



Zenoss Resource Manager Upgrade Guide

Release 5.2.0

Zenoss, Inc.

www.zenoss.com

Zenoss Resource Manager Upgrade Guide

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About this guide

Zenoss Resource Manager Upgrade Guide provides detailed instructions for upgrading Zenoss Resource Manager (Resource Manager) from one minor or micro version to a more recent version.

Note Zenoss strongly recommends reviewing the *Zenoss Resource Manager Planning Guide* carefully before using this guide.

Related Resource Manager publications

Title	Description
<i>Zenoss Resource Manager Administration Guide</i>	Provides an overview of Resource Manager architecture and features, as well as procedures and examples to help use the system.
<i>Zenoss Resource Manager Configuration Guide</i>	Provides required and optional configuration procedures for Resource Manager, to prepare your deployment for monitoring in your environment.
<i>Zenoss Resource Manager Installation Guide</i>	Provides detailed information and procedures for creating deployments of Control Center and Resource Manager.
<i>Zenoss Resource Manager Browser Interface Guide</i>	Describes how to navigate and use the Resource Manager browser interface.
<i>Zenoss Resource Manager Planning Guide</i>	Provides both general and specific information for preparing to deploy Resource Manager.
<i>Zenoss Resource Manager Release Notes</i>	Describes known issues, fixed issues, and late-breaking information not already provided in the published documentation set.
<i>Zenoss Resource Manager Upgrade Guide</i>	Provides detailed information and procedures for upgrading deployments of Resource Manager.

Additional information and comments

If you have technical questions about this product that are not answered in this guide, please visit the [Zenoss Support](#) site or contact Zenoss Support.

Zenoss welcomes your comments and suggestions regarding our documentation. To share your comments, please send an email to docs@zenoss.com. In the email, include the document title and part number. The part number appears at the end of the list of trademarks, at the front of this guide.

Change history

The following list associates document part numbers and the important changes to this guide since the previous release. Some of the changes involve features or content, but others do not. For information about new or changed features, refer to the *Zenoss Resource Manager Release Notes*.

1092.16.352

Add a temporary chapter, for installing an updated version of the Cisco UCS ZenPack.

1092.16.335

Remove procedures for upgrading Control Center clusters. That information is now in the *Control Center Upgrade Guide*.

Add a section that details the supported operating environments of Resource Manager.

Add an appendix about installing a new application template.

Remove the high-availability chapters. Upgrades to high-availability are now performed by Zenoss personnel.

Add an appendix about installing a new application template.

1092.16.316

Add new version numbers.

1092.16.291

Add new version numbers.

1092.16.264

Add new version numbers.

1092.16.207

Add new version numbers.

1092.16.183

Add new version numbers.

Remove upgrade instructions for 1.0.x / 5.0.x.

1092.16.153

Add new version numbers.

1092.16.146

Add new version numbers.

1092.16.126

Add a new part for upgrading only the Pacemaker resource agents for Control Center.

Refine the procedure for creating the application data thin pool.

1092.16.118

Add a new part for upgrading only Resource Manager.

Modify supported upgrade paths for Resource Manager 5.1.2.

Add a substep to create the docker override directory.

1092.16.111

Add information about Control Center 1.1.3.

1092.16.102

Replace a placeholder instruction with the correct instruction.

Add the `install-registry` image to the list of offline images.

Include instructions to create a `systemd` override file instead of editing the Docker service definition file.

Correct the Btrfs filesystem cleanup command.

Add a symlink to `/tmp` in `/var/lib/docker`.

Update the commands for starting and testing a ZooKeeper ensemble.

Add a procedure for updating the `SERVICED_ZK` value on resource pool hosts that are not members of a ZooKeeper ensemble.

Add a reference topic for the ZooKeeper variables required on hosts in a Control Center cluster.

Improve high-availability procedures to ensure DRBD integrity.

Improve titles in the post-upgrade chapter.

1092.16.068

Add a list of links to the overview of Part I.

After converting the storage driver, perform a full backup.

The Docker configuration file needs a longer startup timeout value, to work around a known Docker issue with the `devicemapper` driver. All Docker configuration steps now include adding `TimeoutSec=300`.

