This is a diagnostic message indicating that Cloud Connector has control when closing a file.

User response: No action is required.

CUZS183E *module name* **- Detected VSI length incompatibility**

Explanation: This message is issued by module *module name*. It indicates that the Cloud Connector address space detected an anomaly in the control blocks necessary to facilitate Repository sharing. The length of the VSAM Shared Information (VSI) control block has changed since it was last recorded by Repository processing. This anomaly could lead to structural errors in the Repository if it goes unresolved.

User response: Shutdown the Cloud Connector address space and restart it. Contact IBM Technical Support if the problem persists.

CUZS184D *module name* **- Jobname** *job name* **- Hooking Catalog Locate on DSN** *data set name*

Explanation: This is a diagnostic message indicating that Cloud Connector intercepted a "catalog locate" on the DSN listed in the message.

User response: No action is required.

CUZS185D *module name* **- Jobname** *job name* **- Locate Failed on DSN** *data set name*

Explanation: This is a diagnostic message indicating that a "catalog locate" failed on the DSN listed in the message.

User response: No action is required.

CUZS186D *module name* **- Jobname** *job name* **Dataset** *data set name* **Not on the Cloud**

Explanation: This is a diagnostic message indicating that the data set listed in the message was not cataloged to the cloud (`volser = cloud`).

User response: No action is required.

CUZS187I *module name* **- Jobname** *job name* **Cloud Dataset** *data set name* **Scheduled for Restore**

Explanation: This message provides the name of a data set that was cataloged to the cloud and is now being restored back to z/OS.

User response: No action is required.

CUZS188E *module name* **- Jobname** *job name* **Cloud Dataset** *data set name* **CTC Started Task is not active - Restore Cancelled**

Explanation: The data set listed in the messages was cataloged to the cloud, but the started task for Cloud Connector was not started (not active) so the restore back to z/OS has been cancelled.

User response: Specify the command to start Cloud Connector. See Chapter 2, "Configuring Cloud Tape Connector," on page 3 for more information on the started task.

CUZS189E *module name* **- Jobname** *job name* **Cloud Dataset** *data set name* **Uncatalog Failed - Restore from Cloud Cancelled**

Explanation: To restore a dataset to z/OS when it is cataloged to the cloud, Cloud Connector must first uncatalog the data set from the cloud before attempting to restore it back to z/OS. In this case, the uncatalog process failed, so the restore was cancelled.

User response: See"Catalog Support" on page 89 for more information.

CUZS190I *module name* **- Jobname** *job name* **Cloud Dataset** *data set name* **- Restore from Cloud Successful**

Explanation: A data set that was cataloged to the cloud has been successfully restored back to z/OS.

User response: No action is required.

CUZS191E *module name* **- Jobname** *job name* **Cloud Dataset** *data set name* **- Restore from Cloud Failed**

Explanation: The dataset listed in the message is cataloged to the cloud. An attempt was made to restore this data set back to z/OS, but the restore failed.

User response: See "Catalog Support" on page 89 for more information.

CUZS192I *module name* **- Jobname** *job name* **Cloud Dataset** *data set name* **- Recataloged with VOLSER=CLOUD**

Explanation: This message provides the name of a data set that was uncataloged from z/OS and recataloged to the cloud.

User response: No action is required. See "Catalog Support" on page 89 for more information on cataloging data sets to the cloud.

CUZS193E *module name* **- Jobname** *job name* **Cloud Dataset** *data set name* **- Recataloging to Cloud Failed**

Explanation: The data set listed in the message needed to be recataloged to the cloud, but the recatalog attempt failed.

User response: See "Catalog Support" on page 89 for more information on re-cataloging data sets to the cloud.

CUZS194D *module name* **- Jobname** *job name* **- Catalog Locate Invoked on DSN** *data set name*

Explanation: This is a diagnostic message indicating that the catalog hook has been invoked on the DSN listed in the message.

User response: No action is required. See "Catalog Support" on page 89 for more information on cataloging data sets to the cloud.

CUZS195E *module name* **- Repository Cross System Sharing failed to initialize**

Explanation: This message is issued by module *module name*. It indicates that attempts to establish the Repository sharing environment failed. Additional messages indicate possible causes.

User response: Restart the Cloud Connector address space. Contact IBM Technical Support if the problem persists. Change the Cloud Connector started task CUZCLOUD DD to `DISP=OLD` to prevent sharing the Repository until the problem is resolved.

CUZS196E *module name* **- Detected incorrect VSI environment**

Explanation: This message is issued by module *module name*. It indicates that the Cloud Connector address space detected an anomaly in the control blocks necessary to facility Repository sharing. The Cloud Connector address space could not verify the VSAM Shared Information (VSI) control block. This anomaly could lead to structural errors in the Repository if it goes unresolved.

User response: Shutdown the Cloud Connector address space and restart it. Contact IBM Technical Support if the problem persists.

CUZS197E *module name* **- Error Freeing Disk DSN** *data set name* **for Recataloging to Cloud**

Explanation: When recataloging to the cloud, if the data set is on disk, it must allocated and deleted. The deleting of the original DSN failed.

User response: See "Catalog Support" on page 89 for

more information on re-cataloging data sets to the cloud.

CUZS198E *module name* **- Error Uncataloging Tape DSN** *data set name* **for Recataloging to Cloud**

Explanation: An attempt was made to re-catalog this tape data set to the cloud. However, the uncataloging of the original DSN from tape has failed.

User response: See "Catalog Support" on page 89 for more information on re-cataloging data sets to the cloud.

CUZS199E *module name* **- Error Re-Cataloging DSN** *data set name* **for Recataloging to Cloud**

Explanation: An error was encountered when attempting to catalog a dataset to the cloud.

User response: See "Catalog Support" on page 89 for more information on re-cataloging data sets to the cloud.

CUZS200I *module name* **- DSN** *data set name* **has been successfully Re-Cataloged to Cloud**

Explanation: This message indicates that recataloging to the cloud was successful.

User response: No action is required.

CUZS201E *module name* **- Authorization Failure on DSN** *data set name* **Re-Cataloging to Cloud**

Explanation: The user is not authorized to recatalog the specified dataset to the cloud.

User response: See "Catalog Support" on page 89 for more information on re-cataloging data sets to the cloud.

CUZS202E *module name* **- Error Allocating Disk DSN** *data set name* **for Recataloging to Cloud**

Explanation: An error occurred when attempting to allocate the specified disk data to be deleted and re-cataloged to the cloud.

User response: See "Catalog Support" on page 89 for more information on re-cataloging data sets to the cloud.

CUZS203I **Restore successful, U=***userid***, New name** *data.set.name*

Explanation: This message is issued when a user, listed as *userid*, requests the Restore be done with a new name, which is *data.set.name*, and that restore is successful.

User response: No action is required.

CUZS212I *module name* **- Func** *function* **DSN** *data set name* **was successfully Uncataloged from the Cloud**

Explanation: When the last data set generation has been deleted from the cloud (either by module CUZ#EXPR or through ISPF, option 3, Delete line command), the data set will be uncataloged from the cloud. This message indicates that the specified data set was uncataloged successfully.

User response: No action is required.

CUZS213E *module name* **Func** *function name* **DSN** *data set name* **Error Uncataloging from the Cloud**

Explanation: An error was encountered when attempting to uncatalog the specified data set from the cloud.

User response: See "Catalog Support" on page 89 for more information.

CUZS214E *module name* **Func** *function name* **Catalog to Cloud not equal to "Y" or "N". Process aborted**

Explanation: The "Catalog to Cloud" field on the Cloud Filter Edit screen and the CATALOG_TO_CLOUD option in the sample "history include list" member, CUZJINCL, only accept "Y" or "N" as valid values. A different value was specified so the process has aborted.

User response: Change the value to either "Y" or "N". See "Backup Filter Criteria" on page 43 for more information on this "Catalog to Cloud" field.

CUZS215I *module name* **Func** *function name* **Cloud** *cloud name* **Type** *cloud type* **has a successful connection.**

Explanation: This API message indicates the status of the cloud connection. In this instance, the named cloud and cloud type (HCP, FTP, etc.) has a successful connection.

User response: No action is required.

CUZSS216I **Repository Backup Bypassed-Backups taken on another LPAR**

Explanation: With the repository sharing feature, only one LPAR will do the repository backups if the same data set is used across LPARs. This message indicates that the repository backups are being taken on another LPAR and bypassed on this LPAR.

User response: No action is required.

CUZS217E *module name* **Func** *function name* **Retention Period is required for this function. Process aborted.**

Explanation: A retention period is required for a Restore function.

User response: Specify a value between 1 - 9999 in the "Retention Period" field. See “Backup Filter Criteria” on page 43 for more information on this field.

CUZS218E *module name* **Func** *function name* **Dataset** *data set name* **was not found in the repository. Process aborted.**

Explanation: The Repository contains information about all of the data sets copied to clouds defined in Cloud Connector. The data set *data set name* generation (x) being restored or deleted via the API function was not found in the repository so the function was not performed.

User response: See Chapter 8, “Cloud Connector Repository,” on page 113 for more detailed information. Contact IBM Technical Support for assistance, if needed.

Appendix A. Example of AT-TLS parameter setup

If you are enabling SSL encryption for any of the TCP/IP cloud traffic, IBM's Communication Server enables control through the Application Transparent Transport Layer Security (AT-TLS). This topic provides an example of the parameter setup for a TTLS rule that enables an SSL/TLS encryption policy.

