9.4 TO 18.X MIGRATION GUIDE

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Contents

1. Overview

This is a complete guide for customers planning to migrate from 9.4 to 18.x. The guide outlines all phases involved in migration starting from planning, analysis, and migration to cut over.
9.4 to 18.x is not an in-place migration. As part of this migration, parallel 18.x environments will be setup while 9.4 environments are operational.
This migration has several recommendations that shift the Cloud usage pattern from a highly customized deployment to a more streamlined, repeatable, upgrade friendly deployment.
Personas involved in migration - Customer, Customer Success Manager, System Integrator (SI), IBM product development team, Application Delivery aka Ops, DBA, and Network team

2. Assumptions

1. Customizations will be ported by customer/SI. Engineering Team can help with customization audit on need basis.
2. Existing 9.4 queue manager and queues cannot be migrated.

3. High level timelines

Below is some approximate timelines for a medium complexity project, the timelines can vary for each customer based on their customizations.

- Provisioning non-production 18.x environment – 3 to 5 days per environment
- Provisioning pre-production 18.x environment – 5 days
- Provisioning production 18.x environment – 10 days
- Port 9.4 customizations using dev toolkit – 3 to 5 days
- MC migration – 1 day
- QA migration – depends on level of customizations
  - Data replication – 1 to 3 days
  - Deploy customizations and upgrade database – 3 to 5 days
  - Sanity testing – 2 to 3 days
- Pre prod migration – similar to QA environment timelines
- Production migration –
  - Data replication – 3 to 4 days (depends on size of database)
  - Deploy customizations and upgrade database – 3 to 5 days
  - Sanity testing – 2 to 3 days
  - Network tasks – check with Network team
- Any network changes required from client side – depends on client

Note – Lead time for various tasks can vary

4. Phases involved in Migration

4.1. Phase 1 - Planning and Analysis

4.1.1. Understand what is 18.x offering

Please see the attached presentation which outlines overview of 18.x offering
Owner – CSM helps the customer in understanding the attached presentation
18.x Order Management offering

4.1.2. Infrastructure comparison b/w 9.4 and 18.x servers

Identify usage of environments

Owner SI
The App Delivery provisions the following environments –

- **Master Configuration (MC) –** This environment houses the custom configuration specific to the customer implementation. This environment does not contain any transactional data (orders, customers, etc) and is critical for maintaining the OM configurations like (custom pipelines, custom common codes, transactions, etc). The configuration data from this instance is exported via Configuration Deployment Tool (CDT) xmls and same is imported into the target instances via the CDT import process. This way, the configuration need not be repeated on each of the target environments and it acts as a single repository for all the configuration data needed in the implementation.
- **Integration aka Development (DEV) –** This environment is used to test/ validate the code developed on individual programmers' environments and additionally any code fixes or fixpacks prior to migrating them to higher instances like QA and beyond as mentioned below. This environment typically contains the test data populated by the individual developers/ testers for basic validation/testing.
- **Quality Assurance (QA)** – This environment is used to perform integrated testing of the various custom components developed/ interfaces ie., the functional testing and limited performance testing. This environment contains the data that is much cleaner compared to the DEV environment and closer to the kind of data that will ultimately be seen in the production environment. The QA instance is integrated with the other external third-party systems needed for the business functionalities to be tested.
- **Preproduction (PREPROD) -** The preproduction environment is a production-like environment final validation of upgrades, fixes, and other changes is completed by IBM before the changes are deployed to the production environment. The data that gets populated in this environment are exactly like what is expected in the PROD environment.
- **Production (PROD) -** The production environment is the live system used by the end customers/ clients for their business containing the custom code and integration touchpoints with other external third-party systems.

Refer to KC documentation
https://www.ibm.com/support/knowledgecenter/SSGTJF/com.ibm.help.omcloud.offoverview.doc/productconcepts/omc_overview_architecture.html

Compare resources on various servers (RAM/HDD/CPU)

Owner App Delivery

4.1.3. Network analysis

Owner Network team from Client and IBM

4.1.4. Customization analysis including UI customizations

Owner SI

IBM OM application can be customized or tailored to meet the specific customer business needs. These are achieved using the SDF (Service Definition Framework), Database extensions, UI customizations for Call Center, Store, customer/ environment specific property entries in customer_overrides.properties, xapirest.properties, etc,.
A few important customizations to be focused on during the migration are as below –

- The Queue Connection Factory (QCF) has to be necessarily configured as AGENT_QCF in the custom implementation.
- It is recommended that a detailed analysis is carried out in terms of the validating the UI customizations in the 18.x environments and to ensure the customizations are not impacted.
- In CoC v18.x, it has been mandated that the System Management Application (SMA) UI should be used to override the factory value of properties that have DATABASE_SUPPORT=Y. Hence, such properties are managed through SMA property management UI (eg., yfs.httpOnlyCookie, yfs.api.security.enabled, yfs.install.displaydoublequantity, etc). These properties need to be set in the 18.x Master Configuration so that the subsequent CDT process will take care of cascading the overridden values to the target environments.
  For more information, please refer to -
  https://www.ibm.com/support/knowledgecenter/SSGTJF/com.ibm.help.omcloud.propmgmt.doc/configuration/c_omc_dbprops_guidelines.html
  Note – Retaining the property entries mentioned above in customer_overrides.properties file will yield errors during export process of the customization jars. Hence, care should be taken to override such properties in SMA and their entries in customer_overrides.properties are removed or commented out. The same applies to xapirest.properties file too.

  For understanding 18.x customization standards, refer to KC documentation
  https://www.ibm.com/support/knowledgecenter/SSGTJF/com.ibm.help.omcloud.custom.doc/customization/Cstm_extend_app.html

4.1.5. Runbook analysis

In Version 9.x, client implementations were not encouraged to adhere to a consistent deployment architecture. Any departures from the recommended norm were tracked as change entries in a custom runbook, maintained for each individual client. These customized change entries make serviceability a challenge for each client. 18.x corrects this situation through more standardization in runbooks. The standardization applies across these operational procedures.

cron jobs analysis

Customized database and appserver scripts that are written custom to address site specific operational tasks, can very quickly become unmanageable. IBM recommends a transition to a self-service scheduling automation tool that provides the same benefit the same benefit while allowing the custom cron to be retired.

Cron jobs are not allowed as per 18.x standard. So, analyze all existing cron jobs and ensure that corresponding feature is identified in 18.x which performs same functionality. It has been observed that customers may have setup cron jobs in 9.4 to trigger agents or start/stop agents/integration servers. This kind of functionality can be achieved with advanced agent scheduling feature or UCD process scheduling feature.
Refer to KC documentation
https://www.ibm.com/support/knowledgecenter/SSGTJF/com.ibm.help.config.processmodel.doc/configuration/c_advancedscheduling.html
Refer to UCD documentation
https://www.ibm.com/support/knowledgecenter/en/SS4GSP_6.1.0/com.ibm.udeploy.doc/topics/schedules_ch.html

custom scripts analysis

Analyze existing runbook to evaluate any existing 9.4 custom scripts and figure out the corresponding 18.x standard feature to achieve same functionality

WAS configuration

Please note that WAS configuration cannot be customized in 18.x

3rd party integrations

Please evaluate any 9.4 existing 3rd party integrations.
Also evaluate pre-requisite tasks for enabling cognos reporting.

Identify 3rd party certificates

Please ensure that all 3rd party jdk/WAS certificates are gathered ahead of time so that they can be imported to 18.x environments once environments are provisioned.

Analyze MQ settings

In 18.x, we have standard MQ default settings for the server which are used by all clients. If 9.4 environments have any non-standard or custom settings, those are not supported in 18.x.
Please check the Max queue depth and Max message size which is supported in 18.x and tweak your message size as needed to fit with 18.x standards.

Old version TLS is not supported

In 18.x, we do not support versions lower than TLS 1.2

4.1.6. Port 9.x customizations and build a package using dev toolkit

Each member of the development team need to set up their own programming environment or local sandbox instance for CoC 18.x runtime environment. This is required to ensure the development of customizations and testing happens on this instance prior to porting the customizations to higher environments. In the context of migration, the development instance is used to build the extensions.jar package to be deployed in the higher environments (Eg., DEV, QA, Pre-production, Production environments).
For more details, refer to
https://www.ibm.com/support/knowledgecenter/SSGTJF/com.ibm.help.omcloud.custom.doc/customization/t_omc_customize_progenv_setup.html
The programming environment where you are setting up the runtime sandbox should meet the following system requirements, see latest middleware version from KC documentation

- Linux operating system. The runtime sandbox is supported for use only on a Linux operating system. Minimum supported level: Red Hat Enterprise Linux (RHEL) Client 6.7 (32-bit or 64-bit)
- WebSphere Application Server (WAS) version 8.5.5.10 with all recommended and required fix packs.
- DB2 database version 10.5.0.5 with all recommended and required fix packs
- WebSphere MQ version 8.0.0.4

Get Linux VM for setting up local runtime

Owner SI
In case you run Windows OS on your laptop/ desktop, you could run the RHEL Linux as Virtual OS on it by using any third-party software like Oracle VM VirtualBox Manager (https://www.virtualbox.org/wiki/Downloads). Ensure that you allocate sufficient disk space (atleast 30GB) during the setup
Another option is to download free RHEL Dev edition
https://developers.redhat.com/products/rhel/download/

Install DB2/WAS/MQ on linux VM

Owner SI
WAS, MQ and DB2 can be downloaded from
http://spcn.w3cloud.ibm.com/software/spcn/swdownloads.html.
The installation of these can be carried out using the IBM Installation Manager.
For details on IBM Installation Manager, please refer to http://www-01.ibm.com/support/docview.wss?uid=swg24043549

Provide development toolkit to SI

Owner App delivery

Setup local runtime environment

Owner SI
This step uses the IBM Order Management Developer Toolkit that you downloaded previously to set up a runtime sandbox on your local machine within your programming

environment. You can then use the runtime sandbox to begin or continue customizing your IBM Order Management applications.
For detailed steps, refer to
https://www.ibm.com/support/knowledgecenter/SSGTJF/com.ibm.help.omcloud.custom.doc/customization/t_omc_customize_progenv_setup_runsandbox.html

Get 9.4 code base and copy it to linux VM

Owner SI
Download the custom code from github/ bluemix toolchain and copy it to the local development instance (Linux VM setup mentioned above).