1092.16.067

A new part is added, for upgrading only Control Center. Both parts are renamed to reflect the addition.

The scope of supported upgrade paths is changed to reflect the micro release of Control Center.

All Docker configuration steps now add the storage driver flag (`-s devicemapper`) to the `/etc/sysconfig/docker` file.

All resource pool host upgrade procedures include a step to unmount the distributed file system before restarting `serviced`.

A link to the post-upgrade chapter is added to the end of upgrade procedures, if one is available.

1092.16.060.1

Upgrades are grouped in parts by scope. Each part contains a preparation chapter, chapters for the supported upgrade paths, and a post-upgrade chapter. Only the latest scope is in this version of the guide; previous scopes are in earlier versions.

New procedures are included, for upgrading without internet access and for upgrading high-availability deployments.

A description of Zenoss Toolbox is included as an appendix.

Supported operating environments

The Resource Manager application is deployed in and managed by Control Center. The supported operating environments of Resource Manager are the environments that Control Center supports at a given release. The following sections identify the supported operating environments of Resource Manager.

Resource Manager, Control Center, and operating systems

The following table identifies the supported combinations of Resource Manager, Control Center, and operating system releases.

Resource Manager Release	Control Center	
	Release	Host OS
5.2.0	1.2.0	RHEL/CentOS 7.1 or 7.2 (64-bit)
5.1.9, 5.1.10	1.1.9, 1.2.0	RHEL/CentOS 7.1 or 7.2 (64-bit)
5.1.8	1.1.5, 1.1.6, 1.1.7, 1.1.8, 1.1.9	RHEL/CentOS 7.1 or 7.2 (64-bit)
5.1.7	1.1.5, 1.1.6, 1.1.7, 1.1.8	RHEL/CentOS 7.1 or 7.2 (64-bit)
5.1.6 (internal release only)	(none)	(none)
5.1.4, 5.1.5	1.1.5, 1.1.6, 1.1.7	RHEL/CentOS 7.1 or 7.2 (64-bit)
5.1.3	1.1.2, 1.1.3, 1.1.5	RHEL/CentOS 7.1 or 7.2 (64-bit)
5.1.2	1.1.2, 1.1.3	RHEL/CentOS 7.1 or 7.2 (64-bit)
5.1.1	1.1.1, 1.1.2	RHEL/CentOS 7.1 or 7.2 (64-bit)

Hypervisors

Hypervisor	Versions
VMware vSphere	5.0, 5.1, 5.5, 6.0
Microsoft Hyper-V	Version 2.0 with Windows Server 2008 R2 SP1
	Version 3.0 with Windows Server 2012 and 2012 R2

Public cloud platforms

Amazon Web Services (AWS) is fully supported.

Microsoft Azure is supported only for collector pools. Deploying a full Control Center cluster to operate Resource Manager is NOT supported on Microsoft Azure.

Supported clients and browsers

Resource Manager supports the same client operating systems and web browsers that Control Center supports. For more information, refer to Control Center documentation.

1

Documented upgrade paths

This chapter identifies the release dates of Control Center and Resource Manager, and the upgrade paths included in this guide.

Release dates and versions

Release 5.2.x

Release Date	Control Center	Resource Manager
28 Nov 2016	1.2.0	5.2.0

Release 5.1.x

Release Date	Control Center	Resource Manager
29 Nov 2016	1.2.0	5.1.10
14 Nov 2016	1.2.0	5.1.9
17 Oct 2016	1.1.9	5.1.8
20 Sep 2016	1.1.8	5.1.7
25 Jul 2016	1.1.7	5.1.5
20 Jul 2016	1.1.7	5.1.4
28 Jun 2016	1.1.6	5.1.4
1 Jun 2016	1.1.5	5.1.3
24 May 2016	1.1.4 (withdrawn)	5.1.3
27 Apr 2016	1.1.3	5.1.2
20 Apr 2016	1.1.3	5.1.1
4 Mar 2016	1.1.2	5.1.1
29 Feb 2016	1.1.1	5.1.1

