VMware vCenter Configuration Manager Backup and Disaster Recovery Guide
vCenter Configuration Manager 5.5

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## Contents

About This Book ................................................. 5

Implementing a Disaster Recovery Plan ..................... 7

Backing Up Your Data ........................................... 9
  Back Up Your Full Database Regularly ................. 10
  Create a Differential Database Backup Daily ........ 16
  Back Up Your VCM Collector File System Regularly .... 22
  Back Up Your HTTP Certificates ....................... 22

Recovering Your Report Server and Importing Certificates 27
  Import HTTP Certificates .................................. 28

Restoring the Databases ....................................... 33
  Restore the System Database ............................ 33
  Restore the Report Server Database .................... 35
  Restore the VCM Databases ............................. 38

Installing VCM and Restoring Associated Components On the Recovery Machines 39
  Restoring File System Components ..................... 40
  Run the Script for Exported Reports .................. 41

Maintaining Operating System Provisioning Servers .... 43
  Back Up the OS Provisioning Repository ............. 43
  Restore the OS Provisioning Repository From Backup 43

Index .................................................................. 45
About This Book

The VCM Backup and Disaster Recovery Guide describes recommendations to help you prepare and implement a successful backup and disaster recovery plan for VMware vCenter Configuration Manager (VCM). As a SQL database administrator, you are responsible for establishing your corporate backup, recovery, and maintenance plans. This document describes the following suggested procedures:

- Backup
- Recovery
- Database restoration

Read this document and customize the procedures for your own disaster recovery plan according to your environment and corporate policies. The VCM Backup and Disaster Recovery Guide is applicable to VCM version 5.3 and later.

Intended Audience

The information presented in this manual is written for experienced Windows administrators, VCM system administrators, and SQL Server database administrators.

To use this information effectively, you must have a basic understanding of how to configure network resources, install software, and administer SQL Server. You also need to fully understand your network’s topology and resource naming conventions.

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VMware VCM Documentation

Technical Support and Education Resources

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Implementing a Disaster Recovery Plan

To identify and create a disaster recovery plan for vCenter Configuration Manager (VCM) in your environment, VMware recommends that you customize these procedures for an active-production, standby-spare recovery model. These procedures are suggested approaches, and are a baseline from which you can configure the proper backup schedules and provide information on how to recover a system using these prepared backups.

Adjust the frequencies and retention values provided to meet your specific service-level agreements and retention requirements. As a SQL Server database administrator, you are responsible for conforming to your own corporate backup, recovery, and maintenance plans.

**CAUTION** If you are not a SQL Server database administrator, refer to the Microsoft documentation for information about backing up your databases.

Before you implement your own disaster recovery plan, verify that your data and hardware meet the following requirements.

- Historical data is retained. Data will be as current as your last scheduled database backup.
- Duplicate hardware of your production VCM environment is available in an alternate location for recovery tasks. The hardware must support your exact installation configuration. See the VCM Installation Guide.
- In a single-tier server installation, the VCM Database server, Web server, and the VCM Collector components reside on a single Windows Server 2008 R2 machine, which is referred to as the VCM Collector. The installation installs all of the core VCM components, including the databases, VCM Collector application and files, and services. This configuration enables integrated security by default.
- In a two-tier split installation, the VCM database resides on the Windows Server 2008 R2 database server machine, and the VCM Collector and Web components reside on the second Windows Server 2008 R2 machine.
- In a three-tier split installation, the VCM databases, the Web applications, and the VCM Collector components reside on three separate Windows Server 2008 R2 machines.
- The recovery machines are prepared with all software prerequisites for a VCM installation that matches the product versions of the production machines.
Backing Up Your Data

Use these procedures as examples to ensure that all required databases are properly backed up in compliance with your corporate policies and standards. As a SQL Server database administrator, you are responsible for conforming to your own corporate backup, recovery, and maintenance plans.

Use the maintenance plan that you create in addition to other database integrity and re-indexing maintenance plans. Although you might choose to combine backup plans and other maintenance tasks into a single SQL Server maintenance plan, creating separate backup plans can assist you in future maintenance plan organization.

