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| **DM Restores and Backups** | Abstract  Proving that you can indeed go backwards in time with DM.  Fairbrother,Stephen  Author |

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# **Definition of Terms**

In the following directions, wherever you see

* **date,** substitute the date applied to the backup subdirectory.
* **directory\_name,** substitute the name of the Magnetic Device name.
* **[drive]**, substitute the drive letter that corresponds with the physical location of the indicated directory.
* **HHRR**, substitute the actual name of the environment you are backing up.
* **MagDeviceShare,** substitute the **name** of the share.
* **Servername**, substitute the actual name of the server on which you are running the commands.

# **DM Backup Process Overview**

Periodically Soarian Clinicals asks DM to backup an environment. These environments are identified in advance and are usually related to Meaningful Use testing. SC does not expect restores for all environments. The backups are done on the SQL Server associated with the environment.

You will use a special command to back up the databases.

You will use 7zip to back up the storage shares and configuration files. If 7zip is not on the server, you can get it here: <http://www.7-zip.org/download.html>

# **The Backup Process**

## **Preparing for a Backup**

You will need to know several locations before setting up for a backup.

|  |  |
| --- | --- |
| **Location Type** | **Location** |
| Server where SQL is installed |  |
| SQL Server Instance Name |  |
| Location of Configuration File |  |
| Magnetic Device (Archive Share) |  |
| Magnetic Device (Journal Share) |  |
| Backup\_commands directory |  |
| Backups\_HHRR directory |  |

To determine the locations, do the following:

1. Launch the instance of the application you want to backup.
2. Go to **Help\ About**.
3. Under **Server Process Information**, locate the **Database Server** value. This is actually the name of the SQL instance being used. You will need it for 2 reasons:

* The name of the server where SQL is installed (first part of the SQL instance name)
* The SQL instance name

1. Under **Server Process Information**, locate the **Configuration File** value.
2. On the **Help\About** screen, click on the **Environment Info** link near the middle of the screen.
3. In the window that pops up, scroll down to the **Magnetic Devices** section of the screen, and record the names of the shares displayed there.
4. On the SQL server where you will store the backups, look for a directory named backup\_commands. This directory typically exists on the second drive of the server, if other backups have been done previously. In the case of an initial setup on a SQL server where this process has never been done before and there is more than one drive, create D:\backup\_commands. The location is not important but it will have to match the location in the javascript file.
5. On the SQL server where you will store the backups, you need to create a backups\_HHRR directory (where HHRR = the name of the DM environment you are backing up).

## **Setting up the SQL Backup Files**

The backup process consists of setting up a command file and associated javascript file.

## **Preparing the Command and Javascript files**

### **File Information**

**BackupHHRRdbs.cmd** – contains the name of the associated .js file, the SQL instance name for the location of the databases, the name of the .log file that will be generated, and the name of the generated .sql file that will be run to generate the .bak files for each of the databases.



**CreateHHRRBackupSql.js** – generates SQL file

When the command file is run, the javascript file is used to create .bak files for the 3 databases associated with DM, and copies them to a specified directory ([drive]:\backups\_HHRR).

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### **Editing and saving the files**

1. **In each file,** you willreplace the HHRR value with the actual environment HHRR, replace the RRHH values with the actual environment RRHH.
2. **In the command file**, the value after the initial OSQL –S part of the command, specify the SQL instance name.
3. **In the javascript file,** make sure the [drive]:\backups\_HHRR value matches the location of the physical directory.
4. **Save** each of the files into the [drive]:\backup\_commands directory you created or located previously. **Remember to save them without the .txt extension** (save as .cmd and .js, respectively).

# **Running the Database Backup Command**

1. Log onto the server from which you will be performing the backups.

You must be an administrator on the server. When you log onto the server, include the /admin command in the RDP **Computer:** field.

**Example**: usmlvv1srn745.usmlvv1d0a.smshsc.net /admin

1. Open a command window, running as an administrator.
2. At the prompt, type: CD **[drive]**:\backup\_commands
3. Hit **Enter**.

* (If the location indicated at the prompt does not reflect the proper location, enter the **[drive]**: (e.d., D:) and hit **Enter**.

1. Type: backup**HHRR**dbs.cmd **date**

* (where **date** equals a value like 20161217 – yyyymmdd)

1. Hit **Enter**.

The command will run and the 3 .bak files (one for each DM database) will be created at the root of the **[drive]**:\backups\_**HHRR** directory.