Release 5.0.x

Release Date	Control Center	Resource Manager
20 Feb 2016	1.0.10	5.0.10
02 Dec 2015	1.0.9	5.0.9
16 Nov 2015	1.0.8	5.0.8
10 Oct 2015	1.0.7	5.0.7
14 Sep 2015	1.0.6	5.0.6
05 Aug 2015	1.0.5	5.0.5
10 Jul 2015	1.0.4	5.0.4
27 May 2015	1.0.3	5.0.3
20 Apr 2015	1.0.2	5.0.2
03 Apr 2015	1.0.1	5.0.1
24 Feb 2015	1.0.0	5.0.0

Upgrade paths included in this document

For questions about performing an upgrade or for assistance, please contact Zenoss Support.

Upgrade Resource Manager

From	To
Resource Manager 5.1.10	Resource Manager 5.2.0
Resource Manager 5.1.9	Resource Manager 5.2.0
Resource Manager 5.1.8	Resource Manager 5.2.0
Resource Manager 5.1.7	Resource Manager 5.2.0
Resource Manager 5.1.5	Resource Manager 5.2.0
Resource Manager 5.1.4	Resource Manager 5.2.0
Resource Manager 5.1.3	Resource Manager 5.2.0
Resource Manager 5.1.2	Resource Manager 5.2.0
Resource Manager 5.1.1	Resource Manager 5.2.0

Upgrade paths included in previous versions

The following tables identify upgrade paths that are supported but documented only in previous editions of this guide.

For questions about performing an upgrade or for assistance, please contact Zenoss Support.

Table 1: Upgrade from 1.0.x / 5.0.x to 1.1.x / 5.1.x

From combination	To combination
Control Center 1.0.6 and Resource Manager 5.0.6	Control Center 1.2.0 and Resource Manager 5.1.9
Control Center 1.0.7 and Resource Manager 5.0.7	Control Center 1.2.0 and Resource Manager 5.1.9
Control Center 1.0.8 and Resource Manager 5.0.8	Control Center 1.2.0 and Resource Manager 5.1.9
Control Center 1.0.9 and Resource Manager 5.0.9	Control Center 1.2.0 and Resource Manager 5.1.9
Control Center 1.0.10 and Resource Manager 5.0.10	Control Center 1.2.0 and Resource Manager 5.1.9

Table 2: Upgrade to 1.0.10 / 5.0.10

From combination	To combination
Control Center 1.0.3 and Resource Manager 5.0.3	Control Center 1.0.10 and Resource Manager 5.0.10
Control Center 1.0.4 and Resource Manager 5.0.4	Control Center 1.0.10 and Resource Manager 5.0.10
Control Center 1.0.5 and Resource Manager 5.0.5	Control Center 1.0.10 and Resource Manager 5.0.10
Control Center 1.0.6 and Resource Manager 5.0.6	Control Center 1.0.10 and Resource Manager 5.0.10
Control Center 1.0.7 and Resource Manager 5.0.7	Control Center 1.0.10 and Resource Manager 5.0.10
Control Center 1.0.8 and Resource Manager 5.0.8	Control Center 1.0.10 and Resource Manager 5.0.10
Control Center 1.0.9 and Resource Manager 5.0.9	Control Center 1.0.10 and Resource Manager 5.0.10

Table 3: Upgrade to 1.0.3 / 5.0.3

From combination	To combination
Control Center 1.0.0 and	Control Center 1.0.3 and

From combination	To combination
Resource Manager 5.0.0	Resource Manager 5.0.3
Control Center 1.0.1 and Resource Manager 5.0.1	Control Center 1.0.3 and Resource Manager 5.0.3
Control Center 1.0.2 and Resource Manager 5.0.2	Control Center 1.0.3 and Resource Manager 5.0.3

Before upgrading

This chapter provides information and procedures to prepare your Resource Manager deployment for an upgrade.

Importing from Docker Hub

To perform this procedure, the Control Center master host must have internet access.

Use this procedure to import Resource Manager images from Docker Hub. Pulling and importing the images takes approximately 10-20 minutes.

