Software Content Repository Tool 4.0 Guide

Software Content Repository Tool 4.0

vCenter Configuration Manager 5.6

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About This Book

The *VMware vCenter Configuration Manager Software Content Repository Tool Guide* provides information on the following topics.

- Prepare the host machine for components and tools.

- Install and configure components and tools.

- Use the tool to download patch content.

- Troubleshoot errors that might occur.

Intended Audience

This document contains information intended for system administrators who must patch machines in their network.

To use the information in this book effectively, you must have a basic understanding of how to configure network resources. You also must fully understand your network's topology and resource naming conventions.

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Introduction to the Software Content Repository Tool

The Software Content Repository (SCR) Tool is a standalone Java client software application that builds a repository of Linux and UNIX patches and automatically downloads operating system (OS) vendor patch content to the repository.

The SCR Tool downloads patch content from vendor Web sites, which you use to patch Linux and UNIX machines. These files include patch signature files (`.pls`), and OS vendor patch content files (`.rpm`, `.gz`, `.tar`, `.zip`) used in the patching background processes. Deploy package files (`.plp`) are included and used for patch deployment on Mac OS X. The `.plp` files contain the vendor patch, which is extracted based on the properties file settings.

You run the SCR Tool on a Red Hat machine and use the VCM Patching functionality in VMware vCenter Configuration Manager (VCM) to deploy patches to the VCM-managed machines.

To ensure that all patch dependencies are met when VCM deploys the patches, the SCR Tool downloads all of the necessary patches, except for patches that have been superseded. VCM Patching handles all the dependencies when the patches are deployed. If the patch was available when the SCR Tool was installed and configured, the patch downloads. If the patch was not available, or the SCR Tool was last run, the patch will not be available. If the patch is still available from the OS vendor, it will be available for download using the SCR Tool patch replication process.

The SCR Tool is not used to run patch assessments or deployments. The SCR Tool also does not assess the machine configuration or the downloaded patch content that is used for patch deployment.

The SCR Tool downloads the patch signature files and OS-vendor patch content from the Content Download Network (CDN), and downloads subscription-only content from the OS Vendor Content Web sites. The patches must be accessible to the VCM-managed machines through an NFS mount to the repository on the machine that hosts the SCR Tool. For a diagram of the components and workflow, see .

Figure 1–1. How to Downloads Patches with the SCR Tool
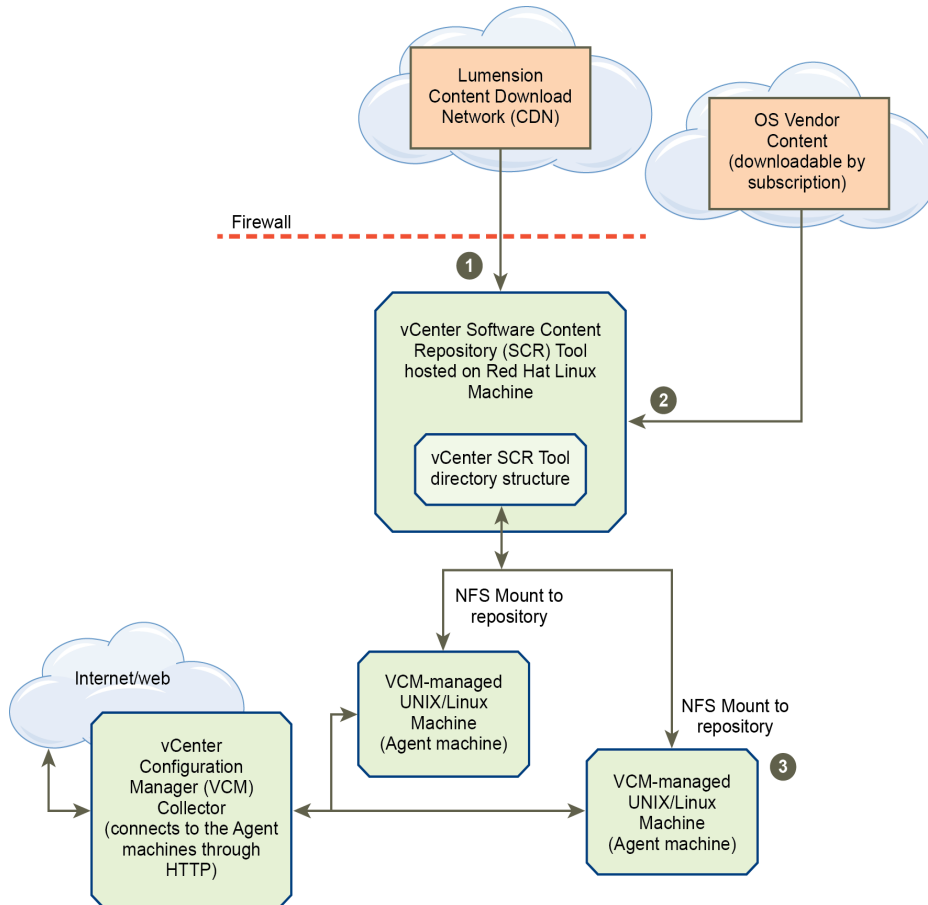
After you download patches from the vendor Web site, you must use VCM to assess your Linux and UNIX machines and deploy the patches using the machine group mapping in VCM Patching. For information about assessments, see the VCM Administration Guide and the VCM online Help.

Preparing for SCR Tool Installation

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Before you install the SCR Tool, you must complete several prerequisite tasks.

This chapter includes the following topics:

Install the VCM Agent on the Machines to be Managed

To obtain UNIX and Linux patches for deployment, VCM-managed machines connect to the machine that hosts the SCR Tool using an NFS mount. VCM Patching is used to deploy the patches to the managed machines.