Import 9.4 customizations

Owner SI
This step is to copy the customizations developed into the sandbox setup.
The process is as follows –

a. Copy the custom code developed into a folder on the local machine where the runtime is installed (say /home/username/project-folder). The structure of the folder is as mentioned below –

```
<project root directory>
|-- files
| |-- extensions
| | |-- global
| |   |-- <custom extension files>
| |   |-- resources
| |     |-- <custom resource files, such as any custom log4jconfig xml>
| |-- properties
| | |-- customer_overrides.properties
| | |-- <any other allowed overridable property file(s)>
| |-- repository
|   |-- eardata
|     |-- <relative path to any extension directory>
|--src
| |-- <custom source java files in proper package structure>
|--lib
  |--<additional jar files for compiling custom source files>
```

Note - All the 3rd-party jars required by the custom application needs to be placed directly under the lib folder without any sub-folder creation.

b. Navigate to the `bin` directory of your local runtime sandbox
c. Run the command
./sci_ant.sh -f ../devtoolkit/devtoolkit_extensions.xml importfromproject -Dprojectdir=project_path

Refer to KC documentation
https://www.ibm.com/support/knowledgecenter/SSGTJF/com.ibm.help.omcloud.custom.doc/customization/t_omc_customize_progenv_impext.html

Export 18.x customization package

Owner SI

This step is to generate and export an `extensions.jar` archive from your runtime sandbox to be deployed on higher environments during migration or validation. The process is as follows –

a. Navigate to the `bin` directory of your local runtime sandbox

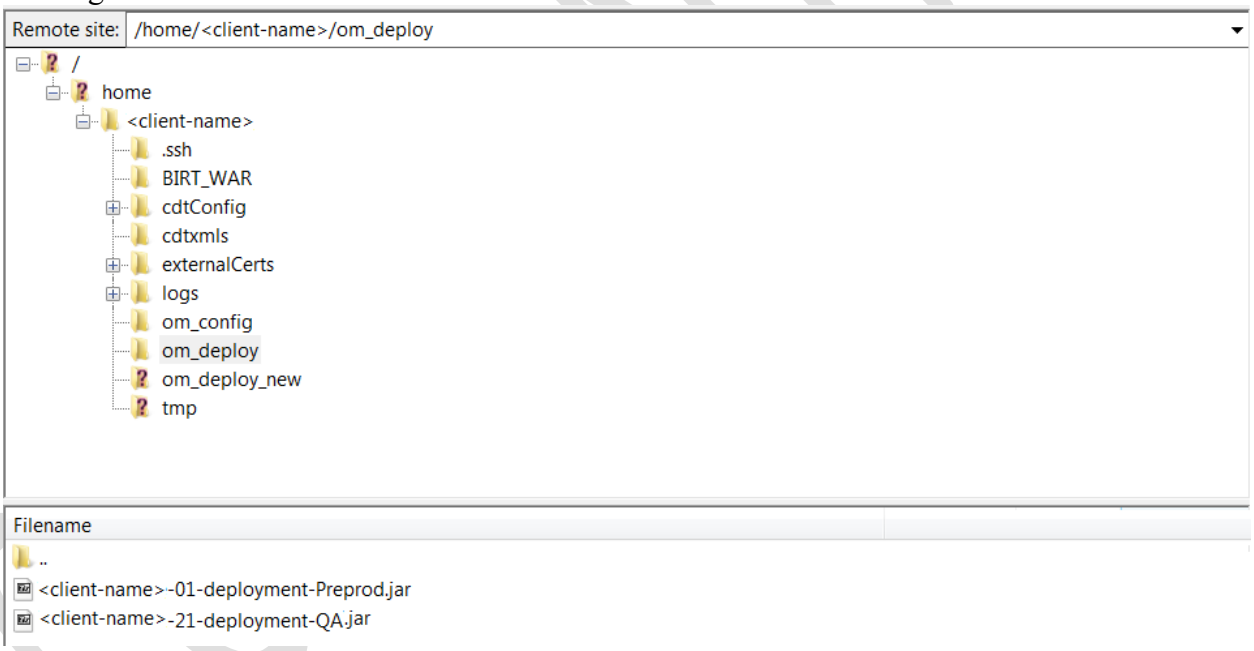
b. Run the command –

./sci_ant.sh –f ../devtoolkit/devtoolkit_extensions.xml export

This will create the extensions.jar and will be placed under the runtime directory of the local sandbox instance. This jar will contain the customizations to be ported to higher environments during migration.

For additional details, refer to https://www.ibm.com/support/knowledgecenter/en/SSGTJF/com.ibm.help.omcloud.custom.doc/customization/t_omc_customize_progenv_expext.html

Transfer the extensions.jar generated above for deployment on the target instance with the IBM UrbanCode Deploy Selfserv tool. The location is **/home/<ClientID>/om_deploy**, where ClientID is the three character unique identifier for the customer implementing the Sterling OMS solution as shown below –



For more details, refer to https://www.ibm.com/support/knowledgecenter/en/SSGTJF/com.ibm.help.omcloud.transfiles.doc/administer/t_omc_builddeploy_build_dropserver.html

Note – You might need to use the import version option in UCD to fetch the latest version of the extensions.jar in the codestation by choosing the **OMS-CUSTOM-XXX** component associated with the target instance in UCD

4.2. Phase 2 - Provision environments, deploy customizations and Migration

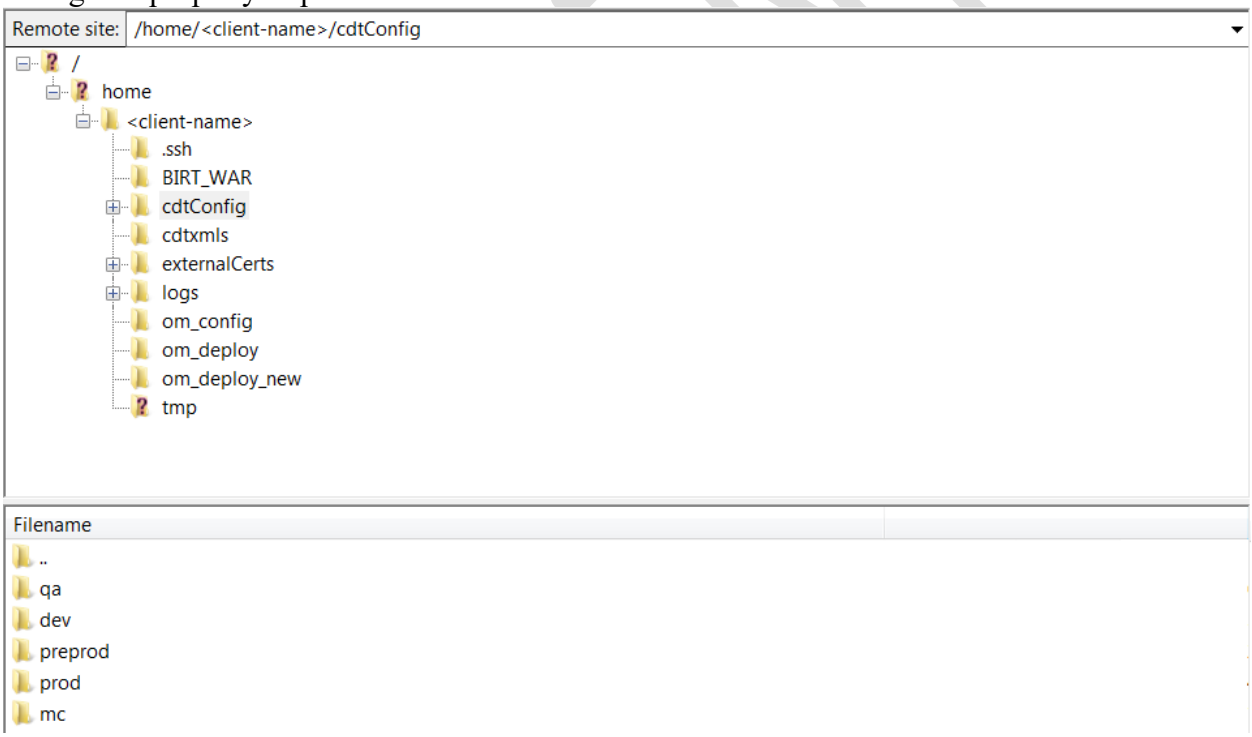
4.2.1. Setup MC Environment

Provision 18.x MC environment

Owner – App Delivery
Run BCR with vanilla 18.x images, no customizations, select appropriate apps.
Deploy OMS with install FC checked and ensure application is up and running.
App Delivery Runbook documentation - https://w3-connections.ibm.com/wikis/home?lang=en-us#!/wiki/W7401ba0aba04_4fd9_9688_89863e0c06ef/page/DevOps%20Run(ing)%20Book

Validate ydkprefs.xml

Owner SI
Ensure 18.x ydkprefs.xml on /home/<client-name>/cdtConfig/<env type> is correct and configured properly as per KC instructions.