- 1 Log in to the Control Center master host as `root`, or as a user with superuser privileges.
- 2 Pull the Resource Manager image for this release.

```
docker run -it --rm -v /root:/mnt/root \  
zenoss/resmgr_5.2:5.2.0_1 rsync -a /root/5.2.x /mnt/root
```

When the download completes, the `rsync` command copies scripts to `/root/5.2.x`.

- 3 Pull the HBase and OpenTSDB images for Resource Manager.

```
/root/5.2.x/pull-docker-images.sh
```

Downloading Resource Manager image files

To perform this procedure, you need:

- A workstation with internet access.
- Permission to download files from the [File Portal - Download Zenoss Enterprise Software](#) site. Zenoss customers may request permission by filing a ticket at the [Zenoss Support](#) site.
- A secure network copy program.

Use this procedure to download Resource Manager image files to a workstation and then copy the files to the Control Center master host. This procedure and the next are only required for a Control Center cluster that does not have internet access.

Perform these steps:

- 1 In a web browser, navigate to the [File Portal - Download Zenoss Enterprise Software](#) site.
- 2 Log in with the account provided by Zenoss Support.

- 3 Download the self-installing Docker Engine image files for Resource Manager. Select the files with the highest version number. The version number is represented as *Version* in the following file names:

```
install-zenoss-hbase:vVersion.run
install-zenoss-opentsdb:vVersion.run
install-zenoss-resmgr_Version.run
```

- 4 Use a secure copy program to copy the files to the Control Center master host.

Importing Resource Manager image files

Use this procedure to import Resource Manager image from self-installing archive files.

- 1 Log in to the master host as `root`, or as a user with superuser privileges.
- 2 Copy or move the archive files to `/root`.
- 3 Add execute permission to the files.

```
chmod +x /root/*.run
```

- 4 Add execute permission to the files.

```
chmod +x /root/*.run
```

- 5 Change directory to `/root`.

```
cd /root
```

- 6 Import the images.

```
for image in install-*.run
do
  echo -n "$image: "
  ./$image
done
```

Importing begins when you press the `y` key. If you press the `y` key and then the **Return** key, the current image is imported, but the next one is not.

- 7 List the images in the registry.

```
docker images
```

The result should include one image for each archive file.

- 8 Optional: Delete the archive files, if desired.

```
rm -i ./install-*.run
```

3

Upgrading the Cisco UCS ZenPack

The Cisco UCS ZenPack that is included in the Resource Manager 5.2.0 release is out-of-date, and must be upgraded separately. The procedures in this chapter are required for all Resource Manager deployments.

Downloading the Cisco UCS ZenPack

To perform this procedure, you need:

- A workstation with internet access.
- Permission to download files from the [File Portal - Download Zenoss Enterprise Software](#) site. Zenoss customers may request permission by filing a ticket at the [Zenoss Support](#) site.
- A secure network copy program.

Use this procedure to download the Cisco UCS ZenPack to a workstation, and then copy it to an installation-ready directory on the Control Center master host.

Perform these steps:

- 1 In a web browser, navigate to the [File Portal - Download Zenoss Enterprise Software](#) site.
- 2 Log in with the account provided by Zenoss Support.
- 3 Download the Cisco UCS ZenPack file.
Select the file with the highest version number. The version number is represented as *Version* in the following file name:

```
ZenPacks.zenoss.CiscoUCS-Version-py2.7.egg
```

- 4 Use a secure copy program to copy the file to the Control Center master host.
- 5 Log in to the master host as `root`, or as a user with superuser privileges.
- 6 Create a directory for the ZenPack egg file.
The directory must be local (not mounted).

```
mkdir /tmp/zenpack
```

- 7 Copy or move the Cisco UCS ZenPack egg file to the new temporary directory.

```
cp ZenPacks.zenoss.CiscoUCS-*-py2.7.egg /tmp/zenpack
```

- 8 Set full permissions on the directory and file.

```
chmod -R 0777 /tmp/zenpack
```

Installing the Cisco UCS ZenPack

To perform this procedure, Resource Manager must be started and operating normally. During the procedure, Resource Manager is stopped and then restarted.

Use this procedure to install the Cisco UCS ZenPack.