The VCM-managed machines that can connect to the machine that hosts the SCR Tool include Solaris, Red Hat, HP-UX, AIX, SUSE, and Mac OS X.

Prerequisites

- Verify that your platforms meet the system requirements. System requirements for all platforms are described in the *VCM Installation Guide*.

- Review the Agent installation procedures in the *VCM Administration Guide*.

Procedure

- Install the VCM Agent on the platform as described in the *VCM Administration Guide*.

Select and Prepare the Host Machine

The SCR Tool can be installed on a 32-bit or 64-bit Red Hat Enterprise Linux AS/ES machine running version 4, or on a 32-bit or 64-bit Red Hat Enterprise Linux machine running version 5 or 6. If you install the tool on a 64-bit machine, you must ensure that 64-bit Java is installed.

After the host machine meets all of the requirements, the machine can run as a guest in a virtualized environment.

IMPORTANT   The host machine must be used exclusively to run the SCR Tool and serve as the patch repository.

To download content for each supported platform to support patch deployment, the minimum recommended storage is 810GB. Estimated storage requirements are as follows.

Table 2–1. Host Support for Patch Storage on Platforms

Supported Platform	Minimum Storage Required for Patch Content Files and Payload
AIX	130GB
HP-UX	15GB
Mac OS X	210GB
Red Hat *	70GB
Solaris	325GB
SUSE	60GB

* Red Hat 3 content is no longer available for bulk download from Red Hat. If you need Red Hat 3 content, manually download the patches you need and place them in the `getPackage` directory or copy them from the existing SCR 2.0 payload directories. You need the `.rpm` files for Red Hat 3, but you do not need the `.pls` and `.plp` files.

Procedure

1. Select a 32-bit or 64-bit Red Hat Enterprise Linux machine to use as the host for the SCR Tool.

2. Remove any non-Oracle Java versions.

3. Verify that the host machine has Internet access.

4. Verify that the host machine has adequate storage to download content for each supported platform to support patch deployment to all of the platforms.

5. Verify the version of the Oracle Java Runtime Environment.

   If you are installing on a 32-bit machine, verify that the host machine has Oracle Java Runtime Environment (JRE) version 1.6 or later installed, 32-bit only.

   If you are installing on a 64-bit machine, verify that the host machine has Oracle Java Runtime Environment (JRE) version 1.6 or later installed, 64-bit only.

6. Ensure that your JAVA_HOME and PATH environments are set to the correct Java instance.

   For example, `export PATH=/usr/java/jdk1.6.0_24/jre/bin:/usr/local/bin:/bin:/usr/bin:/usr/local/sbin:/usr/sbin:/sbin` and `export JAVA_HOME=/usr/java/jdk1.6.0_24/jre`.

7. Verify that the host machine has Oracle Java Cryptography Extension (JCE) Unlimited Strength Jurisdiction Policy Files corresponding to the JRE version installed.

   The JCE is required for the encryption of credentials to the OS vendor sites.

8. If you are downloading Red Hat content, ensure that the Red Hat Network (RHN) Management and Update entitlements are available and associated with the credentials so that SCR can download the RHN content.

9. Verify that the host machine has sufficient memory for the replicated files.

   Linux files require up to 2GB of memory. All other platforms require 1GB by default.

10. Allow additional memory for the overhead of host OS operations, which vary depending on your environment.

As the patch content increases due to downloads and storage of patch content files and payload, monitor the available disk space on the host machine to avoid disk space issues. The content to be stored grows over time as new patches and content is released.

Verify that your platforms meet the system requirements. System requirements for all platforms are described in the *VCM Installation Guide*.

Establish User Credentials

To download OS-vendor subscription-only content for Red Hat, Solaris, SUSE, and HP-UX machines, you must establish user credentials to the OS vendor sites.

Procedure

1. Contact the vendor to obtain a subscription to patch content.

2. Establish your login and password to the vendor site.

Ensure Access to External Sites

You must ensure that the SCR Tool can access the sites from which it will download patches and payload.

Depending on the platform supported, the SCR Tool must have access to the following sites.

Table 2–2. Access from SCR Tool to External Sites

Platform	SCR Tool must Access
All platforms	`*http://configuresoft.cdn.lumension.com/configuresoft`
	`*http://novell.cdn.lumension.com/`
	`*https://a248.e.akamai.net/f/60/59258/2d/`
Red Hat	`http://xmlrpc.rhn.redhat.com/XMLRPC`
SUSE	`https://you.novell.com/update/`
	`https://nu.novell.com/repo/$RCE/`
Solaris	`https://getupdates.oracle.com/`
HP-UX	`https://itrc.hp.com/service/`
	`https://ftp.itrc.hp.com/wpsl`

* For sites that are hosted by Akamai, use the URL instead of the resolved IP address. Sites hosted by Akamai might change IP addresses based on location.

Installing the SCR Tool

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This information provides instructions on how to install the SCR Tool.

This chapter includes the following topics:

To support the patch file and payload downloads and storage, and patch deployment, you must install and test the required software.

- SCR Tool software

- Java Runtime Environment

- (Optional) Java Cryptography Extension

Install the SCR Tool Software

You must install the Software Content Repository Tool software on the host machine.

Prerequisites

Complete the preparatory tasks. See <u>"Preparing for SCR Tool Installation" on page 9</u>.

Procedure

1. Access the Download VMware vCenter Configuration Manager Web site at <u>http://downloads.vmware.com</u>.

2. Click VMware vCenter Configuration Manager.

3. Select the **Drivers & Tools** tab.

4. Click **VMware vCenter Configuration Manager - Tools** for 5.5 or later.

5. In the Components section, click **Show Details** and verify that the version of the Software Content Repository Tool is 4.0.