Refer to KC documentation
https://www.ibm.com/support/knowledgecenter/SSGTJF/com.ibm.help.omcloud.ucdselfservadmin.doc/tools/t_omc_selfserv_mc.html

Export CDT xmls from 9.4 MC environment

Owner SI

Use the **cdtshell.cmd** command available in the **<INSTALL-DIR>/bin** in the existing 9.x environment to export the CDT xmls from 9.x Master Configuration environment. For details, refer to
https://www.ibm.com/support/knowledgecenter/en/SS6PEW_9.4.0/com.ibm.help.cdt.doc/t_DeployingYourConfigurationDataInCommand-LineMode.html

Add the CDT xmls to dropbox

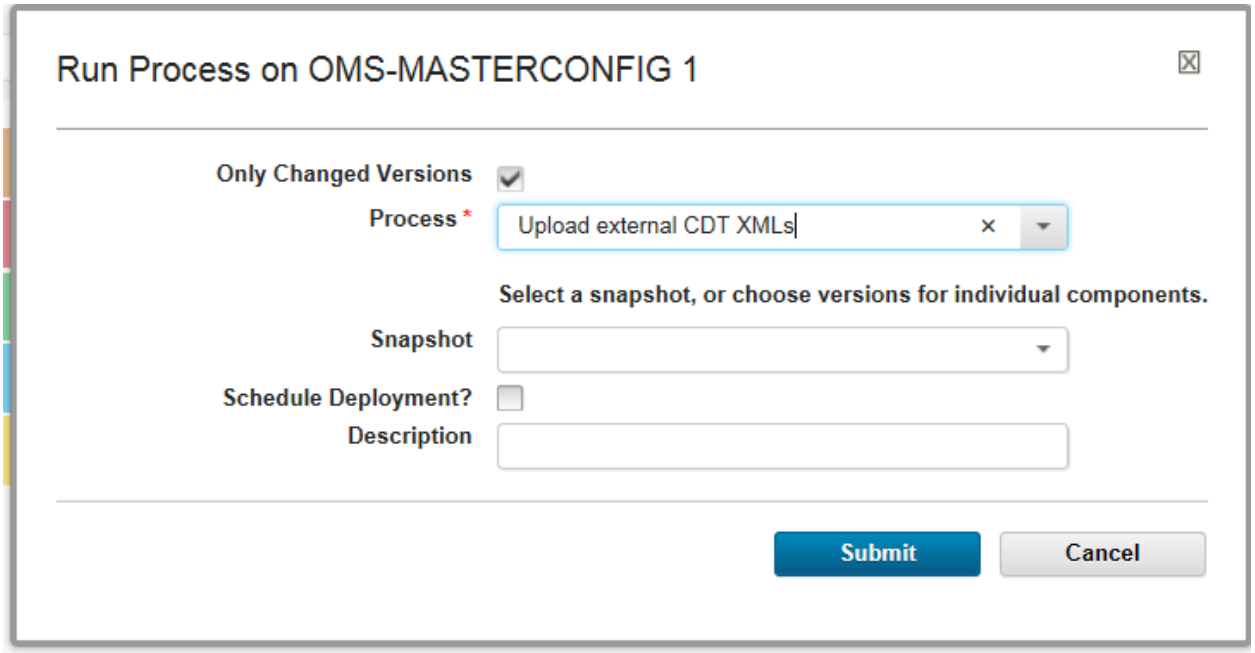
Owner SI
Add the exported xmls on dropbox in location /home/<client-name>/cdtxmls

Refer to KC documentation
https://www.ibm.com/support/knowledgecenter/SSGTJF/com.ibm.help.omcloud.ucdselfservadmin.doc/tools/t_omc_selfserv_mc.html
Note : cdt_metadata.xml file gets generated when you export cdt from 9.4 environment. Please make sure that cdt_metadata.xml is not copied to dropbox before you run Upload External CDT xmls.

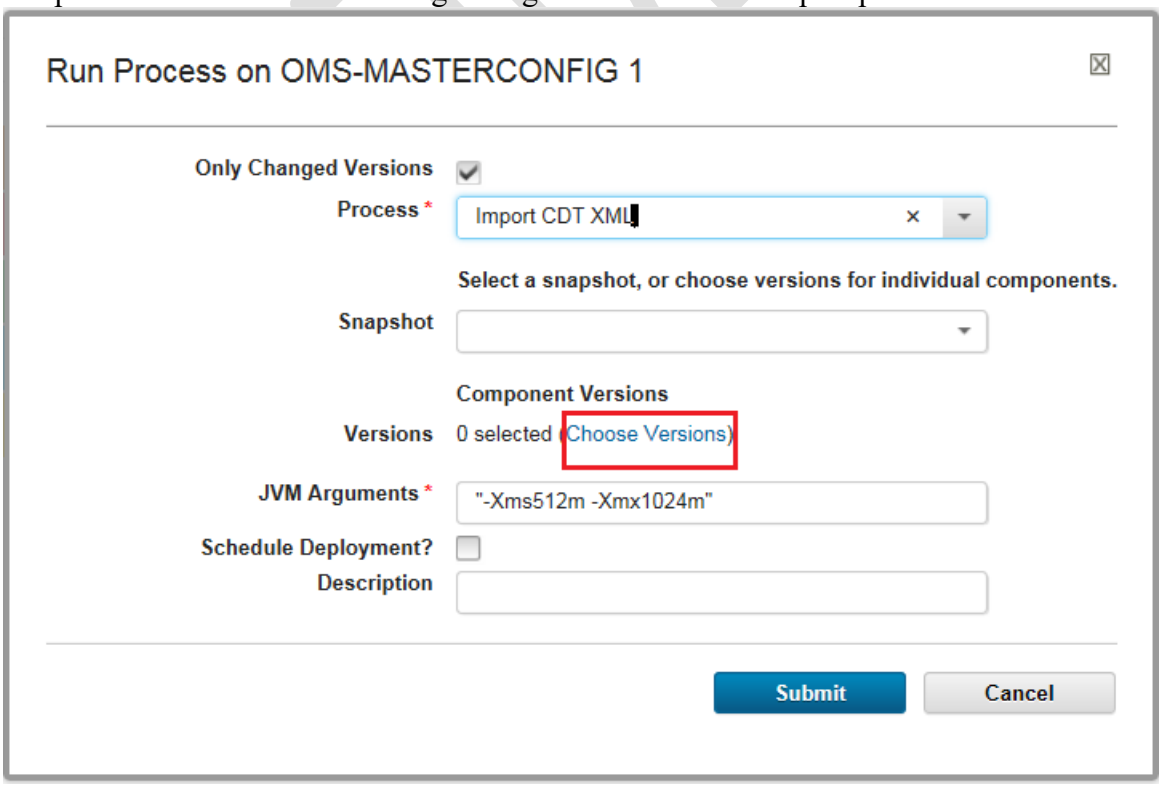
Import CDT xmls (from above) into 18.x MC env

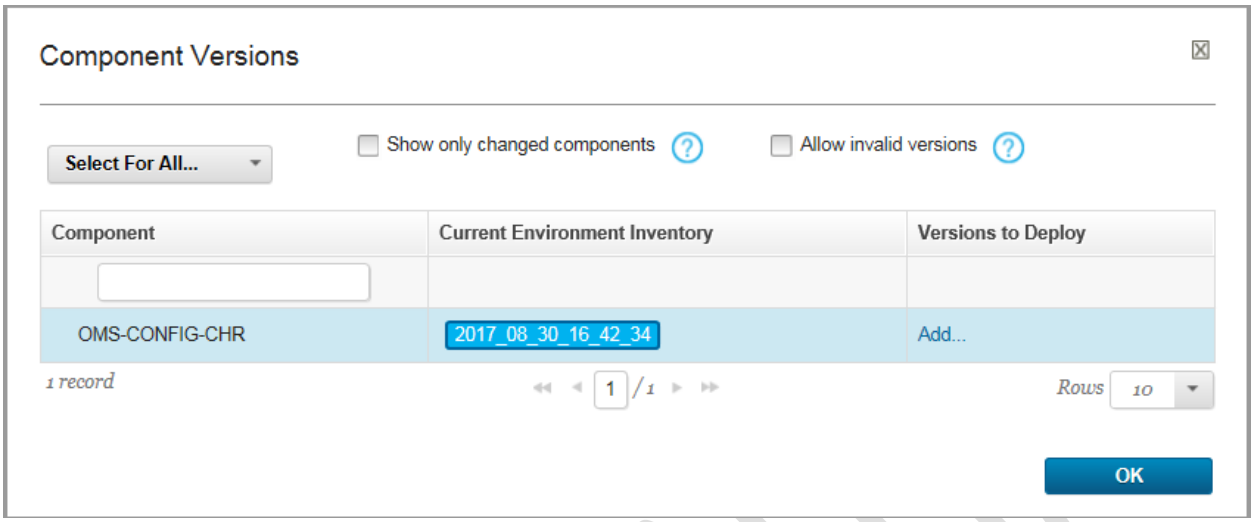
Owner SI
This step requires exporting the CDT (Configuration Deployment Tool) xmls from the 9.x MC instance to a folder location using the UCD tool configured for that version. These xmls can

be loaded to the 18.x instance using the UCD option "Upload external CDT Xmls" by placing the exported 9.4 CDT xmls to **/home/<client-name> /cdtxmls** folder in the dropbox server. This will ensure that the 9.4 xmls are available for importing into the target environment as below –