- 1 Log in to the Control Center browser interface.
- 2 In the **Applications** table, click **Zenoss.resmgr**.
- 3 Scroll down to the **Services** table.
- 4 Stop the **Zenoss** service, and then verify its subservices are stopped.
 - a In the **Actions** column of the **Services** table, click **Stop**.
 - b In the **Service** column, click **Zenoss**, and then expand each subservice to verify that all subservices are stopped.
- 5 Create a snapshot.
 - a Log in to the Control Center master host as a user with `serviced` CLI privileges.
 - b Create a snapshot.

```
serviced service snapshot Zenoss.resmgr
```

The `serviced` command returns the ID of the new snapshot on completion.

- 6 In the Control Center browser interface, restart the **Zenoss > Event > zeneventserver** service.

Note In the **Services** table, the Failing icon (a red circle with an exclamation point) in the **Status** column represents the cumulative result of one or more customized health checks. To view the status of individual health checks, move the pointer over the icon, which displays a pop-up.

- 7 In the shell session on the Control Center master host, change directory to the directory in which the ZenPack egg file is located.
For example:

```
cd /tmp/zenpack
```

- 8 Install the ZenPack.

```
serviced service run zope zenpack-manager install ZenPack-File.egg
```

- 9 Restart the **Zenoss** service.

Perform the following substeps in order, to ensure that the `zeneventserver` subservice is properly restarted.

- a In the Control Center browser interface, stop **Zenoss > Event > zeneventserver**, and then wait until it is stopped.
- b Start the **Zenoss** service.

4

Upgrading Resource Manager

This chapter includes the procedures for upgrading Resource Manager. The procedures in the preceding chapter must be completed before performing the procedures in this chapter.

Note Zenoss strongly recommends checking the integrity of Resource Manager databases before performing an upgrade or installing a ZenPack. For more information, see [Using Zenoss Toolbox](#) on page 19.

Stopping Resource Manager

- 1 Log in to the Control Center master host as a user with `serviced` CLI privileges.
- 2 Check the status of Resource Manager.

```
serviced service status | awk '/Name|Zenoss.resmgr/'
```

- If the status is `stopped`, this procedure is complete. Continue to the next procedure.
- If the status is `running`, perform the remaining steps.

- 3 Stop Resource Manager.

```
serviced service stop Zenoss.resmgr
```

- 4 Check the status of Resource Manager.

```
serviced service status | awk '/Name|Zenoss.resmgr/'
```

Repeat the command until the status is `stopped`.

Upgrading Resource Manager

Use this procedure to upgrade Resource Manager.

- 1 Log in to the Control Center master host as `root`, or as a user with superuser privileges.
- 2 Start the upgrade script.

```
/root/5.2.x/upgrade-resmgr.sh
```

The upgrade process begins. If you encounter errors, see [Common upgrade error recovery procedures](#) on page 22.

3 Restart Resource Manager.

Some Resource Manager services are started during the upgrade, and they must be restarted.

```
serviced service restart Zenoss.resmgr
```

After upgrading

Perform the procedures in this chapter after Resource Manager is upgraded.

Deleting the pre-upgrade snapshot

The Resource Manager upgrade script uses Control Center to create and tag a snapshot of the system before it begins the upgrade process. Tagged snapshots persist until they are explicitly removed, and grow over time. When you are satisfied the new release is working properly, delete the pre-upgrade snapshot.

- 1 Log in to the Control Center master host as a user with `serviced` CLI privileges.
- 2 Display a list of all Control Center snapshots, with their tags.

```
serviced snapshot list -t
```

Example result:

Snapshot	Description	Tags
xm5mtezbyo2_20160211-220535.480		preupgrade-resmgr-5.2.0

The snapshot identifier is shown in the first column.

- 3 Delete the pre-upgrade snapshot.

Replace *Snapshot-ID* with the identifier of the pre-upgrade snapshot returned in the previous step:

```
serviced snapshot remove Snapshot-ID
```

A

Using Zenoss Toolbox

This appendix describes how to install and use Zenoss Toolbox.