6. Click **Download**.

7. Unzip the SCR Tool files from `SCR-4.0-vmware-linux.tar.gz` to the directory where the application files will reside on the host machine.

   The default installation directory is `SCR-4.0`.

After you extract the SCR Tool files, a root directory is created that contains subdirectories and files for the supported UNIX and Linux platforms. This guide refers to the root directory as `<scr_root>`.

Download the Java Runtime Environment

You must download the Java Runtime Environment (JRE) to the machine that hosts the SCR Tool.

Prerequisites

Access to http://www.java.com.

Procedure

1. On the Java Web site, click **Download**.

2. Locate and install Java Runtime Environment (JRE) version 1.6 or later.

   Use the platform-specific link to display detailed installation instructions for your platform.

Test the Java Runtime Environment Installation

You must test the Java Runtime Environment installation on the Red Hat host machine.

Prerequisites

Access to http://www.java.com.

Procedure

1. On the Java Web site, search for the Help article titled "How do I test whether Java is working on my computer?"

2. Verify that the JRE is installed.

3. (Optional) Open a terminal session on the host machine and run the following command to display the currently installed version of Java: `java -version`.

Download and Install the Java Cryptography Extension

The Java Cryptography Extension (JCE) is required only for HP-UX, Red Hat, Solaris, and SUSE. Use JCE if you need to encrypt passwords when you use third-party credentials in the properties files that are used to download patch content.

You must download and install the Java Cryptography Extension (JCE) installation on the host machine.

IMPORTANT If multiple Java SE (Standard Edition) Development Kit (JDK) or JRE installations exist on the same machine, make sure you update the correct JDK or JRE instance.

Prerequisites

Ensure access to the Java SE downloads page located at http://www.oracle.com.

Procedure

1. On the Oracle Web site, locate the Jave Cryptography Extension.

   If the download page does not automatically detect your Java version, you must manually locate the correct JCE package.

2. In the JCE zip file, locate `README.txt`.

3. Follow the instructions in the `README.txt` to install the JCE.

Configuring the Host Machine

4

Configuring the Red Hat machine to host the SCR Tool involves several tasks. This information provides instructions on how to configure the host machine.

This chapter includes the following topics:

Review the Directory Structure

Verify that the subdirectories exist in the SCR root directory. The subdirectories are created and organized based on platform type and payload.

Because the execution of the replications is based on relative paths under the root directory, you can modify the root directory name.

To determine which `.pls` files to use for patch assessments, the SCR Tool processes the file named `VMware4.xml`, which contains the `.lst` files used in the assessments.

IMPORTANT Do not delete the patch signature (`.pls`) files. These files are used to confirm whether the patches are available. Patch signature files are stored in the platform subdirectories defined by the property parameter `<SCR_output_folder>`.

The SCR Tool downloads content based on the schedule you establish. After the SCR Tool downloads the content from the Content Download Network (CDN), the individual payload directories must contain the patch content.

Procedure

1. Open the SCR Tool root directory.

   The default root directory is named `SCR-4.0`.

2. In the subdirectory for each platform, verify that the `.pls` files are stored in the directories.

   The subdirectories include `./aix`, `./hpux`, `./osx`, `./redhat-nca`, `./solaris`, and `./suse-nca`. The `<platform>-nca` directories indicate new content architecture directories that have alternate locations.

3. In the `payload` directory, verify that the subdirectories contain the platform vendor patch files and the `.plp` files.

   The new content architecture places some patches in alternate locations.

Patches	Location
Red Hat	RedHat/getPackage/
SUSE	SUSE/rpm/

4. In the payload directory, verify that the Mac OS X payload folders contain only `.plp` files. These files embed the vendor patches.

   If `extractOSX=true` is defined in the properties file for Mac OS X, the physical vendor patch appears.

Grant Permission to the Repository

To access and update the properties files, the host machine must have execute permission for all of the repository application files. You run a command on the host machine to grant this permission.

Procedure

1. From the host machine `<scr_root>` directory, open a terminal session.

2. Change to the SCR root directory and run `chmod -R a+x **/*`.

3. Change the working directory to `<scr_root>/bin`.

Update the Properties Files

The properties files are used during the download process to determine how to replicate the patch content on the SCR machine for each platform.

The properties files contain user credentials and environment settings that the SCR Tool uses to download the patch content for each supported platform.

The format for the properties file names is `<platform>-rt.properties`.

Each downloaded replication file requires between 512MB of RAM (minimum) and 2GB (maximum).

Prerequisites

Use the information in the properties file parameters to update the properties files. See <u>"Properties file Parameters" on page 17</u>.

Procedure

1. Access the directory named `<scr_root>/conf` and locate the UNIX and Linux properties files.

Platform	Properties File Name
Red Hat	`<scr_root>/conf/redhat-rt.properties`
AIX	`<scr_root>/conf/aix-rt.properties`
HP-UX	`<scr_root>/conf/hp-rt.properties`
SUSE	`<scr_root>/conf/suse-rt.properties`
Solaris	`<scr_root>/conf/solaris-rt.properties`
Mac OS X	`<scr_root>/conf/osx-rt.properties`

2. Create an encrypted password.

   a. At the `<scr_root>/bin` directory prompt, type `# ./lumension_encryptor_tool.sh`.

      The encryptor tool returns the string, "MyPassword".

   b. Enter your password twice, and ignore any strings returned by the encryptor tool.

   c. When the encryptor tool returns the encrypted password string, copy the string into the encrypted password field in the `<scr_root>/conf/<platform>-rt.properties` file.