The VCM databases are configured in Simple Recovery mode, which means that you can recover the databases to the point of the last backup. In Simple Recovery mode, you cannot restore the databases to a specific point in time or to a point of failure, and you cannot restore transaction log backups. For details about Simple Recovery mode, see the SQL Server documentation.

IMPORTANT The following procedures apply to SQL Server. Apply these backup concepts to any third-party software that you use.

Procedure

1. "Back Up Your Full Database Regularly" on page 10
   Back up your full VCM database regularly to avoid loss of data.

2. "Create a Differential Database Backup Daily" on page 16
   Create a daily differential backup of the databases to avoid loss of data.

3. "Back Up Your VCM Collector File System Regularly" on page 22
   Back up your VCM Collector file system regularly to avoid loss of data using corporate standard tools or simple scripted file copies.

4. "Back Up Your HTTP Certificates" on page 22
   If you use HTTP Agents, verify that your HTTP certificates are available for disaster recovery purposes. Export the certificates once for each new server.
Back Up Your Full Database Regularly

Back up your full VCM database regularly to avoid loss of data.

Follow your own corporate policies and standards for the frequency and schedule to create full backups of your databases. Depending on your corporate policy, you might need to perform a full backup of the databases on a daily basis instead of weekly.

**CAUTION**  The following procedure lists the VCM databases that you must back up. Customize the procedure for your own environment, but make sure that you back up all of the databases listed.

This procedure is an example of performing a weekly full backup of each database. In this example, full backups are retained for 28 days.

**Prerequisites**

Verify that the required disk space is available for the maximum number of backup sets when you adjust the frequency or retention of your backup schedules.

**Procedure**

1. Click **Start**.
2. Select **All Programs > Microsoft SQL Server 2008 R2 > SQL Server Management Studio**.
3. Connect to the VCM Database Server using an account with SQL Administrative privileges.
4. In Object Explorer, navigate to the Maintenance Plans node.

5. Right-click **Maintenance Plans**, select **Maintenance Plan Wizard** and click **Next**.
6. Type a name and description for the maintenance plan and click Change.

7. To create a schedule for the Full Backup Plan, click the Schedule type drop-down menu and select Recurring.

Configure the backup schedule at a time when minimal VCM Collector activity occurs and click OK.
8. On the Select Maintenance Tasks page, select **Back Up Database (Full)** and click Next.

9. (Optional) If you are combining this backup task with other tasks, set an appropriate execution order on the Select Maintenance Task Order page and move the backup task to run after all other tasks.
10. On the Define Back Up Database (Full) Task page, click the **Database(s)** drop-down menu.
11. Select the following databases to back up and click OK.
   If the original installation used alternate names, select the corresponding databases.
   - master
   - msdb
   - ReportServer
   - VCM
   - VCM_Coll
   - VCM_UNIX

12. On the Define Back Up Database (Full) Task, configure the backup settings and click Next.

<table>
<thead>
<tr>
<th>Option</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backup set will expire</td>
<td>Click After and type 28 in the days drop-down menu.</td>
</tr>
<tr>
<td></td>
<td>Depending on your corporate backup policies and disk space available, you might need to modify this setting to match your policy.</td>
</tr>
<tr>
<td>Back up to</td>
<td>Click Disk.</td>
</tr>
<tr>
<td>Create a backup file for every database</td>
<td>Select this option.</td>
</tr>
<tr>
<td>Create a sub-directory for each database</td>
<td>Select this option and select the folder for the designated backup drive and folder structure.</td>
</tr>
<tr>
<td>Backup file extension</td>
<td>Type .bak.</td>
</tr>
<tr>
<td>Verify backup integrity</td>
<td>Select this option.</td>
</tr>
</tbody>
</table>
13. On the Select Report Options page, select **Write a report to text file**, select a folder location, and click **Next**.

![Select Report Options](image1)

14. On the Complete the Wizard page, verify that the options you selected are correct, and click **Finish** to generate the maintenance plan.

![Complete the Wizard](image2)

15. Verify that all tasks finish with a status of Success.

![Maintenance Plan Wizard Progress](image3)
Create a Differential Database Backup Daily

Create a daily differential backup of the databases to avoid loss of data.