Zenoss Toolbox tools

The Zenoss Toolbox tools examine key Resource Manager components for common issues affecting data integrity. Zenoss recommends running the following tools, in order, before upgrading Resource Manager:

- 1 The *zodbscan* tool quickly scans the Zope Object Database (ZODB) to provide a preliminary indication of the health of the database, and to determine whether the database needs to be compressed with *zenosdbpack* before upgrading.
- 2 The *findposkeyerror* tool checks objects and their relationships, and provides options for fixing errors.
- 3 The *zenrelationscan* tool checks only ZenRelations between objects.
- 4 The *zencatalogscan* tool checks ZODB object catalogs, which speed up web interface access.

The tools are run inside a Zope container, and the log files for each command are found in `$ZENHOME/log/toolbox`.

Downloading Zenoss Toolbox with internet access

This procedure describes how to download Zenoss Toolbox to a Control Center master host that has internet access.

- 1 Log in to the Control Center master host as `root`, or as a user with superuser privileges.
- 2 Create a temporary directory, and change the current working directory to the temporary directory. The directory must be local (not mounted).

```
mkdir /tmp/toolbox && cd /tmp/toolbox
```

- 3 Download Zenoss Toolbox.

```
myUrl=https://github.com/zenoss/zenoss.toolbox/archive/master.zip
curl -sL --insecure -o master.zip $myUrl
```

- 4 Change the directory and file permissions.

The directory and file must be readable, writable, and executable by all users.

```
chmod -R 777 /tmp/toolbox
```

Downloading Zenoss Toolbox without internet access

This procedure downloads Zenoss Toolbox to a Control Center master host that does not have internet access.

- 1 Log onto a system that has internet access.
- 2 Start a web browser, and then navigate to [the Zenoss Toolbox releases page](#).
- 3 Download the latest version of the Zenoss Toolbox source code ZIP file.
The name of the file is `zenoss.toolbox-Version.zip`.
- 4 Use your operating system to rename the file to `master.zip`.
- 5 Use a file transfer utility such as [WinSCP](#) to copy the file to the Control Center master host.
- 6 Log in to the Control Center master host as `root`, or as a user with superuser privileges.
- 7 Create a temporary directory, and change the current working directory to the temporary directory.
The directory must be local (not mounted).

```
mkdir /tmp/toolbox && cd /tmp/toolbox
```

- 8 Copy the Zenoss Toolbox ZIP file to the temporary directory.

Replace *Path-to-File* with the location of the `master.zip` file.

```
cp Path-to-File /tmp/toolbox
```

- 9 Change the directory and file permissions.
The directory and file must be readable, writable, and executable by all users.

```
chmod -R 777 /tmp/toolbox
```

Installing Zenoss Toolbox

This procedure describes how to install Zenoss Toolbox for use in Resource Manager Zope containers.

- 1 Log in to the Control Center master host as `root`, or as a user with superuser privileges.
- 2 Start a shell as the `zenoss` user in a Zope container.
 - a Change directory to the temporary location of the Zenoss Toolbox `master.zip` file.

```
cd /tmp/toolbox
```

- b Start an interactive shell in a Zope container and save a snapshot named `InstallZenossToolbox`.

```
mySnap=InstallZenossToolbox
serviced service shell -i -s $mySnap zope bash
```

- c Switch user to `zenoss`.

```
su - zenoss
```

- 3 Install Zenoss Toolbox, and then exit the container.

- a Install Zenoss Toolbox.

```
easy_install /mnt/pwd/master.zip
```

- b** Exit the zenoss user account.

```
exit
```

- c** Exit the Zope container.

```
exit
```

- 4** Commit the named snapshot.

```
serviced snapshot commit $mySnap
```

- 5** Restart the Zope service.

```
serviced service restart zope
```

- 6** Optional: Delete the Zenoss Toolbox source file, if desired.

```
rm -rf /tmp/toolbox
```

Running Zenoss Toolbox tools

- 1** Log in to the Control Center master host as a user with serviced CLI privileges.
- 2** Start an interactive session in a Zope container.

```
serviced service attach zope/0
```

- 3** Switch user to zenoss.

```
su - zenoss
```

- 4** Run the Zenoss Toolbox tools, in order.
For more information about the tools, see [Zenoss Toolbox tools](#) on page 19.
- 5** Exit the zenoss user account.

```
exit
```

- 6** Exit the Zope container.

```
exit
```

Common upgrade error recovery procedures

B

This appendix describes common error messages during upgrades, and provides procedures for recovering and continuing.