      `pwd=<encryption_string>`

      `user=<user_name>`

What to do next

- Update the properties file parameters for the platforms you are patching. See <u>"Properties file Parameters" on page 17</u>.

- For information about automating a process to run the scripts by using OS schedulers, such as `cron` or `at`, see <u>"Managing Patch Content with the SCR Tool" on page 25</u>.

Properties file Parameters

Use the properties file parameters to customize the download process that replicates the patch content on the SCR machine. Use the following parameters.

- `platform=<platform_name>`

  The `platform` parameter specifies the patch content to be downloaded.

- `arch=<arch_type1>,<arch_type2>,...`

  The `arch` parameter must include one or more valid architecture string for the specified platform. Multiple values must be comma separated without spaces.

- `dist=<distribution_name>`

  For Red Hat and SUSE platforms, the `dist` parameter is also required. Multiple values must be comma separated without spaces.

Table 4–1. Property Parameters for Platforms, Distributions, and Architecture

platform	dist	arch
AIX		POWERPC
HP_UX		PA_RISC, ITANIUM
OSX		X86,PPC
LINUX	REDHAT	X86,X86_64
LINUX	SUSE	X86,X86_64
SOLARIS		X86,SPARC

- `folder=<SCR_output_folder>`

  Defines the root folder where the SCR Tool output is stored. By default, this folder is `/tmp/SCR/download`. The SCR Tool automatically creates the subdirectory tree under the root output folder.

  - The platform architecture directory `<SCR_output_folder>/<platform>/<architecture>` contains the `.pls` files.

  - The payload platform architecture directory `<SCR_output_folder>/<payload>/<platform>/<architecture>` contains the patch content files, such as `.plp`, `.zip`, `.rpm`, `.htm`, and `.jar` files.

- `keyfile=<string >`

  Do not modify.

- `key=<string>`

  Do not modify.

- `index=VMware4.xml`

  Do not modify.

- `program="."`

  Do not modify.

- `extractOSX=<true or false>`

  For the Mac OS X platform only. If the value is true, PLP files for the Mac OS X content are extracted. When executed, this parameter specifies to extract the embedded `.dmg` vendor patch files from the corresponding `.plp` files. When used with any other platform, this parameter has no effect.

- `thirdparty=<true or false>`

  Set the value to true to support third party downloads for Red Hat, Solaris, and SUSE.

  SCR first attempts to download payload from Lumension's CDN. If the patch is not found in the CDN, SCR downloads it from the vendor Web site, such as Red Hat, SUSE, or Solaris, using the credentials provided in `user` and `pwd`.

- `user=<string>`

  User ID for third party vendor downloads, such as Solaris or HP UX.

- `pwd=<string>`

Encrypted password for the third party vendor downloads. This password is generated using the `lumension_encryptor_tool.sh` script.

- `configlog=<config_log_file_path/filename.log>`

This parameter specifies an output file, which contains a list of parameters and values. These values reflect the parameter configuration used during the last or current execution of the SCR Tool, and can be used to troubleshoot problems.

- `checkPayload=<true or false>`

Enables the SCR Tool to audit and verify payload content for `.pls` files. If the `.pls` files do not match the `.pls` or `.plp` files, this option causes the SCR Tool to download or replace the payload files.

This parameter defaults to false if not included on the properties file or not explicitly set to true. The value is set to true by default in each properties file.

  - If the value is true, the SCR Tool validates every payload file for every `.pls` file, whether it is new, modified, or unchanged.

  - If the value is false, or not provided, the SCR Tool downloads and loops through each new or modified `.pls` file. The process downloads any payload data, which includes `.plp` files and vendor patch files that correspond to each downloaded `.pls` file.

- `dependencyCheck=<true or false>`

Turns off dependent RPM download for Linux platforms.

When the value is true, downloads all of the dependent RPMs recursively. During the initial replication, which is performance intensive, this process downloads each package and dependencies.

When the value is false, downloads only the RPMs declared in the OS vendor errata. This process might cause the SCR Tool to miss some dependent packages during the replication from the OS vendor. This option is the default value.

- `channels=<channel1>,<channel2>,...`

Specifies the channels of content to download so that you can manage content according to environment needs. Multiple values must be comma separated without spaces.

For example, for Red Hat: `channels=es-4,server-5`

By default, excluding this switch enables all channels. By adding this switch, you can limit the duplication of content during the download by specifying only the patches or packages that apply to your environment. Duplicate content primarily affects Linux distributions.

Table 4–2. Property File Channels

Platform	Channel
RedHat	as-4
	es-4
	ws-4
	client-5
	server-5
	workstation-6
	server-6

Platform	Channel
Solaris	sol8
	sol9
	sol10
SUSE	SLED10-Updates
	SLED10-SP1
	SLED10-SP2
	SLED10-SP3
	SLED10-SP4
	SLES10-Updates
	SLES10-SP1
	SLES10-SP2
	SLES10-SP3
	SLES10-SP4
	SLED11-Updates
	SLED11-SP1
	SLES11-Updates
	SLES11-SP1
HP-UX	11_11
	11_23
	11_31
AIX	5_1
	5_2
	5_3
	6_1
	7_1
	technologylevel_aix51
	technologylevel_aix52
	technologylevel_aix53
	technologylevel_aix61
	technologylevel_aix71
OSX	10_4
	10_5
	10_6
	10_7
	applications

- `downloadPayload=<true or false>`

  If the value is true, all patches are downloaded. If the value is false, only the patches with UIDs that are included in the cache request folder are downloaded. If the value is false and there is no cache request XML, the content is processed but no patches are downloaded.