Follow your own corporate policies and standards for the frequency and schedule to create differential backups of your databases. Depending on your corporate policy, you might need to perform a differential backup of the databases on a daily basis instead of weekly.

**CAUTION** The following procedure lists the VCM databases that you must back up. Customize the procedure for your own environment, but make sure that you back up all of the databases listed.

This procedure is an example of performing a differential backup of each database. In this example, differential backups are retained for 7 days.

**Procedure**

1. Click Start.
2. Select All Programs > Microsoft SQL Server 2008 R2 > SQL Server Management Studio.
3. Connect to the VCM Database Server using an account with SQL Administrative privileges.
4. In Object Explorer, navigate to the Maintenance Plans node.
5. Right-click Maintenance Plans, select Maintenance Plan Wizard and click Next.
6. Type a name and description for the maintenance plan and click **Change**.

7. To create a schedule for the Differential Backup Plan, click the Schedule type drop-down menu and select **Recurring**.

Configure the backup schedule at a time when minimal VCM Collector activity occurs and click **OK**.
8. On the Select Maintenance Tasks page, select Back Up Database (Differential) and click Next.

9. (Optional) If you are combining this backup task with other tasks, set an appropriate execution order on the Select Maintenance Task Order page and move the backup task to run after all other tasks.
10. On the Define Back Up Database (Differential) Task page, click the Database(s) drop-down menu.
11. Select the following databases to back up and click OK.

If the original installation used alternate names, select the corresponding databases.

- msdb
- ReportServer
- VCM
- VCM_Coll
- VCM_UNIX


<table>
<thead>
<tr>
<th>Option</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Backup set will expire</td>
<td>Click After and type 7 in the days drop-down menu.</td>
</tr>
<tr>
<td></td>
<td>Depending on your corporate backup policies and disk space available, you</td>
</tr>
<tr>
<td></td>
<td>might need to modify this setting to match your policy.</td>
</tr>
<tr>
<td>Back up to</td>
<td>Click Disk.</td>
</tr>
<tr>
<td>Create a backup file for every database</td>
<td>Select this option.</td>
</tr>
<tr>
<td>Create a sub-directory for each database</td>
<td>Select this option and select the folder for the designated backup drive and folder structure.</td>
</tr>
<tr>
<td>Backup file extension</td>
<td>Type bak.</td>
</tr>
<tr>
<td>Verify backup integrity</td>
<td>Select this option.</td>
</tr>
</tbody>
</table>
13. On the Select Report Options page, select **Write a report to text file**, select a folder location, and click Next.

14. On the Complete the Wizard page, verify that the options you selected are correct and click **Finish** to generate the maintenance plan.

15. Verify that all tasks finish with a status of Success.
Back Up Your VCM Collector File System Regularly

Back up your VCM Collector file system regularly to avoid loss of data using corporate standard tools or simple scripted file copies.

You might not be required to back up the entire file system or the VCM application directory structure. At a minimum, you should create a backup of the entire content of the CMFILES$ share. The default location is C:\Program Files (x86)\VMware\VCM\WebConsole\L1033\Files.

If your database server, Web server, or VCM Collector includes customizations, or if reports were exported to a non-default location, back up these additional files.

Back Up Your HTTP Certificates

If you use HTTP Agents, verify that your HTTP certificates are available for disaster recovery purposes. Export the certificates once for each new server. Maintain the HTTP certificates in a secure location for disaster recovery purposes.

To back up your certificates, create and export a Personal Information Exchange (PFX) Certificate.

Procedure

1. On the VCM recovery server, click Start and select Run.
2. Type mmc to start the Microsoft Management Console.
3. To add a new snap-in for the certificates, click File and select Add/Remove Snap-in.
4. In the Available snap-ins list, click Certificates and click Add >.

5. In the Certificates snap-in window that appears, to manage certificates for a computer account, select Computer account and click Next.
6. For the snap-in to manage certificates on the local computer, in the Select Computer window, select Local computer (the computer this console is running on) and click Finish.

7. Click OK to return to the Console.

8. From the Console Root, click Certificates (Local Computer) and select Personal > Trusted Root Certification Authorities > Certificates.