The example below shows the code that would be used to set values for AT-TLS parameters.

```
TTLSRule                          Default_CUZ
{
  LocalAddr                       ALL
  RemoteAddr                      ALL
  LocalPortRangeRef               portR1
  RemotePortRange                 443
  Userid                          SAFID  <=== Replace with user ID for CUZCLOUD
  Direction                       Both
  Priority                        255
  TTLSGroupActionRef              gAct1~CUZ
  TTLSEnvironmentActionRef        eAct1~CUZ
  TTLSConnectionActionRef         cAct1~CUZ
}
TTLSGroupAction                   gAct1~CUZ
{
  TTLSEnabled                     On
  Trace                           255
}
TTLSEnvironmentAction             eAct1~CUZ
{
  HandshakeRole                   Client
  EnvironmentUserInstance         0
  TTLSKeyringParmsRef             CUZ_keyring
  Trace                           255
}
TTLSConnectionAction              cAct1~CUZ
{
  HandshakeRole                   Client
  TTLSCipherParmsRef              cipher-CUZ
  TTLSConnectionAdvancedParmsRef  cAdv1~CUZ
  CtraceClearText                 Off
  Trace                           2
}
TTLSConnectionAdvancedParms       cAdv1~CUZ
{
  ResetCipherTimer                0
  SecondaryMap                    Off
}
TTLSKeyringParms                  CUZ_keyring
{
  Keyring                         CLOUDrng
}
TTLSCipherParms                   cipher1~Default_Ciphers
{
  V3CipherSuites                  TLS_RSA_WITH_AES_256_CBC_SHA
  V3CipherSuites                  TLS_DHE_RSA_WITH_AES_256_CBC_SHA
  V3CipherSuites                  TLS_DH_RSA_WITH_AES_256_CBC_SHA
  V3CipherSuites                  TLS_DHE_DSS_WITH_AES_256_CBC_SHA
  V3CipherSuites                  TLS_DH_DSS_WITH_AES_256_CBC_SHA
  V3CipherSuites                  TLS_RSA_WITH_3DES_EDE_CBC_SHA
  V3CipherSuites                  TLS_DHE_RSA_WITH_3DES_EDE_CBC_SHA
  V3CipherSuites                  TLS_DH_RSA_WITH_3DES_EDE_CBC_SHA
```

```
  V3CipherSuites                TLS_DHE_DSS_WITH_3DES_EDE_CBC_SHA
  V3CipherSuites                TLS_DH_DSS_WITH_3DES_EDE_CBC_SHA
  V3CipherSuites                TLS_RSA_WITH_AES_128_CBC_SHA
  V3CipherSuites                TLS_DHE_RSA_WITH_AES_128_CBC_SHA
  V3CipherSuites                TLS_DH_RSA_WITH_AES_128_CBC_SHA
  V3CipherSuites                TLS_DHE_DSS_WITH_AES_128_CBC_SHA
  V3CipherSuites                TLS_DH_DSS_WITH_AES_128_CBC_SHA
}
TTLSCipherParms                 cipher-CUZ
{
  V3CipherSuites                TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA256
  V3CipherSuites                TLS_ECDHE_ECDSA_WITH_AES_256_CBC_SHA384
  V3CipherSuites                TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256
  V3CipherSuites                TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384
  V3CipherSuites                TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256
  V3CipherSuites                TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384
  V3CipherSuites                TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
  V3CipherSuites                TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384
  V3CipherSuites                TLS_RSA_WITH_AES_256_CBC_SHA
  V3CipherSuites                TLS_DHE_RSA_WITH_AES_256_CBC_SHA
  V3CipherSuites                TLS_DH_RSA_WITH_AES_256_CBC_SHA
  V3CipherSuites                TLS_DHE_DSS_WITH_AES_256_CBC_SHA
  V3CipherSuites                TLS_DH_DSS_WITH_AES_256_CBC_SHA
  V3CipherSuites                TLS_RSA_WITH_3DES_EDE_CBC_SHA
  V3CipherSuites                TLS_DHE_RSA_WITH_3DES_EDE_CBC_SHA
  V3CipherSuites                TLS_DH_RSA_WITH_3DES_EDE_CBC_SHA
  V3CipherSuites                TLS_DHE_DSS_WITH_3DES_EDE_CBC_SHA
  V3CipherSuites                TLS_DH_DSS_WITH_3DES_EDE_CBC_SHA
  V3CipherSuites                TLS_RSA_WITH_AES_128_CBC_SHA
  V3CipherSuites                TLS_DHE_RSA_WITH_AES_128_CBC_SHA
  V3CipherSuites                TLS_DH_RSA_WITH_AES_128_CBC_SHA
  V3CipherSuites                TLS_DHE_DSS_WITH_AES_128_CBC_SHA
  V3CipherSuites                TLS_DH_DSS_WITH_AES_128_CBC_SHA
}
PortRange                       portR1
{
  Port                          1024-65535
}
PortRange                       portR2
{
  Port                          1024-65535
}
```

For information on setting options in a Parmlib member that is not for AT-TLS, refer to "Cloud Connector Settings (Parmlib Options)" on page 19.

Appendix B. Using the Cloud Connector batch API

Cloud Tape Connector supports the use of the IBM Virtual Tape Facility for Mainframe (VTFM) to "vault" tapes, which saves virtual tape data to disk. Through an API module, CUZ#APIB, VTFM can save data to and retrieve data from any cloud defined in Cloud Tape Connector.

Mapping the CUZ#APIB module

Module CUZ#APIT in the SCUZSAMP sample library includes examples of all the CUZ#APIB function calls. The CUZ#APIB module can be mapped using two methods:

CUZ#APIP FUNC=MAP
This map includes the data layout of the working storage in the CSECT of your module.

CUZ#APIB FUNC=DSECT or CUZ#APIB
This map will build the APIB Block as a DSECT, which is the default.

- CUZ#APIB - Passes the Call information to module CU#API
- CUZ#APIL - Maps the data sets residing on the cloud when the function, BUILD_CLOUD_LIST/LIST, is called.

This macro is also used to generate the following API calls:

Status Returns the status of a specific cloud defined in Cloud Tape Connector.

Store Copies an existing cataloged data set to the cloud.

Restore
Restores a data set from the cloud to z/OS.

Delete Deletes a data set on the cloud.

List Retrieves a list of data sets on a cloud.

Obtain
Obtains storage for this DSECT and initializes the contents of the APIB Control Block.

Free Frees the APIB Control Block storage.

Programming Requirements

The table below lists the programming requirements for the CUZ#APIB module.

Table 14. CUZ#APIB programming requirements

Requirement	Description or Valid Values
Minimum authorization	Problem/Supervisor state and any PSW key
Dispatchable unit mode	Task
Cross memory mode	PASN or HASN
AMODE	31-bit only
ASC mode	Primary
Authorization	APF authorization required.

Table 14. CUZ#APIB programming requirements (continued)

Requirement	Description or Valid Values
Interrupt status	Enabled or disabled for I/O and external interrupts
Locks	No locks held
Control parameters	None
CUZ#APIB Control Block	Required for all function calls to Cloud Tape Connector

Return Codes and Messages

The following information lists the return codes that are generated by the CUZ#APIB module.

Table 15. Return codes for Module CUZ#APIB

Return and Reason Codes	Description
Return Code - R15	APIB_RETURN_CODE
Reason Code - R0	APIB_REASON_CODE
Return Code - 0	Successful Call
Return Code - 8	Runtime Error
Return Code - 12	Internal Error - APIB not built properly

In addition to a return or reason code, you will also receive messages when CUZ#APIB is run. The APIB_RETURN_MESSAGE field will contain either an "error" message or a "success" message. All of the Write-to-Operator (WTO) messages that are generated by API calls are written to your address space and will appear as message CUZS###X in the CUZOUT DD.

Supported Functions

The CUZ#APIB module supports the following functions:

DSECT
Builds storage layout as a DSECT.

MAP Builds storage layout as working storage/CSECT.

OBTAIN
Issues storage obtain and initializes APIB block.

FREE Issues storage release of the APIB block.

GET_CLOUD_STATUS
Returns status of cloud connection.

COPY_TO_CLOUD or STORE
Copies an existing data set to the cloud.

RESTORE_FROM_CLOUD or RESTORE
Restores a data set from the cloud back to z/OS.

DELETE_FROM_CLOUD or DELTE
Deletes a data set on the cloud.

LIST Obtains a list of data sets residing on a cloud.

Using the APIB Obtain function

Obtaining an APIB block can be accomplished by using the CUZ#APIB macro with the parameter, `FUNC=OBTAIN`. This method is recommended because this function will also initialize this block with information required for calling module CUZ#API.

Required Parameter

The only required parameter is APIB_REG, which is the User Register that is populated with the storage address of the APIB block. The R0, R1, R14, and R15 registers are reserved for use by the CUZ#APIB module.

If APIB_REG is not used, the default register is R8.

Return Codes

The following information lists the return codes that are generated by the CUZ#APIB module when used with the `FUNC=OBTAIN` parameter:

Table 16. Return codes for Module CUZ#APIB with the OBTAIN parameter

Return and Reason Codes	Description
Return Code - R15 - 0	Obtain Successful
Reason Code - R15 - 8	CTC Started Task is not active

Example 1

The example below shows the Obtain parameter with the APIB Block using R5 for the register.

```
CUZ#APIB FUNC=OBTAIN,APIB_REG=R5
```

Example 2

The example below shows that a register was not specified for the Obtain parameter. In this case, the APIB block will default to using R8 for the register.

```
CUZ#APIB FUNC=OBTAIN
```

Using the APIB Free function

Freeing the APIB obtained storage can be accomplished by using the CUZ#APIB macro with the parameter, `FUNC=FREE`.

Parameters

The Free function offers two parameters, APIB_REG and APIL_REG. These parameters are described below:

APIB_REG

This parameter specifies the User Register that is populated with the storage address of the APIB block. The R0, R1, R14, and R15 registers are reserved for use by the CUZ#APIB module.

If APIB_REG is not used, the default register is R8.

APIL_REG

This parameter specifies the User Register for the APIL block. This block will be freed if the List function is called. Possible registers are R2 – R13.

Example 1

The result of using the FUNC=FREE parameter is that the APIB_REG register is cleared. Refer to the examples below.