- cacheRequestFolder=<path/CacheRequest.xml>

  The cache request XML file is used to limit the downloaded patches to only those for which you obtain UIDs from the ecm_sysdat_patch_pls table in the VCM database.

  Extract the .pls UIDs from the database and create an XML file similar to the one below and then update the cacheRequestFolder path to the file location.

  To obtain the UID of a patch, run the following command where the name is required to find the patch for the architecture and version, and the identifier is the name of the bulletin for which you want to download the patch using the UID. In this example the identifier value is RHBA-2007:0622-02.

  ```
  select name, [uid]

  from ecm_sysdat_patch_pls

  where identifier = 'RHBA-2007:0622-02'
  ```

  To include the prerequisites for the patch, use the following queries:

  ```
  select name, [uid],prerequisite_uids

  from ecm_sysdat_patch_pls

  where identifier = 'RHBA-2007:0622-02'
  ```

  To include the prerequisites for the prerequisite patches, used the following query where {13A7294C-2D7C-4CA2-AD7D-10592D79C9B9} is a prerequisite for RHBA-2007:0622-02.

  ```
  select name, prerequisite_uids

  from ecm_sysdat_patch_pls

  where [uid] = '{13A7294C-2D7C-4CA2-AD7D-10592D79C9B9}'
  ```

  Sample cache request file.

  ```
  <CacheRequests>

  <Request>

  <PatchID type="UID">

  {8E4D5C21-51A6-43B0-AA63-DBB5B51DD9D2}

  </PatchID>

  </Request>

  <Request>

  <PatchID type="UID">

  {DD1A967A-CB04-4C30-A18F-6C46A5568019}

  </PatchID>

  </Request>

  <Request>

  <PatchID type="UID">

  {E3A8AF68-58EA-4B71-B6E2-173230C3EF64}

  </PatchID>

  </Request>
  ```

```
                </CacheRequests>
```

- `proxyServer=<IP_address>`

  Proxy server IP address.

- `proxyPort=<port_number>`

  Proxy server port.

- `proxyUser=<string>`

  User ID for proxy server authentication.

- `proxyPwd=<string>`

  Encrypted password for the proxy server. This password is generated using the `lumension_ encryptor_tool.sh` script.

Connect the VCM-Managed Machines to the SCR Tool

To establish communication between the managed machines and the host machine, you must connect the VCM-managed machines to the SCR Tool.

Procedure

Use one of these methods to connect the managed machines to the SCR Tool. You must do this for each platform type.

- Create a mount point to the respective platform directory on the SCR machine that contains the patch payload for the platform.

- Use a remote command to mount the VCM-managed machine at the time of patch deployment.

- Use a remote command to FTP the files to the machine when the patches are deployed.

Set Logging Levels and Output File Names

The SCR Tool provides flexible logging settings and properties.

You can specify custom logging levels and output file names for each execution of the SCR Tool by using the `<scr_root>/conf/logging.properties` file. Separate logging.properties files allow you to use different logging parameters for different patch distributions.

If you choose to use a different file, you must modify the `L_SCR_LOG_PROPS` value in the `startup.sh` to use the new file.

Prerequisites

If you are using a different logging.properties file, back up your `startup.sh` file before modifying `L_ SCR_LOG_PROPS`.

Procedure

1. Copy the `<scr_root>/conf/logging.properties` file to a new file that you can customize.

   For example: `logging.properties.aix`

2. Modify the `L_SCR_LOG_PROPS` entry in `<scr_root>/bin/startup.sh` to indicate the path of the logging.properties file.

   For example, `L_SCR_LOG_PROPS=../conf/logging.properties.aix`.

3. Open the new logging properties file.

4. Set the following properties to the required level of logging.

   `java.util.logging.FileHandler.level`

   `java.util.logging.ConsoleHandler.level`

   `com.lumension.level`

   By default, all scripts log data to the same filename pattern at the INFO logging level. The logging values include several levels:

   - SEVERE
   - WARNING (valid, but not used)
   - INFO (recommended for production)
   - CONFIG (valid, but not used)
   - FINE (debug)
   - FINER (debug)
   - FINEST (debug)

5. To customize log file names, change the output `java.util.logging.FileHandler.pattern=<path>` parameter.

   a. Verify that the `java.util.logging.FileHandler.pattern=<path>` entry includes the path.

      For example: `../logs/scr-messages-rh-%g.log`.

   b. To help generate distinct filenames automatically, use these special substitution variables:

Variable	Description
/	Local path name separator.
%t	System temporary directory.
%h	Value of the "user.home" system property.
%g	Generated number to distinguish rotated logs.
%u	Unique number to resolve conflicts.
%%	Translates to a single percent sign "%".

6. To select where the log stream is written, change the `handlers=<handler_name>` property.

   Valid values are written to the file handler log file or the console handler stderr output.

- `java.util.logging.FileHandler`

  If you you this handler, SCR generates logs in the file specified in the `logging.properties` file.

- `java.util.logging.ConsoleHandler`

  If you use this handler, SCR generates logs in the console.

7. To increase or decrease the number of bytes written to the log files before a new log is started, update the `java.util.logging.FileHandler.limit=<bytes>` value.

8. To set the maximum number of log files to retain before overwriting the oldest, update the `java.util.logging.FileHandler.count=<log_file_count>` value.

9. To append to the last used log file, configure `java.util.logging.FileHandler.append=true`.

   If the value is false, the SCR Tool writes to a new log file.