9. Right-click VMware VCM Enterprise Certificate, click All Tasks, and click Export.

11. To export the private key with the certificate, on the Export Private Key page, select **Yes, export the private key** and click **Next**.

![Image of Export Private Key page]

12. Select **Personal Information Exchange - PKCS #12 (.PFX)** and click **Next**.

![Image of Certificate Export Wizard - Personal Information Exchange]

13. Type a password for the certificate export, type the password again to confirm it, and click **Next**.

14. Type a location and name for the VMware VCM Enterprise Certificate or click **Browse** and select the certificate.

![Image of Certificate Export Wizard - File to Export]
15. Verify your selected options and click **Finish**.

![Certificate Export Wizard](image)

When the Certificate Export Wizard reports that the export was successful, click **OK** to close the Certificate Export Wizard window.

16. To locate your personal certificate, from the Console Root, click **Certificates (Local Computer)** and select **Personal > Certificates**

17. To export the Personal Information Exchange Certificate, right-click the personal Collector certificate, click **All Tasks**, and click **Export**.

![Console Root Certificates](image)
Recovering Your Report Server and Importing Certificates

Recover your report server in preparation to restore the Report Server database. Verify that the system checks run without error and that the SSRS Report folder is accessible.

**Prerequisites**

Use the *VCM Installation Guide* to run the VCM installation and verify the system checks.

**Procedure**

1. On the recovery server, begin the VCM installation.
2. Verify that the system checks ran successfully.
   If any errors occur, resolve them.
3. Start Internet Explorer and navigate to http://[SERVER_NAME]/reports.
   SERVER_NAME is the name of your recovery server.
4. Verify that the ECM Reports folder appears.
Import HTTP Certificates

Add the Certificate snap-in to the Microsoft Management Console to import your HTTP certificates.

Procedure
1. On the recovery server, click Start and select Run.
2. Type mmc and click OK to start the Microsoft Management Console.
3. To add a new snap-in for the certificates, click File and select Add/Remove Snap-in.
4. In the Available snap-ins list, click Certificates and click Add >.
5. In the Certificates snap-in window that appears, to manage certificates for a computer account, select Computer account and click Next.
6. For the snap-in to manage certificates on the local computer, in the Select Computer window, select Local computer (the computer this console is running on and click Finish.
7. Click OK to return to the Console.
8. From the Console Root, click Certificates (Local Computer) and select Trusted Root Certification Authorities > Certificates.
9. Right-click **Certificates**, click **All Tasks** and click **Import**.

10. On the **Certificate Import Wizard** Welcome page, click **Next**.

11. Type the path and file name of the VCM Enterprise Certificate or click **Browse** to locate the certificate, and click **Next**.
12. Type the password, select the following options, and click **Next**.
   - Mark this key as exportable. This will allow you to back up or transport your keys at a later time.
   - Include all extended properties.

![Certificate Import Wizard](image)

13. Select **Place all certificates in the following store**, verify that the Certificate store displays Trusted Root Certification Authorities, and click **Next**.

![Certificate Import Wizard](image)
14. Verify your selections and click **Finish**.

When the Certificate Import Wizard reports that the import was successful, click **OK** to close the Certificate Import Wizard window.

15. To locate your personal certificate, from the Console Root, click **Certificates (Local Computer)** and select **Personal > Certificates**.

16. To import the VCM Collector Certificate into the Personal certificate store, right-click **Personal**, click **All Tasks**, and click **Import**.
Restoring the Databases

Restore the system, report server, and VCM databases in three phases: restore the system database to restore proper user access and scheduled jobs; restore the SQL Report Server database to restore SQL Server Reporting Services; and then restore the VCM database.

Procedure

1. "Restore the System Database" on page 33
   To restore the master database, put SQL Server in single-user mode. After you restore the master database, run the command to update the SQL Server name.

2. "Restore the Report Server Database" on page 35
   Restore the SQL Report Server database to recover SQL Reporting Services.

3. "Restore the VCM Databases" on page 38
   As part of the recovery process, restore the VCM databases to restore your collected data and customizations.

Restore the System Database

To restore the master database, put SQL Server in single-user mode. After you restore the master database, run the command to update the SQL Server name.