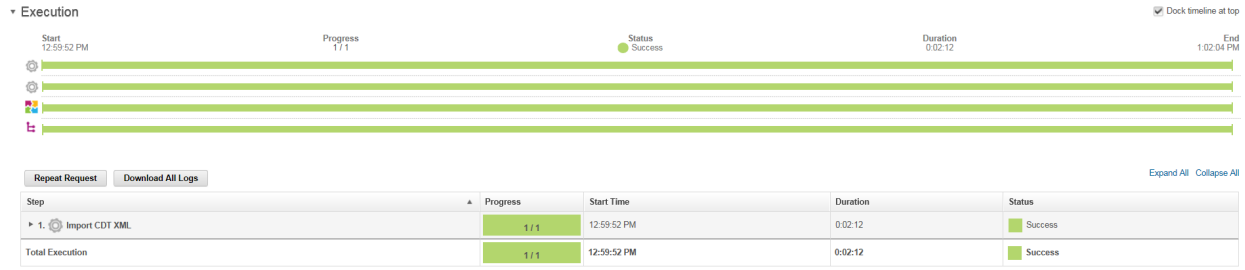


You can see the new version for OMS-CONFIG component.
This is followed by importing the 9.4 CDT xmls into the 18.x MC instance in UCD via the "Import CDT XML" and selecting the right version for the import process as below –





Click on “OK” followed by the “Submit” button. Ensure that the process is successful from the dashboard as below –

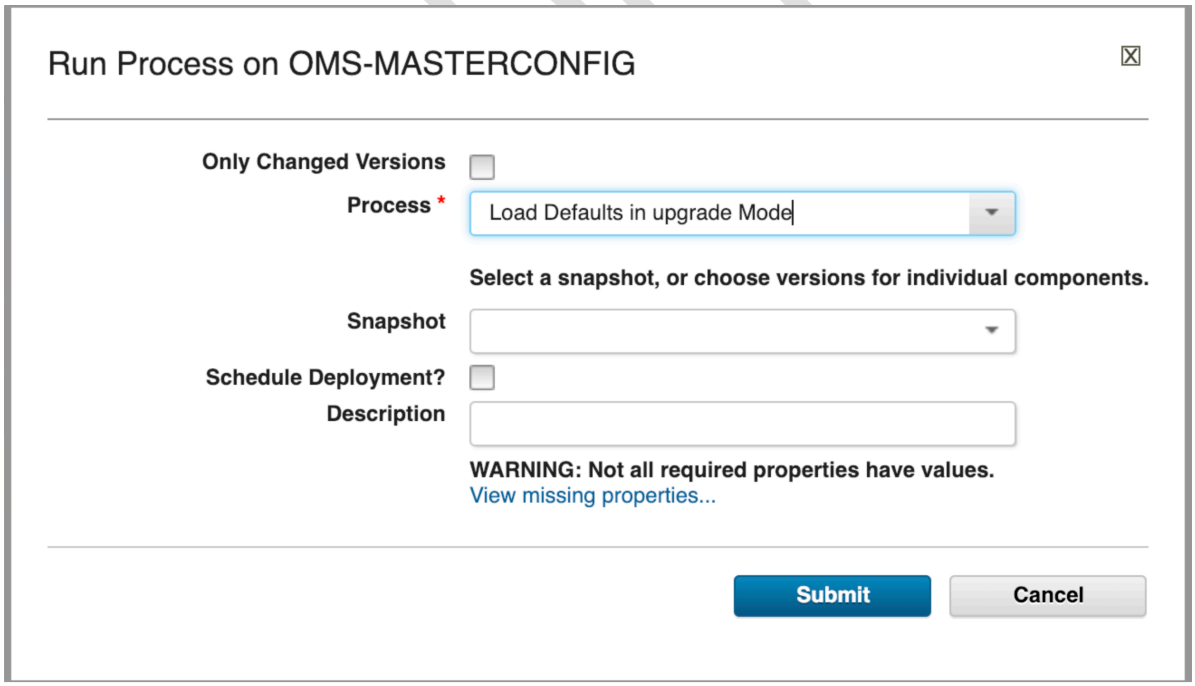


For more details, refer to https://www.ibm.com/support/knowledgecenter/en/SSGTJF/com.ibm.help.omcloud.ucdselfservadmin.doc/tools/t_omc_builddeploy_selfserv_import.html

Load Defaults in Upgrade mode - Owner Ops

After importing CDT XMLs, make sure you load the FC data in upgrade mode. This is done via the UCD tool from the 18.x MC instance and the process to be selected is as shown below.

Note: This UCD process is not exposed for an SI user. SI user needs to request Support or Ops team to run this UCD process.

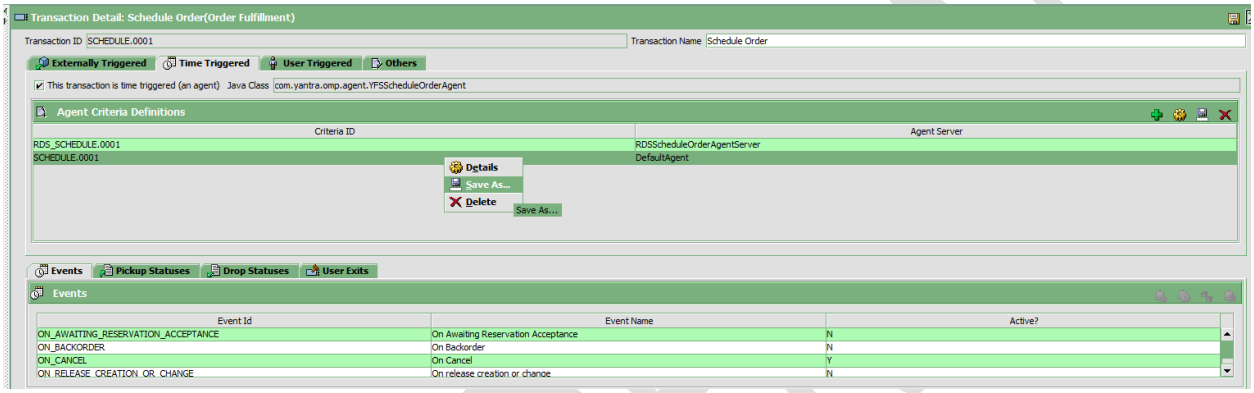


Click on the “Submit” button and ensure that the process is successful.

Redo correct agent configurations

Owner SI

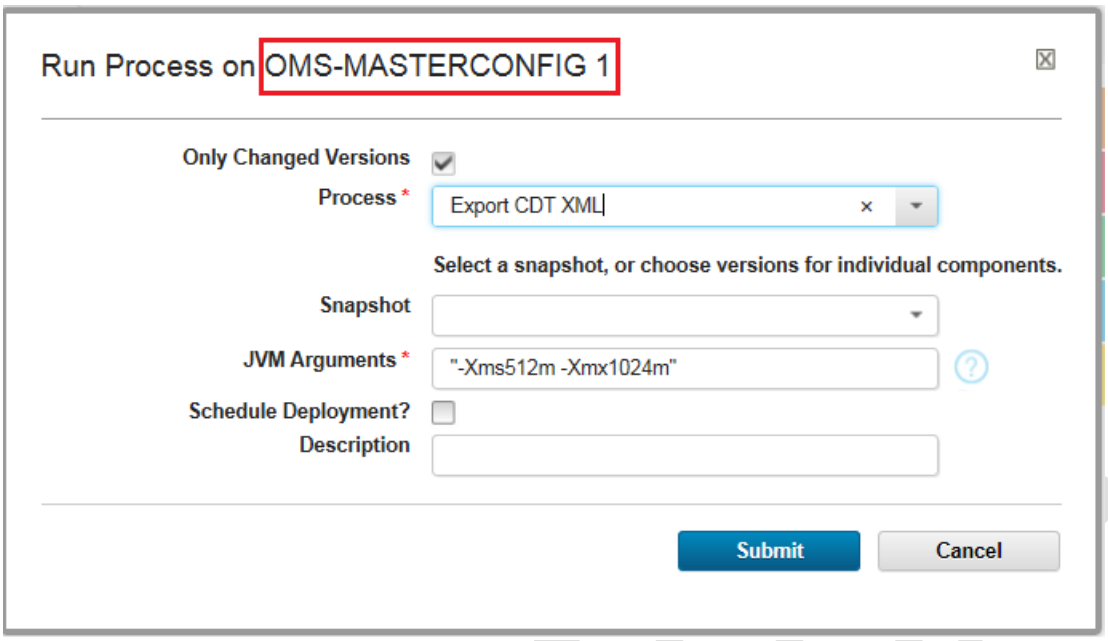
If customer has made any change to sample data for agent criteria, condition, services and transactions then it UCD process 'Update OMS' will wipe it. So, these configurations needs to be redone in MC environments as per recommendation.
Refer to RTC defect for details
https://jazzc01.hursley.ibm.com:9443/ccm/web/projects/SSFS%20On%20Premise#action=com.ibm.team.workitem.viewWorkItem&id=546504
For example, RDS_SCHEDULE.0001 and RDSScheduleOrderAgentServer are the custom entries made in the newly configured 18.x MC as shown below -



After recreating the new configurations, make sure those are tested in non-production environment before cut over phase starts.