Managing Patch Content with the SCR Tool

<div style="text-align: right; font-size: 3em;">5</div>

The SCR Tool downloads patch content files from the Content Download Network (CDN), which is managed by Akamai, the hosted content service provider. The SCR Tool obtains any additional patches from the Red Hat, AIX (IBM), SUSE, HP-UX, and Solaris vendor sites and saves those patches in your defined directories.

The SCR Tool performs delta downloads, which means that after the first download, successive downloads retrieve only the differences in patch content that occurred since the last download. When the files download, the patch source, CDN, Vendor, and other information is written to the log files.

IMPORTANT Do not delete the patch signature (`.pls`) files. These files are used to confirm whether the patches are available. Patch signature files are stored in the platform subdirectories defined by the property parameter `<SCR_output_folder>`.

This chapter includes the following topics:

Download the Patch Content

Download patch content onto the SCR machine to that you can deploy the patches to the supported VCM-managed machines.

Prerequisites

If you run multiple replication processes simultaneously on a single machine, verify that the machine has sufficient memory to support each process. Insufficient memory might cause errors.

Procedure

1. To specify a schedule for executing the shell commands, run the updated properties files by using `crontab`.

2. Open a terminal session from the directory defined as `<SCR_output_folder>`.

3. Run the commands to interactively track the progress of the download.

   ```
   date; df -k ; du -k | grep -i [Vendor_Name]
   ```

When the patch download process is finished, use VCM Patching to patch the Linux and UNIX machines.

Schedule Downloads

You can use OS schedulers, such as `cron` or `at`, to automate the process to run the replications. This configuration is preferred since the download process might require you to run the startup file more than once to retrieve all content for any given vendor.

If multiple platforms connect to the same repository, you must schedule the startup script to run separately for each platform. The SCR Tool does not provide embedded scheduling.

Prerequisites

Complete at least one replication for each operating system you add the script before adding it to a scheduling service. The initial replication is likely to take longer than one day for each operating system.

Procedure

1. In the `<scr_root>/bin` directory, create a file that contains a list of all platforms for which you have a content subscription.

2. Comment out the platforms that are not necessary or for which you do not have a subscription.

3. Run the command to create a file to schedule the replication download.

   ```
   vim start_all_nix_replication.sh
   ```

4. Add content to the file to replicate all platforms.

   Omit entries for unused platforms.

   ```
   #!/bin/sh

   echo Running startup.sh aix-rt

   ./startup.sh aix-rt

   echo Running startup.sh hp-rt

   ./startup.sh hp-rt

   echo Running startup.sh osx-rt

   ./startup.sh osx-rt

   echo Running startup.sh redhat-rt

   ./startup.sh redhat-rt

   echo Running startup.sh solaris-rt

   ./startup.sh solaris-rt

   echo Running startup.sh suse-rt

   ./startup.sh suse-rt
   ```

5. Set the mode of the script to executable.

   ```
    chmod +x start_all_nix_replication.sh.
   ```

6. In `/etc/cron.daily`, create a new file.

   ```
   vim SCR
   ```

7. Add content to the file to begin the replication process.

   ```
   #!/bin/sh
   ```

```
cd [<scr_root>/bin]

echo "### Get all new unix content"

./start_all_nix_replication.sh
```

8. Set the mode of the file to executable.

```
chmod +x SCR
```

The script runs daily and synchronize your content.

Maintain the Software Content Repository

To maintain the repository and performance, you must monitor the log files and activities.

Prerequisite

Before you run the downloads or schedule downloads, verify that the host machine has adequate disk space available as described in .

Procedure

1. Monitor the size of the log files.

    ▪ If you specified a rotation in the log file properties, the log file content does not require cleanup.

    ▪ If you did not specify a rotation, you must clean up the log file content so that it does not consume unnecessary amounts of memory.

2. Review the activities logged in the platform specific files named `logging.properties.<platform>`.

    You can create separate log files for each platform type to facilitate tracking and troubleshooting. For example: `logging.properties.aix`. Otherwise, the replications use the default `logging.properties`.

Troubleshooting the SCR Tool 6

SCR Tool troubleshooting information provides procedures for diagnosing and fixing problems that you might encounter when you use the SCR Tool or download patch content.

This chapter includes the following topics:

Out of Memory Error

Insufficient host memory might cause the SCR Tool to report that the system is out of memory.

Problem

The SCR Tool reports a OutofMemoryErrorChange error.

Cause

If you run multiple batch files simultaneously on a single machine, the machine might not have sufficient RAM to support each process.

Solution

Ensure that your machine has enough memory to run the replications or run fewer concurrent replications. Each replication is configured to require between 512MB of RAM minimum and 2GB maximum.

Content Download Network Connection Error

The connection between the SCR Tool and the Content Download Network (CDN) might drop occasionally.

Problem

The SCR Tool cannot connect to the CDN.

Cause

The host machine on which the SCR Tool is installed cannot connect to the Internet.

Solution

1. Verify that the host machine can connect to the Internet.

2. Ping the address of the CDN server, which is contained in the logs.

3. If pinging the server is not successful, determine whether a host resolution problem exists, or determine if blocks exist in your firewall, and take appropriate action.

Connection to Red Hat Account Fails

When Red Hat account information changes, you must resynchronize the Software Content Repository Tool with the Red Hat Repository and update the startup script to use the new account information.

Problem

The SCR Tool connection to the Red Hat repository fails.

Cause

Red Hat account information has changed.

Solution

You must synchronize the Software Content Repository Tool with the Red Hat Repository.

1. Select the SCR output folder and delete all of the `SystemId*.xml` files.

   For example:

   ```
   cd PatchRepo/Repos/unix
   ```

   ```
   rm SystemId*.xml
   ```

   The path to the `unix` folder is located in the properties file, and is defined using the `folder=<value>` parameter. For example: `folder=/PatchRepo/Repos`.