Prerequisites

Verify that you are an Administrator so that you can start and stop the SQL Server services.

Procedure

1. Click Start and select Administrative Tools > Services.

2. To put the SQL Server in single-user mode, right-click the SQL Server (MSSQLSERVER) service and click Stop.

   If the process prompts you to stop other services, such as the SQL Server Agent, click Yes.
3. Open a command window and type the following command to start the SQL Server service in single-user mode.

```
NET START MSSQLSERVER /c /m
```

Wait for the service to start successfully.

4. Start SQL Server Management Studio and log in with the local SQL account.

5. Click New Query to start a new query definition.

6. In the query window, type the following commands to restore the master database from backup.

```
USE MASTER
GO
RESTORE DATABASE [master]
FROM DISK = N'E:\MSSQL\Backup\master\master_backup_201003021337.bak'
WITH FILE=1, NOUNLOAD, REPLACE, STATS = 10
GO
```

7. Click Execute and wait for SQL Server to restart and display the following message.

```
The master database has been successfully restored. Shutting down SQL Server. SQL Server is terminating this process.
```

8. Click New Query to reconnect to SQL Server and use Administrative privileges with the local account or use Windows Authentication.
9. Rename the SQL Server @@servername definition with the following commands.

```sql
USE master
GO
DECLARE @NewServerName varchar(254)
SET @NewServerName = Convert(varchar(254), serverproperty ('ServerName'))
EXEC sp_dropserver @@servername
EXEC sp_addserver @NewServerName, local
GO
```

10. Click **Execute**.

11. Restart the SQL Server Service and reconnect to SQL Server using an account with Administrative privileges.

12. Type the following commands to restore the **msdb** database.

```sql
RESTORE DATABASE [msdb]
FROM DISK = N'\E:\Backup\msdb\msdb_backup_201003021337.bak'
WITH FILE=1, NOUNLOAD, REPLACE, STATS = 10
GO
```

13. Click **Execute**.

**Restore the Report Server Database**

Restore the SQL Report Server database to recover SQL Reporting Services.

**Procedure**

1. Click **Start** and select **Administrative Tools > Services**.

2. To stop the SQL Server Reporting Services service, right-click **SQL Server Reporting Services (MSSQLSERVER)** and click **Stop**.

3. Open a command prompt and type `iisreset /stop` to stop Internet Information Services (IIS).

4. Start SQL Server Management Studio and type the following commands to restore the ReportServer database.

```sql
RESTORE DATABASE [ReportServer]
FROM DISK = N'\E:\Backup\ReportServer\ReportServer_backup_201003021337.bak'
WITH FILE=1, NOUNLOAD, REPLACE, STATS = 10
GO
```

5. Click **Execute**.
6. Right-click SQL Server Reporting Services (MSSQLSERVER) and click Start.
7. In the command window, reset the encrypted key store.
   a. Type rskeymgmt -d.
   b. When the process prompts you to delete all encrypted data from the report server database, type y.
8. In the command window, type the following command and verify that it finishes successfully.
   rsconfig -c -s <SQLSERVERNAME> -d ReportServer -a Windows
9. Right-click SQL Server Reporting Services (MSSQLSERVER) and click Start to restart the SQL Server Reporting Services service.
10. In the command window, type iisreset /restart to restart IIS.
    Wait for the IIS services to stop and restart successfully.
11. Start Internet Explorer and type http://[SERVERNAME]/Reports/ to navigate to the Report Server and verify that SSRS is operating properly.
12. In the Report Manager window, click ECM Reports.
13. Click ECM to access and edit the shared connection string.
14. Click the Properties tab.
15. Select Windows integrated security.

16. Type the following value in the Connection string text box.
   
   Integrated Security=SSPI;Data Source=SERVERNAME;Initial Catalog=VCM;LANGUAGE=us_english;

17. Click Test Connection to verify that the connection is created successfully, and click Apply.

18. Click Home to return to the SSRS home page.

19. Click Folder Settings to remove any extra accounts in SSRS.

   If any users other than the BUILTIN\Administrators and ECMSRSUser exist, click the check box next to each user account and click Delete.
Restore the VCM Databases

As part of the recovery process, restore the VCM databases to restore your collected data and customizations.