The example below shows the FREE parameter for the APIB Block using R5 as the register. This block will be freed if the List function is called using R7 as the register.

```
CUZ#APIB FUNC=FREE,APIB_REG=R5,APIL_REG=R7
```

Example 2

The example below shows that a register was not specified for the FREE parameter. In this case, the APIB block will default to using R8 for the register. This block will be freed in the List function is called using R7 as the register.

```
CUZ#APIB FUNC=FREE,APIL_REG=R7
```

Using the APIB Get Cloud Status function

Checking the status of a cloud connection can be accomplished by using the CUZ#APIB macro with the parameter, FUNC=GET_CLOUD_STATUS. It can also be specified as APIB_FUNCTION = G.

Parameters

The GET_CLOUD_STATUS function offers two parameters, APIB_REG and CLOUD_NAME. These parameters are described below:

APIB_REG

This parameter specifies the User Register that is populated with the storage address of the APIB block. The R0, R1, R14, and R15 registers are reserved for use by the CUZ#APIB module.

If APIB_REG is not used, the default register is R8.

CLOUD_NAME

This parameter specifies the Address or Register of the eight-character Cloud Name. This is a pre-defined cloud name that was specified through the **Parmlib Options** on the Main Menu.

Return Codes and Messages

The following information lists the return codes that are generated by the CUZ#APIB module when used with the GET_CLOUD_STATUS function.

Table 17. Return codes for Module CUZ#APIB with GET_CLOUD_STATUS function

Return and Reason Codes	Description
R15/APIB_RETURN_CODE = 0	Successful Connection
R15/APIB_RETURN_CODE = 8	Connection Error
R15/APIB_RETURN_CODE = 12	User Error
R0/APIB_REASON_CODE	Error Reason Code

Table 17. Return codes for Module CUZ#APIB with GET_CLOUD_STATUS function (continued)

Return and Reason Codes	Description
APIB_RETURN_MESSAGE	Success or Error Message

Example 1

The example below shows the status of the cloud name, IBMCLOUD. In this case, the APIB block is using Register 5 (R5).

```
IBMCLOUD DC CL8'IBMCLOUD'
         CUZ#APIB FUNC=GET_CLOUD_STATUS,          +
                  APIB_REG=R5,                    +
                  CLOUD_NAME=IBMCLOUD

         LA   R2,IBMCLOUD
         CUZ#APIB FUNC=GET_CLOUD_STATUS,          +
                  APIB_REG=R5,                    +
                  CLOUD_NAME=(R2)
```

Example 2

The example below shows the status of the cloud name, IBMCLOUD. In this case, the cloud will default to using R8 for the register, assuming that register is pointing to the APIB block.

```
 CUZ#APIB FUNC=GET_CLOUD_STATUS,          +
                  CLOUD_NAME=IBMCLOUD
         CUZ#APIB FUNC=GET_CLOUD_STATUS,          +
                  CLOUD_NAME=(R2)
```

Using the APIB Build Cloud List function

A list of data sets residing on the Cloud can be obtained by using the CUZ#APIB macro with the parameter, `FUNC=BUILD_CLOUD_LIST` or `FUNC=LIST`. An APIL (list) block is built with one Header record followed by the list of data sets in the cloud. It can also be specified as `APIB_FUNCTION = L`.

Required Parameters

The BUILD_CLOUD_LIST function offers the APIB_REG, APIL_REG, and CLOUD_NAME parameters. These parameters are described below:

APIB_REG

This parameter specifies the User Register that is populated with the storage address of the APIB block. The R0, R1, R14, and R15 registers are reserved for use by the CUZ#APIB module.

If APIB_REG is not used, the default register is R8.

APIL_REG

This parameter specifies the User Register for the APIL block.

CLOUD_NAME

This parameter specifies the address or register of the eight-character Cloud Name where the data will be saved. This is a pre-defined cloud name that was specified through the **Parmlib Options** on the Main Menu.

Optional Parameters

The BUILD_CLOUD_LIST function has an additional parameter, LIST_DATASET_FILTER, that is optional.

LIST_DATASET_FILTER

This parameter specifies the address or register of the data set name mask, which can be up to 44 characters in length. The LIST_DATASET_FILTER parameter will return only the data sets meeting the masking criteria. If this parameter is omitted, all of the data sets on the cloud will be returned.

The LIST_DATASET_FILTER supports masking like ISPF 3.4.

Return Codes and Messages

The following information lists the return codes that are generated by the CUZ#APIB module when used with the BUILD_CLOUD_LIST function.

Table 18. Return codes for Module CUZ#APIB with BUILD_CLOUD_LIST function

Return and Reason Codes	Description
R15/APIB_RETURN_CODE = 0	Successful List
R15/APIB_RETURN_CODE = 8	Copy to Cloud Failed
R15/APIB_RETURN_CODE = 12	User Error
R0/APIB_REASON_CODE	Error Reason Code
APIB_RETURN_MESSAGE	Success or Error Message

Example 1

The example below shows how to obtain a list of data sets on cloud `IBMCLOUD`. In this case, the APIB block is using Register 5 (R5). APIL is using R6 with filter criteria for a data set name (dsn) of `MY.DSN*`.

```
IBMCLOUD DC CL08'IBMCLOUD'
DSNFILTR DC CL44'MY.DSN*'
CUZ#APIB FUNC=BUILD_CLOUD_LIST,          +
         APIB_REG=R5,                    +
         APIL_REG=R6,                    +
         LIST_DATASET_FILTER=DSNFILTR,   +
         CLOUD_NAME=IBMCLOUD

LA   R2,IBMCLOUD
LA   R4,DSNFILTR
CUZ#APIB FUNC=BUILD_CLOUD_LIST,          +
         APIB_REG=R5,                    +
         APIL_REG=R6,                    +
         LIST_DATASET_FILTER=(R4),       +
         CLOUD_NAME=(R2)
```

Example 2

The example below lists all of the data sets on cloud `IBMCLOUD`.

```
IBMCLOUD DC CL08'IBMCLOUD'
CUZ#APIB FUNC=BUILD_CLOUD_LIST,          +
         APIB_REG=R5,                    +
         APIL_REG=R6,                    +
         CLOUD_NAME=IBMCLOUD

DSNFILTR DC CL44'*'
CUZ#APIB FUNC=BUILD_CLOUD_LIST,          +
```

```
APIB_REG=R5,                    +
APIL_REG=R6,                    +
LIST_DATASET_FILTER=DSNFILTR,   +
CLOUD_NAME=IBMCLOUD
```

Using the APIB Copy to Cloud function

An existing cataloged data set can be copied to the cloud by using the CUZ#APIB macro with the parameter, `FUNC=COPY_TO_CLOUD` or `FUNC=STORE`. It can also be specified as `APIB_FUNCTION = S`.

Required Parameters

The COPY_TO_CLOUD function offers the APIB_REG, APIL_REG, and CLOUD_NAME parameters. These parameters are described below:

APIB_REG
This parameter specifies the User Register that is populated with the storage address of the APIB block. The R0, R1, R14, and R15 registers are reserved for use by the CUZ#APIB module.

If APIB_REG is not used, the default register is R8.

CLOUD_NAME

This parameter specifies the address or register of the eight-character Cloud Name where the data set will be copied to. This is a pre-defined cloud name that was specified through the **Parmlib Options** on the Main Menu.

COPY_DSN
This parameter specifies the address or register of the data set name, up to 44 characters in length, to be copied to the cloud. This data set must be cataloged and must either reside on TAPE or DISK.

RETENTION_PERIOD
This parameter specifies a number, up to four characters in length, for the amount of days the DSN will reside on the cloud. A retention period of 9999 indicates that this is a non-expiring cloud backup and will be kept indefinitely.

Return Codes and Messages

The following information lists the return codes that are generated by the CUZ#APIB module when used with the COPY_TO_CLOUD function.

Table 19. Return codes for Module CUZ#APIB with COPY_TO_CLOUD function

Return and Reason Codes	Description
R15/APIB_RETURN_CODE = 0	Successful Copy to Cloud
R15/APIB_RETURN_CODE = 8	Copy to Cloud Failed
R15/APIB_RETURN_CODE = 12	User Error
R0/APIB_REASON_CODE	Error Reason Code
APIB_RETURN_MESSAGE	Success or Error Message

Example 1

The example below shows how to copy a disk data setMY.DSN to cloud IBMCLOUD. In this case, the APIB block is using Register 5 (R5) and the data is saved for five (5) days.

```
IBMCLOUD DC CL08'IBMCLOUD'
         MYDSN    DC CL44'MY.DSN'
         RETPD    DC CL04'0005'
         CUZ#APIB FUNC=COPY_TO_CLOUD,             +
                  APIB_REG=R5,                    +
                  CLOUD_NAME=IBMCLOUD,            +
                  RETENTION_PERIOD=RETPD,         +
                  COPY_DSN=MYDSN

         LA   R2,IBMCLOUD
         LA   R3,MYDSN
         LA   R4,RETPD
         CUZ#APIB FUNC=COPY_TO_CLOUD,             +
                  APIB_REG=R5,                    +
                  CLOUD_NAME=(R2),                +
                  RETENTION_PERIOD=(R4),          +
                  COPY_DSN=(R3)
```

Example 2

The example below shows how to copy the disk data set MY.DSN to cloud IBMCLOUD. The APIB block defaults to Register 8 (R8).

```
IBMCLOUD DC CL08'IBMCLOUD'
         MYDSN    DC CL44'MY.DSN'
         CUZ#APIB FUNC=COPY_TO_CLOUD,             +
                  CLOUD_NAME=IBMCLOUD,            +
                  RETENTION_PERIOD=RETPD,         +
                  COPY_DSN=MYDSN

         LA   R2,IBMCLOUD
         LA   R3,MYDSN
         CUZ#APIB FUNC=COPY_TO_CLOUD,             +
                  CLOUD_NAME=(R2),                +
                  COPY_DSN=(R3)
```

Using the APIB Restore from Cloud function

Restoring a data set from a cloud can be accomplished by using the CUZ#APIB macro with the parameter, FUNC=RESTORE_FROM_CLOUD or FUNC=RESTORE. It can also be specified as APIB_FUNCTION = R.