2. Log in to your Red Hat network download site.

3. Locate any systems that were created by SCR whose names begin with `redhat-nca*` and delete them.

4. On the host machine where the SCR Tool is installed, from the `<scr_root>/bin` directory, open the properties file and verify that it is updated with the new username and encrypted password.

5. Run the replication process again.

Download from Red Hat Fails

If you change or delete source machine information at Red Hat Network, patch download fails until you reset the Software Content Repository Tool so that correct source machine information is synchronized with the Red Hat Repository.

Problem

The log in to Red Hat succeeds, but patch download fails with an error similar to the following.

```
FINE: Login Response XML is Server ID = Auth User ID = Auth Server Time = Auth
Expire = Auth = Channel = []
Aug 17, 2011 3:45:19 PM com.lumension.scr.pojo.SCPackage download
FINE: Downloading filegetPackage/mailman-2.1.5.1-34.rhel4.6.i386.rpm
Aug 17, 2011 3:45:19 PM com.lumension.scr.rhn.RHNRPMFile download
FINE: Downloading RPM file /patchRepo/repos2/RedHat/getPackage/mailman-2.1.5.1-
34.rhel4.6.i386.rpm
Aug 17, 2011 3:45:19 PM com.lumension.scr.client.StandaloneSCRepositoryClient
download
SEVERE: Package Download Exception
com.lumension.scr.exception.SCRException: Primary patch file failed download:
RHSA-2007:0779-04 getPackage/mailman-2.1.5.1-34.rhel4.6.i386.rpm
  at com.lumension.scr.pojo.SCPackage.download(SCPackage.java:472)
  at com.lumension.scr.client.StandaloneSCRepositoryClient .download
(StandaloneSCRepositoryClient.java:389)
  at com.lumension.scr.client.StandaloneSCRepositoryClient .process
(StandaloneSCRepositoryClient.java:328)
  at com.lumension.scr.client.StandaloneSCRepositoryClient .main
(StandaloneSCRepositoryClient.java:429)
```

Cause

Source machine information has been changed or deleted on Red Hat Network (RHN).

Solution

Resynchronize the Software Content Repository Tool with the Red Hat Repository.

1. Select the SCR output folder and delete all of the `SystemId*.xml` files.

   For example:

   ```
   cd PatchRepo/Repos/unix
   ```

   ```
   rm SystemId*.xml
   ```

   The path to the `unix` folder is located in the properties file, and is defined using the `folder=<value>` parameter. For example, `folder= /PatchRepo/Repos`.

2. Run the replication process manually or let it run automatically on schedule.

Download from HP Fails

HP-UX downloads require proprietary authentication.

Problem

You are unable to access or download patch content from the HP Web site using SCR.

Cause

Change in HP-UX authentication.

Solution

Review the VMware Knowledge Base article 2008242.

Mismatch in Number of Patches

The number of patches on the vendor download site exceed the number of patches verified by the host machine.

Problem

A mismatch appears to exist in the number of patches available to the SCR Tool versus the patches listed by the vendor.

Cause

The host machine verifies only the security patches recommended by the vendor. Because not all of the patches on the vendor download site are security related, the number of patches available to the SCR Tool are a subset of the total number of available patches.

A true mismatch can occur if a patch signature list (`.pls`) file was downloaded but the startup script stopped running before the payload finished downloading.

Solution

1. Rerun the startup script.

2. If a patch appears to be missing, delete the corresponding `.pls` file for the missing patch, and download the content again.

OS Vendor Does Not Accept Credentials

When you attempt to connect to the Content Download Network, the OS vendor does not accept your login credentials.

Problem

The OS vendor does not accept your credentials.

Cause

Your credentials might be outdated, or the password might have changed.

Solution

1. Verify with the vendor that your credentials to the vendor's site are valid.

2. Check that the correct user is defined in the `/conf/<distribution>-rt.properties` file.

3. If the password has changed, update the password in the properties file.

OS Vendor Errors

When you attempt to connect to the Content Download Network, the OS vendor download site reports an error.

Problem

When you attempt to download content, an error occurs on the OS vendor download site. For example:

```
Mar 24, 2011 3:33:19 PM sun.net.www.protocol.http.HttpURLConnection
getInputStream

FINE: HYPERLINK "mailto:sun.net.www.MessageHeader@1a4e8a118"
sun.net.www.MessageHeader@1a4e8a118 pairs: {null: HTTP/1.1 401 Authorization
Required}{Date: Thu, 24 Mar 2011 21:35:03 GMT}{Server: Apache}{X-RHN-Fault-Code:
-33}
```

Cause

Errors might occur when:

- You attempt to use the #channels parameter in a properties file but you are not entitled to use the command.

- An excessive number of concurrent logins to the OS vendor site exist at the time of download.

Solution

- If multiple users in your environment are manually connected to these download sites, wait until they are finished before you connect.

- Limit user connections to the OS vendor download site during replication, and restart the replication process again.

Patch Download Errors

When you run the startup script, the process might not display the source of the problem when an error occurs.

Problem

A failure in the download process might occur because of various problems, but the source of the problem is not obvious. When the content downloads, a severe error that is recorded in the logs might not indicate an actual error. For example, if the CDN does not have the requested package, non-entitled content might display a SEVERE error.

Cause

The patch download process failed, and no message appeared to indicate the cause of the problem.