Export of CDT from MC - Owner SI

Once configurations are changed as per recommendation, then take an export of CDT xmls from MC env, these configurations will be source of truth for rest of the environments. This is done via the UCD tool from the 18.x MC instance and the process to be selected is as shown below –



Click on the "Submit" button and ensure that the process is successful.

4.2.2. Provision 18.x environment

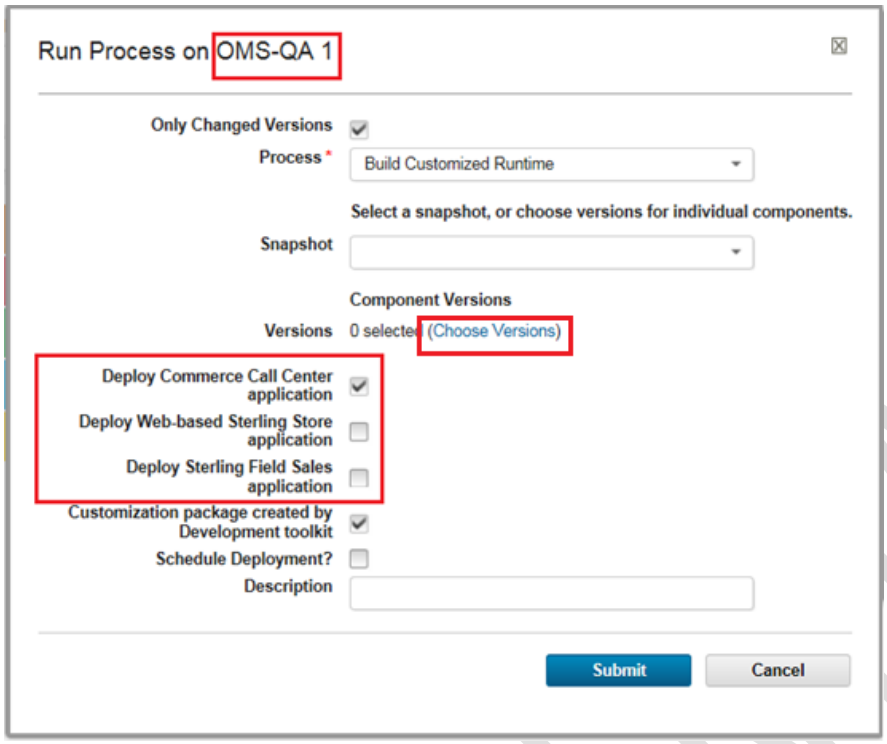
Create new UCD environment for 18.x deployment

Run BCR with vanilla 18.1 images, no customizations, select appropriate apps
Deploy OMS with install FC checked and ensure application is up and running

Deploy custom package on 18.x environment

Run Build Customized Runtime (UCD) with 18.x package

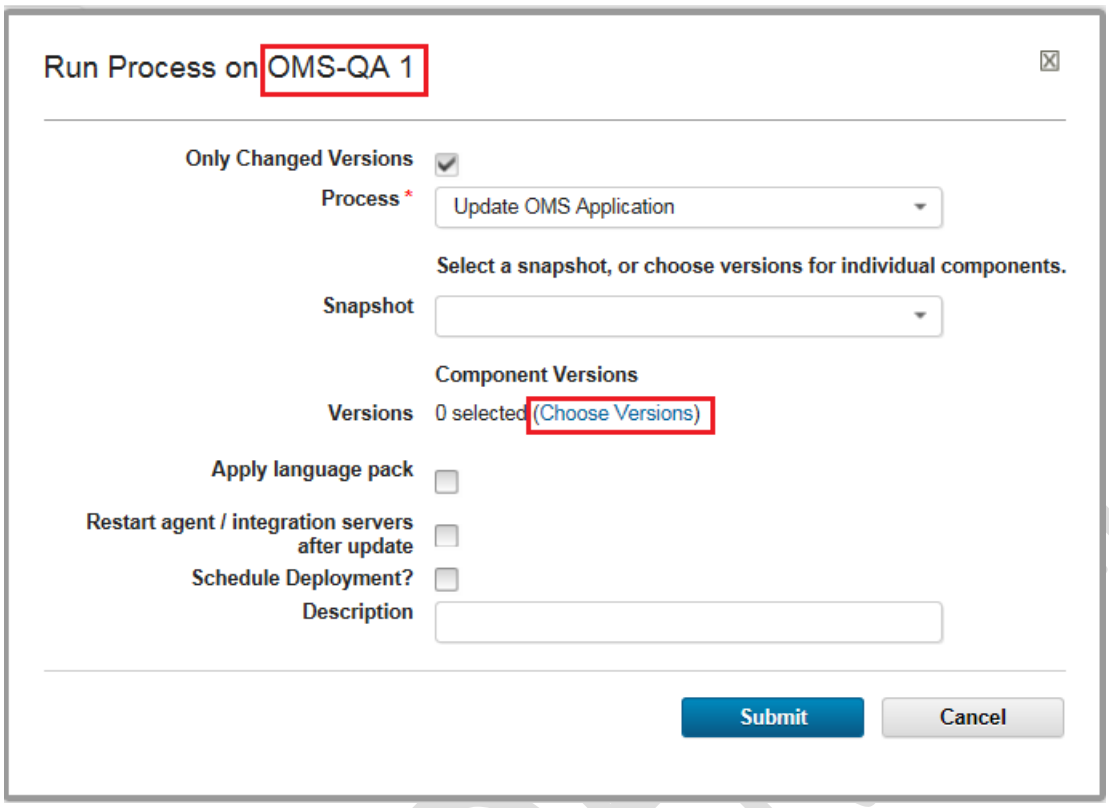
This process in UCD builds the customized runtime component version based on a specified deployable package for the target instance as shown below. Please ensure the additional applications (Call center, Store, Field Sales) are chosen depending on the nature of the implementation and make sure the process is run successfully in the UCD dashboard



Ensure the right version for deployment is chosen based on the extensions.jar exported from the local runtime sandbox to the dropbox folder

Run 'Update OMS' with custom image

This process in UCD deploys a customized runtime component version for updating an application on the target instance. Select the appropriate version and if required, use "import version" from the OMS-CUSTOM-XXX component in case the latest custom extensions.jar are not available in the codestation and click on "Submit" button. Ensure that the process is run successfully in the UCD dashboard.



Restart WAS server instances

Run the process “Restart WAS server”

Ensure application is up and running

Refer to KC documentation
https://www.ibm.com/support/knowledgecenter/SSGTJF/com.ibm.help.omcloud.deploy.doc/installation/t_omc_builddeploy_selfserv_run_deploy.html

4.2.3. Setup data replication from 9.x to 18.x

Open ports for data replication

Owner - Network team
Open Data Replication Engine ports between both the source and the target DB servers.

Open Access Server port in the source DB server to receive remote connections from the client admin computer.

Setup data replication using change data capture tool from 9.x to 18.x database so that customer's data is copied in 18.x database

Owner – DBA

Install IBM Data Replication Engine in both the source and target DB servers.

Install the IBM Data Replication Access Server in the source DB server.

Install the IBM Data Replication's CDC Management Console in the client admin computer.

Configure access to the Access Server from the client admin computer.

Create all the data replication subscriptions in the CDC Management Console.

Start the data replication process by activating all the replication subscriptions in the CDC Management Console.