Required Parameters

The RESTORE_FROM_CLOUD function offers several parameters, which are described below:

APIB_REG

This parameter specifies the User Register that is populated with the storage address of the APIB block. The R0, R1, R14, and R15 registers are reserved for use by the CUZ#APIB module.

If APIB_REG is not used, the default register is R8.

CLOUD_NAME

This parameter specifies the address or register of the eight-character Cloud Name containing the data set that will be restored from the cloud. This is a pre-defined cloud name that was specified through the **Parmlib Options** on the Main Menu.

RESTORE_DSN
This parameter specifies the address or register of the data set name, up to 44 characters in length, to be restored from the cloud. This data set must be uncatalogued and must reside on the cloud specified in the CLOUD_NAME parameter.

RESTORE_TO_TAPE_UNIT
This parameter specifies the address or register of an eight-character esoteric unit of a tape device. This parameter is ignored if RESTORE_TO_DDNAME is used.

RESTORE_TO_DASD_TAPE
This parameter indicates whether to restore to the DASD or Tape device. Valid values are D and T.

- **D** - Restore to DASD device. If the allocation on the DASD device fails, the restored DSN will be allocated on Tape instead. If the Restore DSN block size is greater than 32K, the DSN will be allocated on tape rather than DASD.
- **T** - Restore to Tape device.

These values are ignored if the RESTORE_TO_DDNAME parameter is used.

RESTORE_DELETE_OLD
This parameter indicates whether to delete an existing Restore to DSN. Valid values are Y and N, as described below:

- **Y** - Delete an existing Restore to DSN. This is the default.
- **N** - Do not delete an existing Restore to DSN.

These values are ignored if the RESTORE_TO_DDNAME parameter is used.

RETENTION_PERIOD
This parameter specifies a number, up to four characters in length, for the amount of days the restored DSN will reside on tape. A retention period of 9999 indicates that this is a non-expiring tape and will be kept indefinitely. Set the retention period to 0000 if restoring to DASD.

These values are ignored if the RESTORE_TO_DDNAME parameter is used.

RESTORE_WAIT_FOR_COMPLETION
This parameter indicates whether to wait until the Restore process is complete before returning control. Valid values are Y and N, as described below:

- **Y** - Wait for Restore to finish before returning control. This is the default.

  A value of "Y" is required if the RESTORE_TO_DDNAME parameter is used.
- **N** - Do not wait for the Restore process to finish before returning control. Instead, return control immediately after the Restore process is scheduled.

  A value of "N" is required for asynchronous processing.

Optional Parameters

The RESTORE_FROM_CLOUD function has a few additional parameters that are optional.

RESTORE_TO_DDNAME
This parameter specifies the address or register of the eight-character DD name that will be used for the Restore. The DD Name is the name of the user-allocated DD.

The RESTORE_TO_DDNAME parameter is mutually exclusive with the following parameters:

- RESTORE_DELETE_OLD
- RESTORE_TO_ALIAS
- RESTORE_TO_DASD_UNIT
- RESTORE_TO_DSN
- RESTORE_TO_STORCLASS
- RESTORE_TO_TAPE_UNIT
- RESTORE_VOLUME_COUNT
- RETENTION_PERIOD

RESTORE_REL_GEN
This parameter specifies the address or register containing a halfword with the relative generation of the backup. The value for the generation can either be a positive number or a negative value from 0 to 10.

If this parameter is omitted, the latest backup will be restored.

RESTORE_TO_DSN
This parameter specifies the address or register of the data set name, up to 44 characters in length. The data set from the cloud will be restored to this new DSN. If this parameter is omitted, the data set from the cloud will be restored to its original DSN or, if specified, to the data set name listed in the RESTORE_DSN parameter.

This parameter is mutually exclusive with the following parameters:

- RESTORE_TO_ALIAS
- RESTORE_TO_DDNAME

RESTORE_TO_ALIAS
This parameter specifies the address or register of the eight-character Alias Name. The data set from the cloud will be restored to this new Alias or high-level qualifier. If this parameter is omitted, the data set will be restored to its original DSN or, if specified, to the data set name listed in the RESTORE_DSN parameter.

This parameter is mutually exclusive with the following parameters:

- RESTORE_TO_DSN
- RESTORE_TO_DDNAME

If the RESTORE_TO_DSN and the RESTORE_TO_ALIAS parameters are omitted, the DSN will be restored to the original name.

RESTORE_TO_DASD_UNIT
This parameter specifies the address or register of the eight-character esoteric unit of a DASD device. The RESTORE_TO_DASD_UNIT parameter is ignored if the RESTORE_TO_DDNAME parameter is used.

RESTORE_TO_STORCLASS

This parameter specifies the address or register of an eight-character storage class. The data set will be restored with this new storage class. If the RESTORE_TO_STORCLASS parameter is omitted, the default z/OS SMS storage class will be used.

The RESTORE_TO_STORCLASS parameter will be ignored if the RESTORE_TO_DDNAME parameter is used.

RESTORE_VOLUME_COUNT

This parameter specifies the address or register of a three-character volume count for allocating the restore data set. If the RESTORE_VOLUME_COUNT parameter is omitted, the default z/OS SMS volume count will be used.

The RESTORE_VOLUME_COUNT parameter will be ignored if the RESTORE_TO_DDNAME parameter is used.

Return Codes and Messages

The following information lists the return codes that are generated by the CUZ#APIB module when used with the RESTORE_FROM_CLOUD function.

Table 20. Return codes for Module CUZ#APIB with RESTORE_FROM_CLOUD function

Return and Reason Codes	Description
R15/APIB_RETURN_CODE = 0	Successful Restore from Cloud
R15/APIB_RETURN_CODE = 8	Restore from Cloud Failed
R15/APIB_RETURN_CODE = 12	User Error
R0/APIB_REASON_CODE	Error Reason Code
APIB_RETURN_MESSAGE	Success or Error Message

Example 1

The example below restores data set `MY.DSN` to `MY.RESTORED.DSN` from cloud `IBMCLOUD` using Register 5 (R5) as the APIB block to Disk Unit `SYSALLDA`. The SMS storage class is `SMSCLASS` and the Retention Period is set to 0 days.

```
IBMCLOUD DC CL08'IBMCLOUD'
MYDSN    DC CL44'MY.DSN'
TODSN    DC CL44'MY.RESTORED.DSN'
DISK     DC CL08'SYSALLDA'
TAPE     DC CL08'CART'
SMS      DC CL08'SMSCLASS'
RETPD    DC CL04'0000'
CUZ#APIB FUNC=RESTORE_FROM_CLOUD,         +
         APIB_REG=R5,                     +
         RESTORE_DSN=MYDSN,               +
         RESTORE_TO_DSN=TODSN,            +
         RESTORE_TO_DASD_UNIT=DISK,       +
         RESTORE_TO_TAPE_UNIT=TAPE,       +
         RESTORE_TO_STORCLASS=SMS,        +
         RESTORE_TO_DASD_TAPE=D,          +
         RESTORE_DELETE_OLD=Y,            +
         RETENTION_PERIOD=RETPD,          +
         RESTORE_WAIT_FOR_COMPLETION=Y,   +
         CLOUD_NAME=IBMCLOUD

LA   R2,IBMCLOUD
LA   R3,MYDSN
```

```
LA   R4,TODSN
LA   R6,DISK
LA   R7,SMS
LA   R8,RETPD
LA   R9,TAPE
CUZ#APIB FUNC=RESTORE_FROM_CLOUD,         +
         APIB_REG=R5,                     +
         RESTORE_DSN=(R3),                +
         RESTORE_TO_DSN=(R4),             +
         RESTORE_TO_DASD_UNIT=(R6),       +
         RESTORE_TO_TAPE_UNIT=(R9),       +
         RESTORE_TO_STORCLASS=(R7),       +
         RESTORE_TO_DASD_TAPE=D,          +
         RESTORE_DELETE_OLD=Y,            +
         RETENTION_PERIOD=(R8),           +
         RESTORE_WAIT_FOR_COMPLETION=Y,   +
         CLOUD_NAME=(R2)
```

Example 2

The example below restores data set MY.DSN to RESTORED.DSN from cloud IBMCLOUD using Register 5 (R5) as the APIB block to Disk Unit SYSALLDA. The SMS storage class is SMSCLASS and the Retention Period is set to 0 days.

```
IBMCLOUD DC CL08'IBMCLOUD'
MYDSN    DC CL44'MY.DSN'
ALIAS    DC CL08'RESTORED'
DISK     DC CL08'SYSALLDA'
SMS      DC CL08'SMSCLASS'
RETPD    DC CL04'0000'
CUZ#APIB FUNC=RESTORE_FROM_CLOUD,         +
         APIB_REG=R5,                     +
         RESTORE_DSN=MYDSN,               +
         RESTORE_TO_ALIAS=ALIAS,          +
         RESTORE_TO_DASD_UNIT=DISK,       +
         RESTORE_TO_TAPE_UNIT=TAPE,       +
         RESTORE_TO_STORCLASS=SMS,        +
         RESTORE_TO_DASD_TAPE=D,          +
         RESTORE_DELETE_OLD=Y,            +
         RETENTION_PERIOD=RETPD,          +
         RESTORE_WAIT_FOR_COMPLETION=Y,   +
         CLOUD_NAME=IBMCLOUD
```