Solution

1. On the host machine, access the <scr_root>/logs directory.

2. View the platform specific log file.

3. Check the log file to confirm if any SEVERE entries are logged.

   Various types of errors can occur. For example:

   ```
   Feb 23, 2011 4:42:45 PM com.lumension.scr.pojo.SCPackage download
   ```

```
SEVERE: Payload file URL to download
http://novell.cdn.lumension.com/novell/aix/ppc/IY76827.tar.gz

Mar 29, 2011 12:59:01 PM com.lumension.scr.util.Utils downloadFromURL

SEVERE: com.lumension.scr.exception.UnableToAccesURL: Unable to access URL
```

4. Use the message results in the log file to resolve the error and attempt the download from the entitled OS vendor site again.

Invalid Patches Cause the Download to Fail

Problem

Solaris downloads fail on patches whose names begin with SUN. These errors resemble:

```
SEVERE: Failed to download payload file

SEVERE: Payload download
/tmp/SCR/download/payload/solaris/x86/SUN10RPC20110304.zip failed
```

Cause

Solaris patches whose names begin with SUN are invalid. This content is no longer provided by the vendor.

Solution

Ignore errors related to these invalid patches.

HTTP Errors Are Not Marked as SEVERE

Problem

HTTP 404/503 errors might be logged as FINE, and do not contain the phrase SEVERE in the message, which can cause problems when using the SEVERE message to troubleshoot the problem. These error types resemble:

```
Apr 8, 2011 2:20:52 PM com.lumension.scr.rhn.RHNRegister postXMLRPCRequest
FINE: RHN HTTP Response 404

Apr 8, 2011 2:20:52 PM com.lumension.scr.rhn.RHNRegister postXMLRPCRequest
FINE: RHN HTTP Response 404

Apr 11, 2011 2:28:29 PM com.lumension.scr.rhn.RHNManager getSession
FINE: Getting RHN session

Apr 11, 2011 2:28:29 PM com.lumension.scr.rhn.RHNRegister postXMLRPCRequest
FINE: RHN HTTP Response 503
```

Cause

These types of errors typically indicate that an issue exists with the connection to the external Red Hat download site.

Solution

If these HTTP Response codes from the Red Hat download site occur, attempt to replicate the patch content again later.

Connection Refused Errors

Problem

Connection refused errors can occur when you interactively run a replication process, or in the `cron` logs when you use `cron`. These errors resemble:

```
java.net.ConnectException: Connection refused
at java.net.PlainSocketImpl.socketConnect(Native Method)
at java.net.PlainSocketImpl.doConnect(PlainSocketImpl.java:351)
at java.net.PlainSocketImpl.connectToAddress(PlainSocketImpl.java:213)
at java.net.PlainSocketImpl.connect(PlainSocketImpl.java:200)
at java.net.SocksSocketImpl.connect(SocksSocketImpl.java:366)
at java.net.Socket.connect(Socket.java:529)
at java.net.Socket.connect(Socket.java:478)
at sun.net.NetworkClient.doConnect(NetworkClient.java:163)
at sun.net.www.http.HttpClient.openServer(HttpClient.java:394)
at sun.net.www.http.HttpClient.openServer(HttpClient.java:529)
at sun.net.www.http.HttpClient.<init>(HttpClient.java:233)
at sun.net.www.http.HttpClient.New(HttpClient.java:306)
at sun.net.www.http.HttpClient.New(HttpClient.java:323)
at sun.net.www.protocol.http.HttpURLConnection.getNewHttpClient
(HttpURLConnection.java:970)
at sun.net.www.protocol.http.HttpURLConnection.plainConnect
(HttpURLConnection.java:911)
at sun.net.www.protocol.http.HttpURLConnection.connect
(HttpURLConnection.java:836)
at sun.net.www.protocol.http.HttpURLConnection.getOutputStream
(HttpURLConnection.java:1014)
at com.lumension.scr.rhn.RHNRegister.postXMLRPCRequest(RHNRegister.java:435)
at com.lumension.scr.rhn.RHNRegister.loginToRHN(RHNRegister.java:526)
at com.lumension.scr.rhn.RHNManager.getSession(RHNManager.java:82)
at com.lumension.scr.pojo.SCPackage.download(SCPackage.java:439)
at com.lumension.scr.client.StandaloneSCRepositoryClient.download
(StandaloneSCRepositoryClient.java:389)
at com.lumension.scr.client.StandaloneSCRepositoryClient.process
(StandaloneSCRepositoryClient.java:328)
at com.lumension.scr.client.StandaloneSCRepositoryClient.main
(StandaloneSCRepositoryClient.java:429)
```

Cause

This error can occur due to an undetermined number of reasons.

Solution

You can typically ignore these errors. The script continues to execute and replicate data. To verify that the script continues, open the log defined by the `/conf/logging.properties` file.

Null Pointer Exception Errors

Problem

Null pointer errors can occur when you run a replication process interactively, or in the `cron` logs when you use `cron`. These errors resemble:

```
Apr 8, 2011 8:51:13 PM com.lumension.scr.client.StandaloneSCRepositoryClient process
SEVERE: Error Processing Content Download Request.
java.lang.NullPointerException
at com.lumension.scr.pojo.SCPackage.download(SCPackage.java:416)
at com.lumension.scr.client.StandaloneSCRepositoryClient.download
(StandaloneSCRepositoryClient.java:389)
at com.lumension.scr.client.StandaloneSCRepositoryClient.process
(StandaloneSCRepositoryClient.java:328)
at com.lumension.scr.client.StandaloneSCRepositoryClient.main
(StandaloneSCRepositoryClient.java:429)
```

Cause

This error can occur due to an undetermined number of reasons.

Solution

Restart the replication process to continue downloading. The recommended setup involves using `cron`. Using `cron` starts the script again the following day and resumes replication. If persistent failures continue, log a Customer Support ticket.

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