Prerequisites
Verify that you have an account with SQL Administrative privileges.

Procedure
1. Click Start and select All Programs > Microsoft SQL Server 2008 R2 > SQL Server Management Studio.
2. Connect to the VCM database server using an account with SQL Administrative privileges.
3. In the query window, type the following commands to restore the VCM database and click Execute:

   ```sql
   RESTORE DATABASE [VCM]
   FROM DISK = N'\E:\Backup\VCM\VCM_backup_201003021337.bak
   WITH FILE=1, NOUNLOAD, REPLACE, STATS = 10
   GO
   ```

4. Type the following commands to restore the VCM_UNIX database and click Execute:

   ```sql
   RESTORE DATABASE [VCM_UNIX]
   FROM DISK = N'\E:\Backup\VCM_UNIX\VCM_UNIX_backup_201003021337.bak
   WITH FILE=1, NOUNLOAD, REPLACE, STATS = 10
   GO
   ```

5. Type the following commands to restore the VCM_Coll database and click Execute:

   ```sql
   RESTORE DATABASE [VCM_Coll]
   FROM DISK = N'\E:\Backup\VCM_Coll\VCM_Coll_backup_201003021337.bak
   WITH FILE=1, NOUNLOAD, REPLACE, STATS = 10
   GO
   ```

6. Type the following commands to drop the definition of the VCM_Raw database.

   ```sql
   IF EXISTS (SELECT name FROM sys.databases WHERE name = N'VCM_Raw')
   DROP DATABASE [VCM_Raw]
   ```

The VCM_Raw database is used as a temporary database, and is re-created during VCM installation.
Installing VCM and Restoring Associated Components On the Recovery Machines

Install the VCM and associated components on the Windows Server 2008 R2 recovery server. Depending on your installation configuration, the recovery server can be any of the following physical or virtual machines.

- VCM Collector recovery machine: Depending on your installation configuration, this recovery machine includes specific components.
  - In a single-tier installation, the VCM Collector includes the database server, Web server, and the VCM application components.
  - In a two-tier installation, the VCM Collector contains the Web Server components and the VCM application components.
  - In a three-tier installation, the VCM Collector contains only the VCM application components.

- VCM database server recovery machine: In two-tier and three-tier installations, this recovery machine includes the VCM database.

- Web server recovery machine: Depending on your installation configuration, this recovery machine includes specific components.
  - In a two-tier installation, the Web Server includes the is combined with the VCM Collector.
  - In a three-tier installation, the Web Server includes only the Web application components.

During the installation, select the components that apply to your configuration. For details, see the VCM Installation Guide and the VCM Installation Manager online Help.

Prerequisites

Use the VCM Installation Guide to run the VCM installation and select the correct components to install.
Procedure

1. Insert the VCM installation disk into the Windows 2008 R2 recovery server or start the installation from a network location.

   If the installation screen does not appear, or if you started the installation from a network location, navigate to the disk root directory or the file share and double-click `setup.exe`.

2. Click Run Installation Manager.

3. Verify that the system checks run successfully.

   If errors occur, resolve them.

4. Select only the components to install on the recovery server machine.

   Select and install the components on the recovery servers in your configuration and generate certificates.

   For details about certificates and mutual authentication, see the VCM Security Guide.

5. Continue through the wizard and click Finish to finish the installation.

**Restoring File System Components**

Restore the file system components from the CMFiles$ share locations and any other corporate standard items.
The default location is C:\Program Files (x86)\VMware\VCM\WebConsole\L1033\Files.

If other custom components are installed, see the disaster recovery documentation for each customization.

**Run the Script for Exported Reports**

Most of the scheduled reports exported from your previous Collector include a hard-coded server name. The scripts for exported reports update the old server name export location with the new name.

The scripts modify the parameters passed and the UI string. Any UI strings greater than 8000 characters must be handled differently. In these cases, the exports will work properly. However, if you edit the scheduled job the report shows the old location.

If you edit one of these exceptions and click **Finish** without first correcting the export location, the connection to the report will break.