Example 3

The example below restores data set MY.DSN to the original DSN from cloud IBMCLOUD using Register 5 (R5) as the APIB block to Disk Unit SYSALLDA. The default SMS storage class is used and the Retention Period is set to 0 days.

```
IBMCLOUD DC CL08'IBMCLOUD'
 MYDSN    DC CL44'MY.DSN'
 DISK     DC CL08'SYSALLDA'
 RETPD    DC CL04'0000'
 CUZ#APIB FUNC=RESTORE_FROM_CLOUD,         +
          RESTORE_DSN=MYDSN,               +
          RESTORE_TO_DASD_UNIT=DISK,       +
          RESTORE_TO_TAPE_UNIT=TAPE,       +
          RESTORE_TO_STORCLASS=SMS,        +
          RESTORE_TO_DASD_TAPE=D,          +
          RETENTION_PERIOD=RETPD,          +
          CLOUD_NAME=IBMCLOUD
```

Example 4

The example below restores data set MY.DSN to allocated DD RESTDD from cloud IBMCLOUD using Register 8 (R8) as the APIB block. All other parameters are ignored since the data set is already allocated.

```
IBMCLOUD DC CL08'IBMCLOUD'
MYDSN    DC CL44'MY.DSN'
RESTDD   DC CL08'RESTDD'
CUZ#APIB FUNC=RESTORE_FROM_CLOUD,         +
         RESTORE_DSN=MYDSN,               +
         RESTORE_TO_DDNAME=RESTDD,        +
         CLOUD_NAME=IBMCLOUD
```

Using the APIB Delete from Cloud function

A data set can be deleted from the cloud by using the CUZ#APIB macro with the parameter, FUNC=DELETE_FROM_CLOUD. It can also be specified as APIB_FUNCTION = D.

Parameters

The DELETE_FROM_CLOUD function offers two parameters, APIB_REG and CLOUD_NAME. These parameters are described below:

APIB_REG

This parameter specifies the User Register that is populated with the storage address of the APIB block. The R0, R1, R14, and R15 registers are reserved for use by the CUZ#APIB module.

If APIB_REG is not used, the default register is R8.

CLOUD_NAME

This parameter specifies the Address or Register of the eight-character Cloud Name. This is a pre-defined cloud name that was specified through the **Parmlib Options** on the Main Menu.

DELETE_DSN

This parameter specifies the address or register of the data set name, up to 44 characters in length, to be deleted from the cloud. This data set must reside on the cloud specified in the CLOUD_NAME parameter, but does not need to exist on z/OS.

Return Codes and Messages

The following information lists the return codes that are generated by the CUZ#APIB module when used with the DELETE_FROM_CLOUD function.

Table 21. Return codes for Module CUZ#APIB with DELETE_FROM_CLOUD function

Return and Reason Codes	Description
R15/APIB_RETURN_CODE = 0	Successful Delete from Cloud
R15/APIB_RETURN_CODE = 8	Delete from Cloud Error
R15/APIB_RETURN_CODE = 12	User Error
R0/APIB_REASON_CODE	Error Reason Code
APIB_RETURN_MESSAGE	Success or Error Message

Example

The example below shows how to delete data set MY.DSN from cloud IBMCLOUD using R5 as the APIB block.

```
IBMCLOUD DC CL08'IBMCLOUD'
MYDSN    DC CL44'MY.DSN'
CUZ#APIB FUNC=DELETE_FROM_CLOUD,          +
         APIB_REG=R5,                     +
         CLOUD_NAME=IBMCLOUD              +
         DELETE_DSN=MYDSN

LA   R2,IBMCLOUD
LA   R3,MYDSN
CUZ#APIB FUNC=DELETE_FROM_CLOUD,          +
         APIB_REG=R5,                     +
         CLOUD_NAME=(R2),                 +
         DELETE_DSN=(R3)
```