Version of root service is empty

In some releases of Resource Manager, the application template includes an empty value for the Version object of the Zenoss.resmgr service. Use this procedure to set the version number and restart the upgrade.

- 1 Log in to the Control Center master host as `root`, or as a user with superuser privileges.
- 2 Start the version script.
Replace *Version-Number* with the current version of Resource Manager:

```
/opt/serviced/bin/serviced-set-version Zenoss.resmgr Version-Number
```

- 3 Restart the upgrade script.

```
/root/5.2.x/upgrade-resmgr.sh
```

A snapshot with the given tag already exists

When an upgrade attempt fails, the upgrade script does not remove the snapshot it creates at the beginning of the upgrade process. Use this procedure to remove the tag of the pre-upgrade snapshot and restart the upgrade. Untagged snapshots are removed when their time-to-live (TTL) expires. The TTL value is defined by the `SERVICED_SNAPSHOT_TTL` variable in the Control Center configuration file.

- 1 Log in to the Control Center master host as a user with `serviced` CLI privileges.
- 2 Display a list of all Control Center snapshots, with their tags.

```
serviced snapshot list -t
```

Example result:

Snapshot	Description	Tags
xm5mtezbyo2_20160211-220535.480		preupgrade-resmgr-5.2.0

The snapshot identifier is shown in the first column.

- 3 Remove the tag of the pre-upgrade snapshot.

Replace *Snapshot-ID* with the identifier of the pre-upgrade snapshot returned in the previous step:

```
serviced snapshot untag Snapshot-ID
```

- 4 Restart the upgrade script.

```
/root/5.2.x/upgrade-resmgr.sh
```

C

Installing an application template

This appendix includes procedures for downloading and installing the most recent Resource Manager application template. The latest template is not needed to perform an upgrade. Use the procedures in this appendix if you plan to delete a deployed application template and then redeploy with a newer version of the template. (For example, in a development or staging environment.)

Downloading the template package

To perform this procedure, you need:

- A workstation with internet access.
- Permission to download files from the [File Portal - Download Zenoss Enterprise Software](#) site. Zenoss customers may request permission by filing a ticket at the [Zenoss Support](#) site.
- A secure network copy program.

Use this procedure to download the required files to a workstation and then copy the files to the Control Center master host.

Perform these steps:

- 1 In a web browser, navigate to the [File Portal - Download Zenoss Enterprise Software](#) site.
- 2 Log in with the account provided by Zenoss Support.
- 3 Download a RHEL/CentOS repository mirror file.

The download site provides a repository mirror file each supported release of RHEL/CentOS. Each file contains the Resource Manager template and other packages.

To download the correct repository mirror file, match the operating system release number in the file name (`centos7.1` or `centos7.2`) with the version of RHEL/CentOS installed on all of the hosts in your Control Center cluster. Also, choose the file with the highest version number. The version number is represented as *Version* in the following file names:

- `yum-mirror-centos7.centos7.1-Version.x86_64.rpm`
 - `yum-mirror-centos7.centos7.2-Version.x86_64.rpm`
- 4 Use a secure copy program to copy the files to the Control Center master host.

Installing the repository mirror

Use this procedure to install a local RHEL/CentOS repository mirror on a Control Center host. The size of the mirror is approximately 55MB.

- 1 Log in to the target host as `root`, or as a user with superuser privileges.
- 2 Copy or move the RPM file to `/tmp`.
- 3 Install the RHEL/CentOS repository mirror.

```
yum install -y /tmp/yum-mirror-*.x86_64.rpm
```

- 4 Optional: Delete the RPM file, if desired.

```
rm /tmp/yum-mirror-*.x86_64.rpm
```

Installing the application template

Use this procedure to install the Resource Manager template on a Control Center master host.

- 1 Log in to the target host as `root`, or as a user with superuser privileges.
- 2 Install the template.

```
yum --enablerepo=zenoss-mirror install -y zenoss-resmgr-service-5.2.0
```

The template file is stored in `/opt/serviced/templates`.