**Procedure**

1. Log in to SQL Server Management Studio as a user with Administrative privileges.
2. In the following script, edit the @oldserver and @newserver variables.

   ```sql
   Declare @oldserver varchar(32)
   Declare @newserver varchar(32)
   set @oldserver = 'OLDSERVERNAME'
   set @newserver = 'NEWSERVERNAME'
   update dbo.ecm_rpt_reports_scheduled
   set export_path = '\\' +
       @newserver +
       substring(export_path,len(@oldserver)+3, len(export_path)-(len(@oldserver)+2))
   where export_path like '%\' + @oldserver + '%'
   update dbo.ecm_sysdat_actions_ui_definition_text_xref
   set definition_text =
       replace(cast(definition_text as varchar(max)), @oldserver, @newserver)
   where
       definition_text like '%\' + @oldserver + '%'
   ```
3. Run the script.
Maintaining Operating System Provisioning Servers

The maintenance of the OS Provisioning server includes backing up and restoring the repository after a disaster or machine failure.

**Back Up the OS Provisioning Repository**

The OS Provisioning Server includes a repository that contains your imported OS distributions. To avoid recreating the distributions if the server fails, back up the repository as part of your recovery plan.

This action backs up the `/FSboot` and `/opt/FastScale/var/Repository.db` files to the location you specify.

**Prerequisites**

- Verify that you have sufficient disk space available on your machine for the backed up files. Use the `du -cs /FSboot` and `du -cs /opt/FastScale/var/Repository.db` commands to check the amount of space used by the OS Provisioning Server files.

- Verify that no OS Provisioning actions, such as importing or provisioning, are in progress. The backup process forces all applications to exit, including the OS Provisioning daemons, FSadmin and FSrepod.

**Procedure**

1. Log in to the OS Provisioning Server as root.
2. Run the `mkdir /<backup directory path>` command.
   
   **For example,** `mkdir /tmp/OSProv-Backup`

3. Run the `ospctrl --backup --dirpath=<backup directory path>` command.
   
   **For example,** `ospctrl --backup --dirpath=/tmp/OSProv-Backup`

**Restore the OS Provisioning Repository From Backup**

To recover from an OS Provisioning Server machine failure, reinstall the OS Provisioning Server, reconfigure the integration with VCM, and restore the database and repository files that you backed up as part of your recovery plan.

When you run the restoration command, the action stops the OS Provisioning Server services, restores the database and distribution repository, and starts the services after the files are restored. The files are restored to the `/FSboot` and `/opt/FastScale/var/Repository.db`. 
Prerequisites
Verify that the OS Provisioning Server is installed and that the integration with the VCM Collector is configured. See the VCM Administration Guide.

Procedure
1. Log in to the OS Provisioning Server as root.
2. Run the `ospctrl --restore --dirpath=<backup directory path>` command.
   For example, `ospctrl --restore --dirpath=/tmp/OSProv-Backup`
## Index

**A**
- accessibility to SRS report folder 27

**B**
- back up additional files 22
  - customizations to Collector reports exported 22
- backup and recovery provisioning, operating system 43
- backup procedures 9
  - database 9
  - differential, daily 16
  - file system 22
  - full backup 10
- HTTP certificates 22
- HTTP Certificates 22

**C**
- certificates 22
  - import 28
- compliance 9
- corporate standards 9

**D**
- daily/differential backup 16
  - database 9
  - restoration 33, 35
- disaster recovery plan 7
- duplicate hardware 7

**F**
- file system 22
  - backup 22
  - restoration 40
  - full backup 10

**H**
- historical data 7
- HTTP certificates 22
  - import 28

**I**
- import HTTP certificates 28
- installation 39
- installation configurations 7

**M**
- maintenance plan 9

**P**
- provisioning, operating system backup 43

**R**
- recovery 43
  - Collector 7
  - procedures 27
  - provisioning, operating system 43
  - server installation 39
  - report folder access 27
  - restore 43
  - provisioning, operating system 43
  - restore databases 33
  - configuration management 38
  - report server 35
  - system 33
  - restore file system components 40

**S**
- single-tier installation 7
- SRS report folder 27

**T**
- three-tier installation 7
- two-tier installation 7