Sample CUZ#APIT Member

The SCUZSAMP library contains several members with sample JCL. The CUZ#APIT member is included in the SCUZSAMP library and provides the sample JCL for using VTFM with clouds defined in Cloud Tape Connector. This topic provides an example of the parameters available for assembler macro CUZ#APIB, which generates the DSECT and inline code to call any functions.

```
&LABEL   CUZ#APIB &FUNC=DSECT,                                          +
               &APIB_REG=R8,                                             +
               &APIL_REG=,                                               +
               &CLOUD_NAME=,                                             +
               &COPY_DSN=,                                               +
               &DELETE_DSN=,                                             +
               &RESTORE_DELETE_OLD=,                                     +
               &LIST_DATASET_FILTER=,                                    +
               &RESTORE_DSN=,                                            +
               &RESTORE_REL_GEN==H'0',                                   +
               &RESTORE_TO_DDNAME=,                                      +
               &RESTORE_TO_DSN=,                                         +
               &RESTORE_TO_DASD_TAPE=,                                   +
               &RESTORE_TO_DASD_UNIT=,                                   +
               &RESTORE_TO_TAPE_UNIT=,                                   +
               &RESTORE_TO_ALIAS=,                                       +
               &RESTORE_TO_STORCLASS=,                                   +
               &RESTORE_VOLUME_COUNT=,                                   +
               &RETENTION_PERIOD=,                                       +
               &RESTORE_WAIT_FOR_COMPLETION=Y
 .*
 .*
        PUSH PRINT,NOPRINT
        PRINT OFF,NOPRINT
 LABEL  MACRO
&******  $LADR &REG,&ADDR,&LENGTH=8
.* $LAD*************************************************************
.* addrR - This macro relieves the problem of determining whether the
.* reloess passed to an 'LA' instruction is a register or a regular
.* the catable value.  It just checks to see if the first character of
.* instADDR is an open parenthesis.  If it is, a register-to-register
.* instruction is generated instead of the LA Rn,ADDR.
.*
.*******************************************************************
.*
  GBLC &FECUSEY
  AIF ('&ADDR'(1,1) EQ '*').INDIRECT
  AIF ('&ADDR'(1,1) EQ '(').ISREG
  AIF ('&ADDR'(1,1)  NE '''').NOTLIT
```

```
 AIF (('&LENGTH'(1,1) EQ 'W') OR ('&LENGTH'(1,1) EQ 'w')).L_WORD
 AIF ('&FECUSEY' NE 'Y').PAST_Y1
  LAY   &REG,=CL&LENGTH.&ADDR
  AGO .EX_1
.PAST_Y1 ANOP
  LA    &REG,=CL&LENGTH.&ADDR
.EX_1 ANOP
  AGO   .EXIT
.*
.L_WORD  ANOP                                    literal word aligned
&ACNT    SETA K'&ADDR                            number of characters
&ACNT    SETA &ACNT-2                            less quotes
&ADD2    SETC  '&ADDR'(2,&ACNT)                  strip off quotes
  AIF ('&FECUSEY' NE 'Y').PAST_Y2
&LABEL   LAY   &REG,=A(&ADD2)
  AGO .EX_2
.PAST_Y2 ANOP
&LABEL LA    &REG,=A(&ADD2)
.EX_2 ANOP
  AGO   .EXIT
.*
 .NOTLIT  ANOP
         AIF ('&ADDR'(1,2) EQ '=A').ADCON
         AIF ('&ADDR'(1,2) EQ '=a').ADCON

  AIF ('&FECUSEY' NE 'Y').PAST_Y3
&LABEL   LAY   &REG,&ADDR
  AGO .EX_3
.PAST_Y3 ANOP
&LABEL LA    &REG,&ADDR
.EX_3 ANOP
  AGO   .EXIT
.*
.ADCON   ANOP
&LABEL   L     &REG,&ADDR
         AGO   .EXIT
.*
.ISREG   ANOP
&LABEL   LR    &REG,&ADDR
         AGO   .EXIT
.*
.INDIRECT ANOP
&ACNT    SETA K'&ADDR                            number of characters
&ACNT    SETA &ACNT-1                            less '*'
&ADD2    SETC  '&ADDR'(2,&ACNT)                  strip off '*'
         AIF ('&ADD2'(1,1) EQ '(').ISREG_I
&LABEL   L     &REG,&ADD2
         AGO   .EXIT
.*
.ISREG_I ANOP
&ACNT    SETA &ACNT-2                            less ()
&ADD2    SETC  '&ADD2'(2,&ACNT)                  strip off ()
&LABEL   L     &REG,0(,&ADD2)
.EXIT    ANOP

         MEND
         POP PRINT,NOPRINT
.*
         GBLC  &CUZ
&CUZ     SETC  'CUZ'
         LCLA  &COUNT
         GBLC  &COUNTER
&COUNT   SETA  &COUNTER
&COUNT   SETA  &COUNT+1
&COUNTER SETC  '&COUNT'
.*
         AIF ('&FUNC' EQ 'DSECT').MAPIT
```

```
         AIF ('&FUNC' EQ 'MAP').MAPIT
         AIF ('&FUNC' EQ 'OBTAIN').OBTAIN
         AIF ('&FUNC' EQ 'GET_CLOUD_STATUS').GETSTAT
         AIF ('&FUNC' EQ 'COPY_TO_CLOUD').COPYCLD
         AIF ('&FUNC' EQ 'STORE').COPYCLD
         AIF ('&FUNC' EQ 'RESTORE_FROM_CLOUD').RESTCLD
         AIF ('&FUNC' EQ 'RESTORE').RESTCLD
         AIF ('&FUNC' EQ 'FREE').FREE
         AIF ('&FUNC' EQ 'DELETE').DELETE
         AIF ('&FUNC' EQ 'DELETE_FROM_CLOUD').DELETE
         AIF ('&FUNC' EQ 'LIST').LIST
         AIF ('&FUNC' EQ 'BUILD_CLOUD_LIST').LIST
   MNOTE 12,'Invalid Function - Look at Macro doc for list valid Func'
         MEXIT
 .MAPIT   ANOP
 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
 * CUZ#APIB Mapping.  Control Block used for All API calls to Cloud  *
 *                    Tape Connector.                                *
 *                                                                   *
 * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
 .*
         AIF ('&FUNC' NE 'MAP').DSECTD
 .DSECT   ANOP
 APIB_BLK_S               DS   0F
         AGO .DSECTC
 .DSECTD  ANOP
 APIB_BLK_S               DSECT
 .DSECTC  ANOP
APIB_EYE_CATCHER         DC   CL08'CUZ#APIB' Eye Catcher
APIB_VERSION             DC   CL06'V1R1M1'
APIB_FUNCTION            DS   CL01  Function of Call
APIB_FUNCTION_GET_STATUS EQU  C'G'  Return Cloud Connection Status
APIB_FUNCTION_STORE      EQU  C'S'  Store a Dataset on Cloud
APIB_FUNCTION_RESTORE    EQU  C'R'  Restore a Dataset from Cloud
APIB_FUNCTION_DELETE     EQU  C'D'  Delete a Dataset on Cloud
APIB_FUNCTION_LIST       EQU  C'L'  Obtain List of Datasets on Cloud
APIB_PSW_KEY             DS   X     Callers PSW Key
APIB_BLK_LENGTH          DS   F     Length of this Block
APIB_RETURN_CODE         DS   F     Return Code
APIB_REASON_CODE         DS   F     Reason Code
APIB_CUZ#APIL_ADDR       DS   F     Addr of Cloud List DSECT CUZ#APIL
APIB_CUZ#API_MOD_ADDR    DS   F     Addr of Module CUZ#API
APIB_RESTORE_REL_GEN     DS   H     Relative Generation to Restore
APIB_CHAR_AREA           DS   0S    Starting Character Area
APIB_CLOUD_NAME          DS   CL08  Cloud Connector Name
APIB_CLOUD_TYPE          DS   CL01  Returned Cloud_TYPE
APIB_CLOUD_TYPE_HCP      EQU  C'H'  Cloud Type Hitachi
APIB_CLOUD_TYPE_FTP      EQU  C'F'  Cloud Type FTP
APIB_CLOUD_TYPE_S3       EQU  C'S'  Cloud Type S3
APIB_CLOUD_TYPE_CLS      EQU  C'C'  Cloud Type Cleversafe
APIB_CLOUD_TYPE_SFT      EQU  C'L'  Cloud Type Softlayer
APIB_CLOUD_TYPE_NOT_FND  EQU  C'N'  Cloud Server was not Found
APIB_CLOUD_STAT          DS   CL01  Returned Cloud_TYPE
APIB_CLOUD_STAT_VALID    EQU  C'V'  Valid Connection to Cloud Server
APIB_CLOUD_STAT_NO_CON   EQU  C'N'  No Valid Connection to Cloud Server
APIB_RETURN_MESSAGE      DS   CL132 Error Message Returned
APIB_CLOUD_COPY_DSN      DS   CL44  Dataset Name being copied to cloud
APIB_RESTORE_TO_DATASET  DS   CL44  Dataset Name to restore to
APIB_RESTORE_TO_ALIAS    DS   CL08  New Alias for retore DSN - Rename
APIB_RESTORE_TO_DDNAME   DS   CL08  Restore to Previously Allocated DD
APIB_RESTORE_DASD_UNIT   DS   CL08  DASD Unit to restore DSN
APIB_RESTORE_TAPE_UNIT   DS   CL08  Tape Unit to restore DSN
APIB_RESTORE_TO_STORCLAS DS   CL08  SMS Storage Class for restore DSN
APIB_RESTORE_VOLUME_CNT  DS   CL03  Volume Count - Char 3 (001-256)
APIB_RESTORE_DASD_TAPE   DS   CL01  D or T - Restore to Tape or DASD?
APIB_DELETE_OLD_RST_DSN  DS   CL01  Y or N - Delete Old Restore DSN?
APIB_RESTORE_WAIT_COMP   DS   CL01  Y or N - Wait for Restore Complete
```

```
APIB_RETENTION_PERIOD    DS   CL04  Retention Period for Store/Restore
APIB_LIST_DATASET_FILTER EQU  APIB_RESTORE_TO_DATASET
APIB_CHAR_AREA_LEN       EQU  *-APIB_CHAR_AREA
APIB_CLOUD_CTLG_RESTORE  DS   CL01  Reserved Storage Area
APIB_RESERVED            DS   CL79  Reserved Storage Area

APIB_BLK_LEN             EQU *-APIB_BLK_S
APIB_BLK                 EQU APIB_BLK_S,*-APIB_BLK_S
APIB_SUBPOOL             EQU  94


* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
* CUZ#APIL Mapping.  Control Block returned on FUNC=BUILD_CLOUD_LIST*
*                                                                     *
* -APIB_CUZ#APIL_ADDR contains Address of this Block after call      *
*                                                                     *
* -First Record is the header record with an eye catcher, length     *
*        of storage block obtained and the nbr of datasets returned.*
*                                                                     *