Refer to documentation
https://www.ibm.com/support/knowledgecenter/SSTRGZ_11.3.3/com.ibm.idr.frontend.doc/pv_welcome.html

Update sequence number on 18.x database based on 9.x

Owner – DBA

Compare the row count between 18.x and 9.x tables and ensure they are same

The attached scripts can be used

Owner – DBA

Stop data replication

Owner – DBA

Truncate SI_VERSION table

Owner - DBA

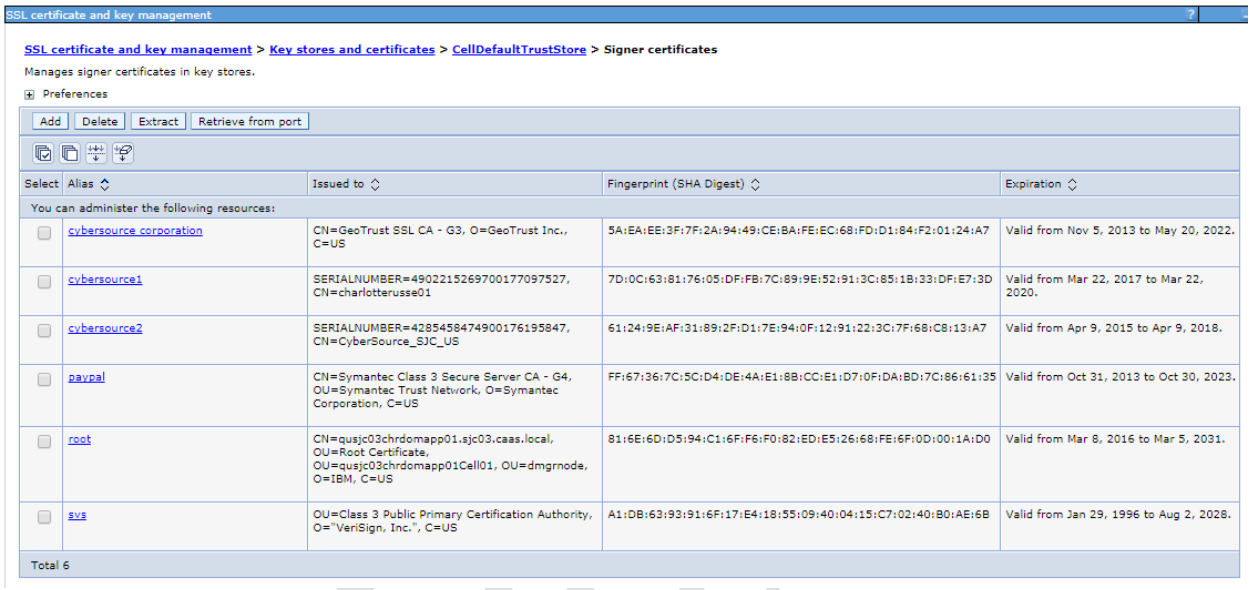
The table SI_VERSION in 18.x instance will have records for 9.4 and hence truncate this table.

4.2.4. Import certificates from 9.x to 18.x

Owner – App Delivery

Export certificates from 9.4 WAS console

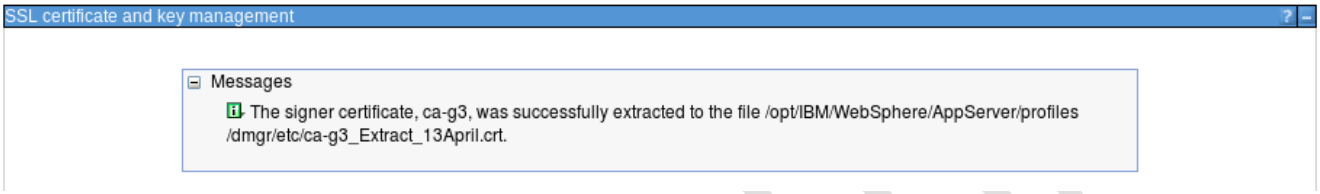
Export certificates from 9.x WAS console by navigating to “SSL certificate and key management > Key stores and certificates > CellDefaultTrustStore > Signer certificates” and choosing the “extract” option for each certificate.



Select each certificate separately and Click on “Extract”

Name certificate file to extract and click on OK

Note location where certificate saved



Export JDK certificates from 9.4 Agent Boxes

Export jdk certs from all 9.x agent machines as user "wasuser" with this script

cert_export.sh

How to execute the script :

Login to agent01 server , switch to wasuser
Create folder - /home/wasuser/JDK_Cert
Create cert_export.sh script at this folder location.
Run the script as below :
$./cert_export.sh /opt/ssfs/runtime/jdk/jre/lib/security/cacerts changeit

The script creates "cert_export" folder where all certificate exported, below is the output of the script

```
[wasuser@pudal09chragtapp01 JDK_Cert]$ ./cert_export.sh /opt/ssfs/runtime/jdk/jre/lib/security/cacerts changeit
Certificate stored in file <./cert_export/digicertassuredidrootca.crt>
Certificate stored in file <./cert_export/trustcenterclass2caii.crt>
Certificate stored in file <./cert_export/thawtepremiumserverca.crt>
Certificate stored in file <./cert_export/swisssignplatinumg2ca.crt>
Certificate stored in file <./cert_export/swisssignsilverg2ca.crt>
Certificate stored in file <./cert_export/equifaxsecureebusinessca2.crt>
Certificate stored in file <./cert_export/thawteserverca.crt>
Certificate stored in file <./cert_export/equifaxsecureebusinessca1.crt>
keytool error: java.lang.Exception: Alias <1156694c=us,> does not exist
Certificate stored in file <./cert_export/utnuserfirstclientauthemailca.crt>
Certificate stored in file <./cert_export/thawtepersonalfreemailca.crt>
Certificate stored in file <./cert_export/entrustevca.crt>
Certificate stored in file <./cert_export/utnuserfirsthardwareca.crt>
Certificate stored in file <./cert_export/certumca.crt>
Certificate stored in file <./cert_export/addtrustclass1ca.crt>
Certificate stored in file <./cert_export/entrustrootcag2.crt>
Certificate stored in file <./cert_export/equifaxsecureca.crt>
Certificate stored in file <./cert_export/quovadisrootca3.crt>
Certificate stored in file <./cert_export/quovadisrootca2.crt>
Certificate stored in file <./cert_export/digicerthighassuranceevrootca.crt>
Certificate stored in file <./cert_export/secomvalicertclass1ca.crt>
Certificate stored in file <./cert_export/equifaxsecureglobalebusinessca1.crt>
Certificate stored in file <./cert_export/geotrustuniversalca.crt>
Certificate stored in file <./cert_export/ics2wsaic3com.2.crt>
Certificate stored in file <./cert_export/ics2wsaic3com.1.crt>
Certificate stored in file <./cert_export/ics2wsaic3com.0.crt>
Certificate stored in file <./cert_export/verisignclass3ca.crt>
Certificate stored in file <./cert_export/thawteprimaryrootcag3.crt>
Certificate stored in file <./cert_export/deutschetelekomrootca2.crt>
Certificate stored in file <./cert_export/utnuserfirstobjectca.crt>
Certificate stored in file <./cert_export/verisignclass2ca.crt>
Certificate stored in file <./cert_export/geotrustprimaryca.crt>
Certificate stored in file <./cert_export/thawtepersonalpremiumca.crt>
Certificate stored in file <./cert_export/baltimorecodesigningca.crt>
Certificate stored in file <./cert_export/verisignclass1ca.crt>
Certificate stored in file <./cert_export/baltimorecybertrustca.crt>
```

Export JDK certificates from 9.4 Integration Boxes

Export jdk certs from 9.x integration machine as user “wasuser” with this script

cert_export.sh

Copy certificates to dropbox

Copy the certs on dropbox at location /home/client-name/externalCerts/envtype
Note – All certificates exported from WAS or jdk need to be copied at one location only in dropbox.

Stop any running agent/integration servers on 18.x

Run Import SSL certs UCD process on 18.x environment

Refer to KC documentation
https://www.ibm.com/support/knowledgecenter/SSGTJF/com.ibm.help.omcloud.ucdselfservadmin.doc/tools/t_omc_selfserv_imp3rdpartycert.html
Note : For 2 way SSL certificates, there are some manual steps to setup truststore in agent jdk.