* -APIL_DATASET_COUNT contains nbr of Datasets to follow Header      *
*                                                                     *
* -After First Record, the list of datasets follow.                  *
*                                                                     *
*  USING APIB_BLK,R5                                                  *
*  USING APIL_BLK,R6                                                  *
*  CUZ#APIB FUNC=BUILD_CLOUD_LIST,          +                         *
*           APIB_REG=R5,                    +                         *
*           APIL_REG=R6,                    +                         *
*           LIST_DATASET_FILTER=DSNFILTR,   +                         *
*           CLOUD_NAME=IBMCLOUD                                       *
*  L     R4,APIL_DATASET_COUNT    Loop Counter                       *
*  LA    R6,APIL_NEXT_DSN         Skip Over Header Record            *
*DSN_LOOP DS 0H                                                       *
*  CLC   APIL_BACKUP_DATASET,MYDSN Is this my dsn?                    *
*  BNE   NEXT_DSN                                                    *
*NEXT_DSN DS 0H                                                      *
*  BCT   R4,DSN_LOOP                                                 *
*                                                                     *
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
APIL_BLK_S               DSECT
APIL_BACKUP_DATASET      DS   CL44  z/OS Dataset Backed up to Cloud
APIL_CLOUD_DATASET       DS   CL44  Name of Dataset on Cloud
APIL_BACKUP_GEN_ID       DS   CL08  Absolute Generation or STCK Time
APIL_BACKUP_RELATIVE_GEN DS   PL02  Relative Generation 0, -1...
APIL_BACKUP_REPO_STATUS  DS   CL01  Is this DSN in CTC Repository ?
APIL_BACKUP_MATCHED       EQU  C'M' Backup on Cloud and in CTC Repo
APIL_BACKUP_ON_CLOUD_ONLY EQU  C'R' DSN found on Cloud not CTC Repo
APIL_BACKUP_ON_REPO_ONLY  EQU  C'Z' DSN found on CTC Repo not on Cloud
APIL_NEXT_DSN            DS   0S
                         ORG  APIL_BACKUP_DATASET
APIL_HEADER_RECORD       DS   0S    First Record Description
APIL_EYE_CATCHER         DC   CL08'CUZ#APIL' Eye Catcher
APIL_BLOCK_LENGTH        DS   F     Length of this Block
APIL_DATASET_COUNT       DS   F     Nbr of Datasets in this block
APIL_PSW_KEY             DS   X     Storage Acquired in PSW Key
                         ORG  ,

APIL_BLK_LEN             EQU *-APIL_BLK_S
APIL_BLK                 EQU APIL_BLK_S,*-APIL_BLK_S
APIL_SUBPOOL             EQU  94
     MEXIT
.GETSTAT ANOP
         AIF ('&APIB_REG' EQ '').APIBERR
         AIF ('&CLOUD_NAME' EQ '').CLOUDERR
         PUSH  USING
APIB     USING APIB_BLK,&APIB_REG
         MVI   APIB.APIB_FUNCTION,APIB_FUNCTION_GET_STATUS
```

```
         LA    R0,APIB.APIB_CHAR_AREA
         LHI   R1,APIB_CHAR_AREA_LEN
         SGR   R14,R14
         L     R15,=X'40000000'
         MVCL  R0,14
         $LADR R1,&CLOUD_NAME
         MVC   APIB.APIB_CLOUD_NAME,0(R1)
         IC    R15,APIB.APIB_PSW_KEY
*        IC    R15,=X'80'
         SPKA  0(R15)
         LGF   R15,APIB.APIB_CUZ#API_MOD_ADDR
         LR    R1,&APIB_REG
         BASR  R14,R15
         IC    R15,APIB.APIB_PSW_KEY
         SPKA  0(R15)
         LGF   R15,APIB.APIB_RETURN_CODE
         LGF   R0,APIB.APIB_REASON_CODE
         DROP  APIB
         POP   USING
         MEXIT
.*
.COPYCLD ANOP
         AIF ('&APIB_REG' EQ '').APIBERR
         AIF ('&CLOUD_NAME' EQ '').CLOUDERR
         AIF ('&COPY_DSN' EQ '').CPDSNERR
         AIF ('&RETENTION_PERIOD' EQ '').RETNPERR
         PUSH  USING
APIB     USING APIB_BLK,&APIB_REG
         MVI   APIB.APIB_FUNCTION,APIB_FUNCTION_STORE
         LA    R0,APIB.APIB_CHAR_AREA
         LHI   R1,APIB_CHAR_AREA_LEN
         SGR   R14,R14
         LGF   R15,=X'40000000'
         MVCL  R0,14
         $LADR R1,&CLOUD_NAME
         MVC   APIB.APIB_CLOUD_NAME,0(R1)
         $LADR R1,&COPY_DSN
         MVC   APIB.APIB_CLOUD_COPY_DSN,0(R1)
         $LADR R1,&RETENTION_PERIOD
         MVC   APIB.APIB_RETENTION_PERIOD,0(R1)
         IC    R15,APIB.APIB_PSW_KEY
         SPKA  0(R15)
         LGF   R15,APIB.APIB_CUZ#API_MOD_ADDR
         LR    R1,&APIB_REG
         BASR  R14,R15
         IC    R15,APIB.APIB_PSW_KEY
         SPKA  0(R15)
         LGF   R15,APIB.APIB_RETURN_CODE
         LGF   R0,APIB.APIB_REASON_CODE
         DROP  APIB
         POP   USING
         MEXIT
.*
.DELETE  ANOP
         AIF ('&APIB_REG' EQ '').APIBERR
         AIF ('&CLOUD_NAME' EQ '').CLOUDERR
         AIF ('&DELETE_DSN' EQ '').DLDSNERR
         PUSH  USING
APIB     USING APIB_BLK,&APIB_REG
         MVI   APIB.APIB_FUNCTION,APIB_FUNCTION_DELETE
         LA    R0,APIB.APIB_CHAR_AREA
         LHI   R1,APIB_CHAR_AREA_LEN
         SGR   R14,R14
         LGF   R15,=X'40000000'
         MVCL  R0,14
         $LADR R1,&CLOUD_NAME
         MVC   APIB.APIB_CLOUD_NAME,0(R1)
```

```
         $LADR R1,&DELETE_DSN
         MVC   APIB.APIB_CLOUD_COPY_DSN,0(R1)
         IC    R15,APIB.APIB_PSW_KEY
         SPKA  0(R15)
         LGF   R15,APIB.APIB_CUZ#API_MOD_ADDR
         LR    R1,&APIB_REG
         BASR  R14,R15
         IC    R15,APIB.APIB_PSW_KEY
         SPKA  0(R15)
         LGF   R15,APIB.APIB_RETURN_CODE
         LGF   R0,APIB.APIB_REASON_CODE
         DROP  APIB
         POP   USING
         MEXIT
.*
.LIST    ANOP
         AIF ('&APIB_REG' EQ '').APIBERR
         AIF ('&APIL_REG' EQ '').APILERR
         AIF ('&CLOUD_NAME' EQ '').CLOUDERR
         PUSH  USING
APIB     USING APIB_BLK,&APIB_REG
         MVI   APIB.APIB_FUNCTION,APIB_FUNCTION_LIST
         LA    R0,APIB.APIB_CHAR_AREA
         LHI   R1,APIB_CHAR_AREA_LEN
         SGR   R14,R14
         LGF   R15,=X'40000000'
         MVCL  R0,14
         $LADR R1,&CLOUD_NAME
         MVC   APIB.APIB_CLOUD_NAME,0(R1)
         AIF ('&LIST_DATASET_FILTER' EQ '').FLTRALL
         $LADR R1,&LIST_DATASET_FILTER
         MVC   APIB.APIB_LIST_DATASET_FILTER,0(R1)
         AGO   .FLTRDON
.FLTRALL ANOP
         MVI    APIB.APIB_LIST_DATASET_FILTER,C'*'
.FLTRDON ANOP
         IC    R15,APIB.APIB_PSW_KEY
         SPKA  0(R15)
         LGF   R15,APIB.APIB_CUZ#API_MOD_ADDR
         LR    R1,&APIB_REG
         BASR  R14,R15
         IC    R15,APIB.APIB_PSW_KEY
         SPKA  0(R15)
         LGF   R15,APIB.APIB_RETURN_CODE
         LGF   R0,APIB.APIB_REASON_CODE
         LGF   &APIL_REG,APIB.APIB_CUZ#APIL_ADDR
         DROP  APIB
         POP   USING
         MEXIT
.*
.RESTCLD ANOP
.*       Validate required parms are present and have valid values
         AIF ('&APIB_REG' EQ '').APIBERR
.*       AIF ('&CLOUD_NAME' EQ '').CLOUDERR
         AIF ('&RESTORE_WAIT_FOR_COMPLETION' NE 'Y' AND '&RESTORE_WAIT_+
               FOR_COMPLETION' NE 'N').WAITERR
         AIF ('&RESTORE_DSN' EQ '').RSDSNERR
         AIF ('&RESTORE_WAIT_FOR_COMPLETION' EQ 'N' AND '&RESTORE_TO_DD+
               NAME' NE '').WAITDDR
.*       If Restore to DDNAME is requested, remainder of parms are
.*       not used since the DD is being allocated by the user.
         AIF ('&RESTORE_TO_DDNAME' GT ' ').RSTDDED
         AIF ('&RESTORE_TO_DASD_UNIT' EQ '').RDASDERR
         AIF ('&RESTORE_TO_TAPE_UNIT' EQ '').RTAPEERR
         AIF ('&RETENTION_PERIOD' EQ '').RETNPERR
         AIF ('&RESTORE_TO_DASD_TAPE' NE 'D' AND '&RESTORE_TO_DASD_TAPE+
               ' NE 'T').DSDTPERR
```

```
         AIF ('&RESTORE_DELETE_OLD' NE 'Y' AND '&RESTORE_DELETE_OLD' NE+
               'N').DLOLDERR
         AIF ('&RESTORE_TO_DSN' NE '' AND '&RESTORE_TO_ALIAS' NE '').AL+
               IASERR
         AIF ('&RESTORE_TO_DSN' NE '' AND '&RESTORE_TO_DDNAME' NE '').D+
               DNERR1
         AIF ('&RESTORE_TO_ALIAS' NE '' AND '&RESTORE_TO_DDNAME' NE '')+
               .DDNERR2
         AGO .GENREST
.*       If Restore to DDNAME is requested, send warnings that all
.*       parms below will be ignored.
.RSTDDED ANOP
         AIF ('&RESTORE_TO_DSN' EQ '').NWRDASD
   MNOTE 4,'RESTORE_TO_DSN is ignored with RESTORE_TO_DDNAME'
.NWRDASD ANOP
         AIF ('&RESTORE_TO_ALIAS' EQ '').NWRALIS
   MNOTE 4,'RESTORE_TO_ALIAS is ignored with RESTORE_TO_DDNAME'
.NWRALIS ANOP
         AIF ('&RESTORE_TO_DASD_TAPE' EQ '').NWRDSTP
   MNOTE 4,'RESTORE_TO_DASD_TAPE is ignored with RESTORE_TO_DDNAME'
.NWRDSTP ANOP
         AIF ('&RESTORE_TO_DASD_UNIT' EQ '').NWDASD
   MNOTE 4,'RESTORE_TO_DASD_UNIT is ignored with RESTORE_TO_DDNAME'
.NWDASD  ANOP
         AIF ('&RESTORE_TO_TAPE_UNIT' EQ '').NWTAPE
   MNOTE 4,'RESTORE_TO_TAPE_UNIT is ignored with RESTORE_TO_DDNAME'
.NWTAPE  ANOP
         AIF ('&RETENTION_PERIOD' EQ '').NWRETPD
   MNOTE 4,'RETENTION_PERIOD is ignored with RESTORE_TO_DDNAME'
.NWRETPD ANOP
         AIF ('&RESTORE_TO_STORCLASS' EQ '').NWSTORC
   MNOTE 4,'RESTORE_TO_STORCLASS is ignored with RESTORE_TO_DDNAME'
.NWSTORC ANOP
         AIF ('&RESTORE_DELETE_OLD' EQ '').GENREST