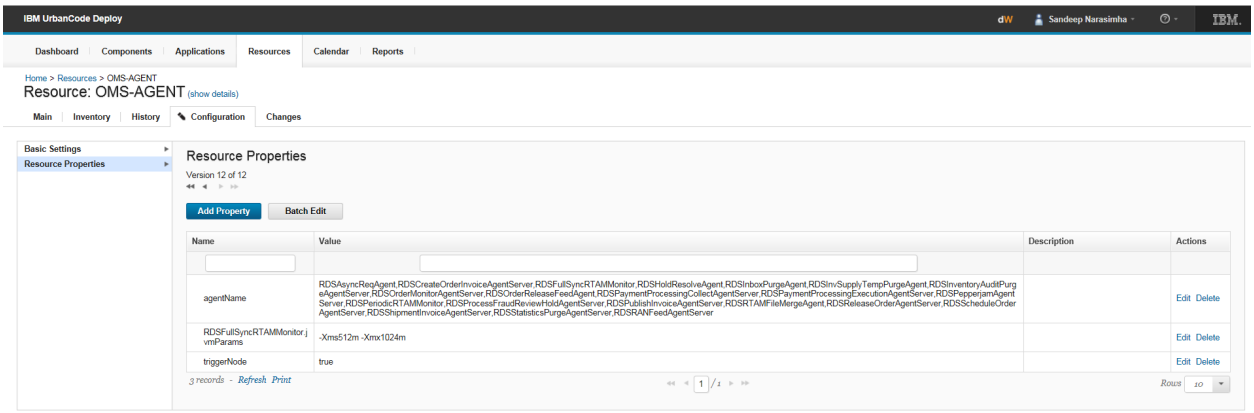
4.2.5. UCD Setup

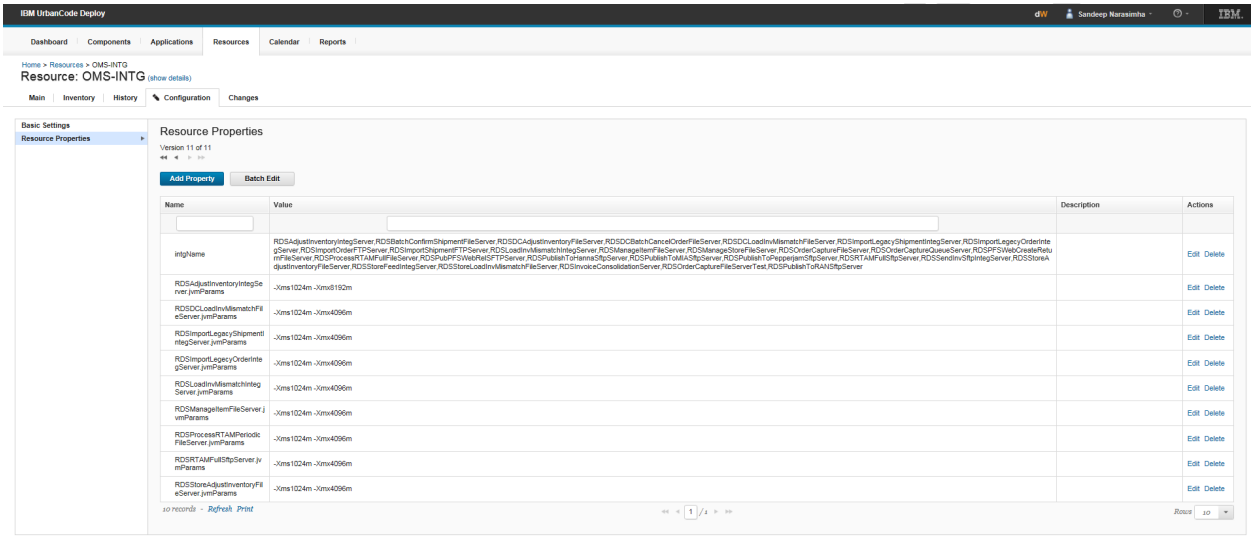
Owner SI

Analyze and configure agent servers along with JVM parameters

Ensure JVM parameters are fine-tuned according to 18.x server memory settings
In CoC v18.x, the UCD Selfserv tool is used to control the Agents and integration servers for the implementation. You need to configure the IBM UCD Selfserv to include the agent names and integration servers on the target environment. If you need to use the IBM UrbanCode Deploy Selfserv tool to trigger agents you must also add trigger nodes to agents.
The details can be found at
https://www.ibm.com/support/knowledgecenter/en/SSGTJF/com.ibm.help.omcloud.ucdselfservadmin.doc/tools/t_omc_selfserv_agentconfig.html

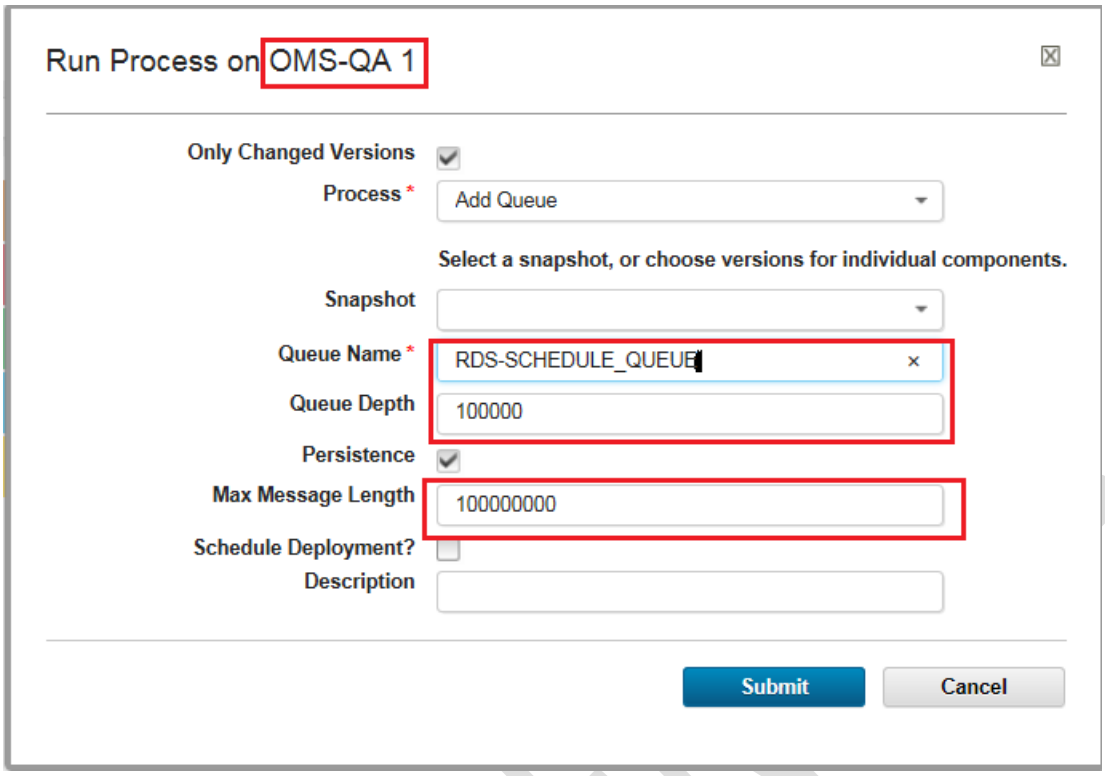
In addition, if there are any specific JVM arguments to be set for these agent/ integration servers, they can be configured using the UCD Selfserv tool as detailed in -
https://www.ibm.com/support/knowledgecenter/en/SSGTJF/com.ibm.help.omcloud.ucdselfservadmin.doc/tools/t_omc_selfserv_agentparam.html
Below are the sample screens in UCD after the above-mentioned agent/ integration servers configurations are completed –





Create MQ queues required for all agents/integration servers using UCD process 'Add Queue'

This step is followed to add queues for the agent message queue and integration message queue components for your IBM Order Management application on the target instance. This is handled via the UCD tool as shown in the below screen –



Click on the "Submit" button and ensure that the process is successful in UCD
Refer to KC documentation
https://www.ibm.com/support/knowledgecenter/SSGTJF/com.ibm.help.omcloud.ucdselfservadmin.doc/tools/t_omc_selfserv_queue.html

4.2.6. Upgrade database to 18.x

Run 'Build Customized Runtime' process

Owner SI
(optional) use the custom image created earlier
Refer to earlier section and re-execute the 'Build Customized Runtime' process.

Run Update OMS to upgrade db to 18.x

Owner SI
Refer to earlier section and re-execute the 'Update OMS' process.

(Optional) Compare the row count between 18.x and 9.x tables and ensure row counts are good

Owner - App Delivery/DBA

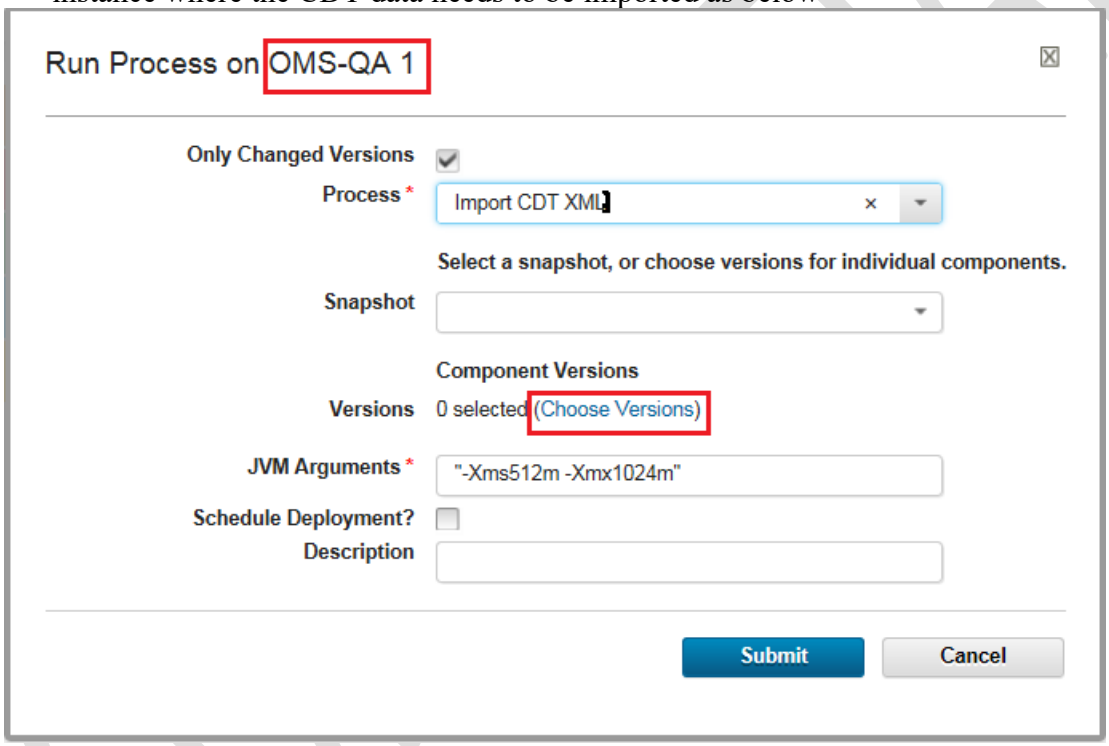
4.2.7. Update configurations on 18.x QA/Dev from MC env

Ensure ydkprefs.xml on /home/<client-name>/cdtConfig/<env type> is correct and configured properly

Owner SI
Refer to section section 2.1.7 and re-execute the 'Export CDT xml' process to export the CDT xmls from 18.x MC

Run Import CDT xmls from MC to QA/Dev

Owner SI
The CDT data from the 18.x MC imported in the previous step, needs to be imported into the target instance. This is again handled via the UCD tool by selecting the appropriate instance where the CDT data needs to be imported as below –



Click on the "Choose Versions" to select the right exported version as mentioned in the earlier section (if required, use "import version" from the OMS-CONFIG-XXX component in case the latest CDT xmls are not available in the codestation) and click on the "Submit" button. Ensure that the process is run successfully in the UCD dashboard.