   MNOTE 4,'RESTORE_DELETE_OLD is ignored with RESTORE_TO_DDNAME'
.GENREST ANOP
         PUSH  USING
APIB     USING APIB_BLK,&APIB_REG
         MVI   APIB.APIB_FUNCTION,APIB_FUNCTION_RESTORE
         LA    R0,APIB.APIB_CHAR_AREA
         LHI   R1,APIB_CHAR_AREA_LEN
         SGR   R14,R14
         L     R15,=X'40000000'
         MVCL  R0,14
         AIF ('&CLOUD_NAME' EQ '').NOCLDNM
         $LADR R1,&CLOUD_NAME
         MVC   APIB.APIB_CLOUD_NAME,0(R1)
.NOCLDNM ANOP
         $LADR R1,&RESTORE_DSN
         MVC   APIB.APIB_CLOUD_COPY_DSN,0(R1)
         $LADR R1,&RESTORE_REL_GEN
         MVC   APIB.APIB_RESTORE_REL_GEN,0(R1)
         AIF ('&RESTORE_TO_DDNAME' EQ '').NODDNAM
         $LADR R1,&RESTORE_TO_DDNAME
         MVC   APIB.APIB_RESTORE_TO_DDNAME,0(R1)
         MVI   APIB.APIB_RESTORE_WAIT_COMP,C'N'
         AGO   .CALLRST
.NODDNAM ANOP
         AIF ('&RESTORE_TO_DSN' EQ '').NORDSN
         $LADR R1,&RESTORE_TO_DSN
         MVC   APIB.APIB_RESTORE_TO_DATASET,0(R1)
.NORDSN  ANOP
         AIF ('&RESTORE_TO_ALIAS' EQ '').NOALIAS
         $LADR R1,&RESTORE_TO_ALIAS
         MVC   APIB.APIB_RESTORE_TO_ALIAS,0(R1)
.NOALIAS ANOP
         $LADR R1,&RESTORE_TO_DASD_UNIT
```

```
         MVC   APIB.APIB_RESTORE_DASD_UNIT,0(R1)
         $LADR R1,&RESTORE_TO_TAPE_UNIT
         MVC   APIB.APIB_RESTORE_TAPE_UNIT,0(R1)
         AIF ('&RESTORE_TO_STORCLASS' EQ '').NOSMS
         $LADR R1,&RESTORE_TO_STORCLASS
         MVC   APIB.APIB_RESTORE_TO_STORCLAS,0(R1)
.NOSMS   ANOP
         $LADR R1,&RETENTION_PERIOD
         MVC   APIB.APIB_RETENTION_PERIOD,0(R1)
         MVI   APIB.APIB_RESTORE_DASD_TAPE,C'&RESTORE_TO_DASD_TAPE'
         MVI   APIB.APIB_DELETE_OLD_RST_DSN,C'&RESTORE_DELETE_OLD'
         MVI   APIB.APIB_RESTORE_WAIT_COMP,C'&RESTORE_WAIT_FOR_COMPLETI+
               ON'
.CALLRST ANOP
         IC    R15,APIB.APIB_PSW_KEY
         SPKA  0(R15)
         L     R15,APIB.APIB_CUZ#API_MOD_ADDR
         LR    R1,&APIB_REG
         BASR  R14,R15
         IC    R15,APIB.APIB_PSW_KEY
         SPKA  0(R15)
         L     R15,APIB.APIB_RETURN_CODE
         L     R0,APIB.APIB_REASON_CODE
         DROP  APIB
         POP   USING
         MEXIT
.*
.OBTAIN  ANOP
         AIF ('&APIB_REG' EQ '').APIBERR
         AIF ('&APIB_REG' EQ 'R0').APIBR0ER
         AIF ('&APIB_REG' EQ '(R0)').APIBR0ER
         AIF ('&APIB_REG' EQ 'R1').APIBR1ER
         AIF ('&APIB_REG' EQ '(R1)').APIBR1ER
         AIF ('&APIB_REG' EQ 'R2').APIBR2ER
         AIF ('&APIB_REG' EQ '(R2)').APIBR2ER
         AIF ('&APIB_REG' EQ 'R14').APIBR14ER
         AIF ('&APIB_REG' EQ '(R14)').APIBR14ER
         AIF ('&APIB_REG' EQ 'R15').APIBR15ER
         AIF ('&APIB_REG' EQ '(R15)').APIBR15ER
         PUSH  USING
APIB     USING APIB_BLK,&APIB_REG

         STORAGE OBTAIN,LENGTH=APIB_BLK_LEN,                           +
               SP=APIB_SUBPOOL,      User Defined Subpool              +
               CALLRKY=YES,                                            +
               LOC=ANY,              Default Location                  +
               COND=YES

         LTR   R15,R15               Storage Obtain Successful?
         BNZ   CUZ_OBTAIN_ERROR&COUNTER
         LR    &APIB_REG,R1          Save Storage Blk in callers reg
         LA    R0,APIB.APIB_CHAR_AREA
         LHI   R1,APIB_CHAR_AREA_LEN
         SGR   R14,R14
         L     R15,=X'40000000'
         MVCL  R0,14
         MVC   APIB.APIB_EYE_CATCHER,=CL08'CUZ#APIB'  Eye Catcher
         MVC   APIB.APIB_VERSION,=CL06'V1R1M1'
         XR    R2,R2                 Clear R2
         IPK                         Obtain PSW Key
         STC   R2,APIB.APIB_PSW_KEY  Save Callers PSW Key
         MVC   APIB.APIB_BLK_LENGTH,=A(APIB_BLK_LEN)
         XC    APIB.APIB_RETURN_CODE,APIB.APIB_RETURN_CODE
         XC    APIB.APIB_REASON_CODE,APIB.APIB_REASON_CODE
         LOAD  EP=&CUZ.#API,ERRET=CUZ_LOAD_ERROR&COUNTER
         ST    R0,APIB.APIB_CUZ#API_MOD_ADDR
         SGR   R15,R15
```

```
         B     CUZ_OBTAIN_EXIT&COUNTER
CUZ_OBTAIN_ERROR&COUNTER DS 0H
         WTO  '&CUZ.8401E-&SYSECT-Error Obtaining Storage for APIB Loca+
               l Control Block'
         LGHI  R15,8
         B     CUZ_OBTAIN_EXIT&COUNTER
CUZ_LOAD_ERROR&COUNTER DS 0H
         WTO  '&CUZ.8402E-&SYSECT-Load Failed for &CUZ.#API Module-Proc+
               ess Aborting'
         LGHI  R15,8
CUZ_OBTAIN_EXIT&COUNTER DS 0H
         DROP  APIB
         POP   USING
         MEXIT

.FREE    ANOP
         AIF ('&APIB_REG' EQ '').APIBERR
         AIF ('&APIL_REG' EQ '').APILERR
         AIF ('&APIB_REG' EQ '').APIBERR
         AIF ('&APIB_REG' EQ 'R0').APIBR0ER
         AIF ('&APIB_REG' EQ '(R0)').APIBR0ER
         AIF ('&APIB_REG' EQ 'R1').APIBR1ER
         AIF ('&APIB_REG' EQ '(R1)').APIBR1ER
         AIF ('&APIB_REG' EQ 'R2').APIBR2ER
         AIF ('&APIB_REG' EQ '(R2)').APIBR2ER
         AIF ('&APIB_REG' EQ 'R14').APIBR14ER
         AIF ('&APIB_REG' EQ '(R14)').APIBR14ER
         AIF ('&APIB_REG' EQ 'R15').APIBR15ER
         AIF ('&APIB_REG' EQ '(R15)').APIBR15ER
         AIF ('&APIL_REG' EQ 'R0').APIBR0ER
         AIF ('&APIL_REG' EQ '(R0)').APIBR0ER
         AIF ('&APIL_REG' EQ 'R1').APIBR1ER
         AIF ('&APIL_REG' EQ '(R1)').APIBR1ER
         AIF ('&APIL_REG' EQ 'R2').APIBR2ER
         AIF ('&APIL_IF ('&APIL_RE').APIBR2ER
         AIF ('&APIL_IF ('&APIL_RE).APIBR14ER
         AIF ('&APIL_IF ('&APIL_RE)').APIBR14ER
         AIF ('&APIL_IF ('&APIL_RE).APIBR15ER
         AIF ('&APIL_IF ('&APIL_RE)').APIBR15ER
         PUSH  USING USH  USING
APIB     USING APIB_BSING APIB_BLK
APIL     USING APIL_BSING APIL_BLK
*        Free the APIL Block if it was Obtained
         LGF   &APIL_REG,APIB.APIB_CUZ#APIL_ADDR
         LTR   &APIL_REG,&APIL_REG
         BZ    CUZ_NO_APIL_BLK&COUNTER
         L     R15,APIL.APIL_BLOCK_LENGTH
         IC    R2,APIL.APIL_PSW_KEY

         STORAGE RELEASE,LENGTH=(R15),                                 +
               ADDR=(&APIL_REG),     Addr of APIL Block                +
               SP=APIL_SUBPOOL,      Default Subpool                   +
               CALLRKY=YES

         XR    &APIL_REG,&APIL_REG   Clear Register

*        Free the APIB Block
CUZ_NO_APIL_BLK&COUNTER DS 0H
         XR    R2,R2              Clear R2
         IC    R2,APIB.APIB_PSW_KEY

         STORAGE RELEASE,LENGTH=APIB_BLK_LEN,
               ADDR=(&APIB_REG),     Addr of APIB Block                +
               SP=APIB_SUBPOOL,      Default Subpool                   +
               KEY=(R2)              Obtain in Users PSW Key

         XR    &APIB_REG,&APIB_REG   Clear R2
```

```
         DELETE EP=&CUZ.#API
         DROP  APIB,APIL
         POP   USING
         MEXIT
.APIBERR   ANOP
   MNOTE 12,'APIB_REG is Required for addressability'
         MEXIT
.APILERR   ANOP
   MNOTE 12,'APIL_REG is Required for addressability'
         MEXIT
.CLOUDERR  ANOP
   MNOTE 12,'CLOUD_NAME is Required for this function'
         MEXIT
.CPDSNERR  ANOP                                                 +
    MNOTE 12,'COPY_DSN is Required for this function'
          MEXIT
 .DLOLDERR  ANOP
    MNOTE 12,'RESTORE_DELETE_OLD must be a Y or N'
          MEXIT
 .DLDSNERR  ANOP
    MNOTE 12,'DELETE_DSN is Required for this function'
          MEXIT
 .DSDTPERR   ANOP
    MNOTE 12,'RESTORE_TO_DASD_TAPE must be a D or T'
          MEXIT
 .ALIASERR  ANOP
    MNOTE 12,'RESTORE_TO_DSN and RESTORE_TO_ALIAS are mutually exlusive'
          MEXIT
 .DDNERR1   ANOP
    MNOTE 12,'RESTORE_TO_DSN and RESTORE_TO_DDNAME are mutually exlusive+
               '
          MEXIT
 .DDNERR2   ANOP
    MNOTE 12,'RESTORE_TO_ALIAS and RESTORE_TO_DDNAME are mutually exlusi+
                ve'
         MEXIT
.RDASDERR  ANOP
   MNOTE 12,'RESTORE_TO_DASD_UNIT is Required for this function'
         MEXIT
.RTAPEERR  ANOP
   MNOTE 12,'RESTORE_TO_DASD_UNIT is Required for this function'
         MEXIT
.RETNPERR  ANOP
   MNOTE 12,'RETENTION_PERIOD is Required for this function'
         MEXIT
.WAITDDR   ANOP
   MNOTE 12,'WAIT_FOR_COMPLETION = N with RESTORE_TO_DDNAME option not +
                allowed'
         MEXIT
.APIBR0ER  ANOP
   MNOTE 12,'R0 can not be used with this function. R0-R2, R14-R15 in +
                use'
         MEXIT
.APIBR1ER  ANOP
   MNOTE 12,'R1 can not be used with this function. R0-R2, R14-R15 in +
                use'
         MEXIT
.APIBR2ER  ANOP
   MNOTE 12,'R2 can not be used with this function. R0-R2, R14-R15 in +
                use'
         MEXIT
.APIBR14ER ANOP
   MNOTE 12,'R14 can not be used with this function. R0-R2, R14-R15 in +
                use'
         MEXIT
.APIBR15ER ANOP
   MNOTE 12,'R15 can not be used with this function. R0-R2, R14-R15 in +
```

```
      use'
MEXIT

MEND
*************************** Bottom of Data *****************
```

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