(Optional) Compare the row count between 18.x and 9.x tables and ensure row counts are good

Owner - App Delivery/DBA

Start 18.x agent/integration servers

Refer to KC documentation
https://www.ibm.com/support/knowledgecenter/SSGTJF/com.ibm.help.omcloud.ucdselfserv.doc/tools/c_omc_builddeploy_selfserv.html

4.2.8. Sanity test functional flows

Basic testing to verify application health

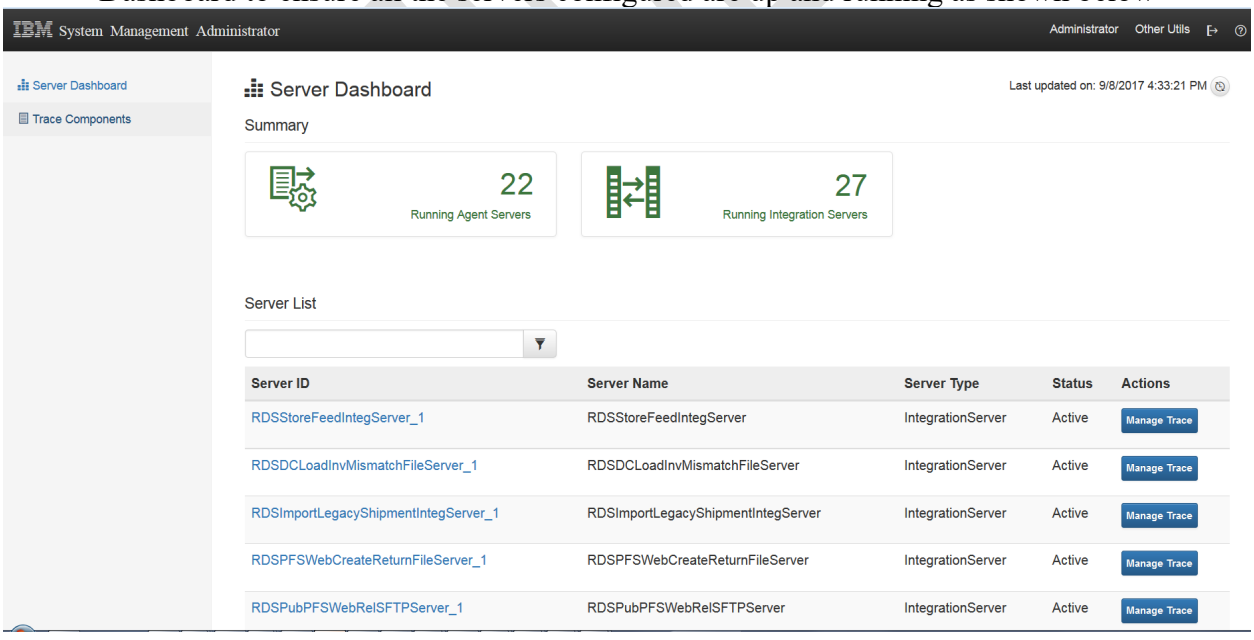
Run UCD process "Deployment Sanity test" to ensure that health of all UIs, database, MQ etc is good.

Basic testing around Order creation/Inventory sync/Invoicing

Basic testing using API Tester/ HTTP REST API Tester/ OM Console to validate the customization needs to be performed. These need not be elaborate but minimal ones to ensure the connectivity with the third-party systems/ interfaces are validated and the intention is to perform basic smoke-testing to confirm the accessibility/usability of the environment.

Verify agent and integration servers are running without any errors

This is done by logging into the SMA application and navigating System → Server Dashboard to ensure all the servers configured are up and running as shown below –



Sanity test UI customizations

Ensure UI customizations are validated and look good across the application by navigating to different screens.

4.3. Phase 3 - Cutover - Switch traffic

Production environment readiness

Production environment should be deployed
Import 3rd party certificates from 9.4 to 18.x , follow instructions as mentioned in above topic
Ensure connectivity b/w any existing sftp server and 18.x servers is working, both inbound and outbound
Identify plans to use existing domain or new domain for 18.x production environment. Network engineer needs to be aware of this request.

Pre Cut over tasks

Ensure that elaborate testing of all flows is completed in Pre production and any issues wrt configuration data etc are revealed before cut over starts.
The elaborate testing should include testing all functional flow wrt clients business including order/inventory/payment/pricing/shipment flows.
Ensure all third party integration flows are tested in Pre production.
Ensure all customization related flows are tested in Pre production.
Ensure all agents/integrations servers are tested in Pre production.

Cut over tasks

- Shutdown 9.4 Prod Env/Processing
    - All incoming messages should be cleaned up
    - IBM disables any 9.4 Prod processing.
- Stop data replication from 9.4 to 18.x
- Review Data Replication report (database row count check) to ensure all data is replicated
- Truncate SI Version table on 18.x database
- Update DB Sequences in 18.x
- Run BCR with customization Jar which is already tested in Pre prod
- Run “Update OMS ” on 18.x to update the database
- Run “Import CDT” to ensure that configurations from MC env are imported to Prod
- Start Application server and MQ QMGR
- Update DB Properties using SMA ?? which properties
- Update SFTP Component with password ??
- Start 18.x Agents and Integrations servers
- Run UCD process for deployment sanity test
- Client updates IBM endpoints in third party integrations
- SI start testing
- Client start testing
- Reroute All inbound traffic to 18.x Prod Env

5. Fallback Plan

Since this is not an in place migration so fallback plan is straightforward.
Stop 18.x agent/integration servers
Stop 18.x WAS server
Stop 18.x QMGR
Start 9.x agent/integration servers
Start 9.x WAS server
Start 9.x QMGR
Sanity test 9.x environment
Incase there is any traffic flowing client's third party servers to 18.x servers and it calls for network changes then take care of it. – Network team
Incase there is an issue with migration and it cannot be completed during cutover period then plan to rectify the issue and redo the migration at some future point

6. Network tasks

Provide new domain name to all 18.x environments
Ensure connectivity b/w any existing sftp server and 18.x servers is working, both inbound and outbound
Open ports for data replication

7. References

- 18.x documentation overview page

  https://www.ibm.com/support/knowledgecenter/en/SSGTJF/landing/welcome.html
- 9.4 documentation overview page

  https://www.ibm.com/support/knowledgecenter/SS6PEW_9.4.0/om_maps/om94_welcome.html
- RTC project to log App delivery tasks

  https://ecdrtc.canlab.ibm.com:9950/ccm/auth/authrequired
- How to request access to RTC project to log App delivery tasks

  Log a request on https://idman.canlab.ibm.com/access/
  Search for system "CoC App delivery" and select below system

◯	RTC - CoC App Delivery	This system controls access to the CoC App Delivery Project Area on https://ecdrtc.canlab.ibm.com:9950/ccm

- How to access application url via jumphost

  
  Accessing URL via jumphost.doc

- Environment access

  https://www.ibm.com/support/knowledgecenter/SSGTJF/com.ibm.help.omcloud.getstart.doc/productconcepts/c_omc_environment_access.html
- Export application logs for troubleshooting

  https://www.ibm.com/support/knowledgecenter/SSGTJF/com.ibm.help.omcloud.ucdselfservadmin.doc/tools/t_omc_selfserv_exportlog.html
- Cognos Reporting tool

  https://www.ibm.com/support/knowledgecenter/SSGTJF/com.ibm.help.bi.opreports.doc/operationalreports/c_FND_BIG_FoundationOperationalReportsParent.html
- Data extract feature

  https://www.ibm.com/support/knowledgecenter/SSGTJF/com.ibm.help.omcloud.dataext.doc/tools/c_omc_dataextract.html
- UCD self serve processes

  https://www.ibm.com/support/knowledgecenter/SSGTJF/com.ibm.help.omcloud.ucdselfserv.doc/tools/c_omc_builddeploy_selfserv.html
- Agent Server Dashboard

  https://www.ibm.com/support/knowledgecenter/SSGTJF/com.ibm.help.omcloud.servdash.doc/tools/c_omc_server_dashboard_parent.html

- Opening service request with IBM Support

https://www.ibm.com/support/knowledgecenter/SSGTJF/com.ibm.help.omcloud.troubshoot.doc/troubleshooting/t_omc_support_contact.html

- Database Query Client

  https://www.ibm.com/support/knowledgecenter/en/SSGTJF/com.ibm.help.omcloud.custom.doc/customization/c_databaseaccesstool.html

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