# **Running 7-Zip**

## **Configuration Backup**

1. Using **Windows Explorer**, locate the \\**servername**\Cernerapps\Program Files\Cerner\DM\ENVIRONMENT\**HHRR** directory.
2. **Right-click** on the **HHRR** directory.
3. **Select 7-Zip** from the menu.
4. Select Add to “**HHRR**.7z”

* The 7-Zip dialog will display and when it finishes, a file named HHRR.7z will be located in the \\**servername**\Cernerapps\Program Files\Cerner\DM\ENVIRONMENT directory.

1. Move the **HHRR**.7z file to the [drive]:\backups\_**HHRR** directory)

## **Storage Share Backup**

1. Using **Windows Explorer**, locate the Magnetic Device (Archive Share).
2. **Right-click** on the share directory.
3. **Select 7-Zip** from the menu.
4. Select Add to “**directory\_name**.7z”
5. The 7-Zip dialog will display and when it finishes, a file named **directory\_name**.7z will be located at the root of the drive where the share is located.
6. Repeat the above process for each of the shares you are backing up.
7. Move all of the **directory\_name**.7z files created to the [drive]:\backups\_**HHRR** directory)

# **Organizing the Files**

1. In the **[drive]**:\backups\_**HHRR** directory, do the following:
2. Create a directory named with the **date** value used in this step.
3. Move the database .bak files, the HHRR.7z file, and the directory\_name.7z files created in this process into the newly created **[drive]**:\backups\_**HHRR\date** directory**.**
4. Obtain a copy of the DMSetup.exe installation kit that matches the level of the software you backed up, and place it in the **[drive]**:\backups\_**HHRR\date** directory**.**

For information on how to obtain the correct installation kit, click [here](#_Obtaining_an_Installation).

**You have finished the backup process.**

# **The Restore Process**

## **DM Restore Process Overview**

Periodically Soarian Clinicals asks DM to restore an environment. These environments are identified in advance and are usually related to Meaningful Use testing. SC does not expect restores for all environments. The restores are done on the SQL Server associated with the environment.

The restore process consists of four separate steps:

* Database Restores – the 3 databases will be restored to the previous level
* Configuration Files Restores – the configuration files will be returned to their state at the time of the backup
* Magnetic Share Restores – contents of the magnetic device shares will be returned to their state at the time of the backup
* You will run the installation kit that matches the level of the software to which you restoring

You will use the Microsoft SQL Server Management Studio to restore the databases. Restoration of the configuration files and magnetic shares will be accomplished by unzipping the 7Zip files.

## **Database Restores**

1. Log onto the server from which you will be performing the restores.

You must be an administrator on the server. When you log onto the server, include the /admin command in the RDP **Computer:** field.

**Example**: usmlvv1edm067.usmlvv1d0a.smshsc.net /admin

1. Click **Start**.
2. Type: **SQL Server** in the **Search programs and files** field above the **Start** button.
3. Click on the appropriate **SQL Server Management Studio** entry for the instance of SQL you are using.
4. Using **Windows Authentication**, click the **Connect** button.
5. **Right-click** on the **Databases** value in the tree on the left.
6. Select Restore Database… from the menu.
7. Under **Source** at the top of the screen, click the **Device** radio button.
8. Click on the **…** button on the right 
9. With the **Backup media type** field valued to **File**, click the **Add** button.
10. Navigate to the **[drive]**:\backups\_**HHRR**\**date** directory that contains the .bak files that you will be using.
11. Change the dropdown value associated with the **File name:** field to **All Files(\*).**
12. Select the **.dat file** associated with the first database you wish to restore.
13. Click the **OK** button.
14. Highlight the **file name**.
15. Click the **OK** button.
16. Make sure the checkbox in the **Restore** column is checked.
17. Click on the **Options** item in the list on the upper left.
18. Check the **Overwrite the existing database (WITH REPLACE)** checkbox.
19. Make sure that **none** of the **Tail-Log backup** checkboxes are checked.
20. Click on **OK** at the bottom right.
21. Repeat the above process for the other 2 databases.

## **Configuration Restore**

1. Rename the existing \\**servername**\Cernerapps\Program Files\Cerner\DM\ENVIRONMENT\**HHRR** directory to HHRR\_backup.
2. Create a new HHRR directory in the same location.
3. Copy the **HHRR.7z** file from the **[drive]**:\backups\_**HHRR**\**date** directory into the new **HHRR** directory.
4. Right-click on the HHRR.7z file and select the 7-Zip option.
5. Select the **Open archive** option.
6. Double-click on the **HHRR** directory.
7. Highlight everything in the displayed window. (This may be just the DATA directory or a bunch of subdirectories and files.)
8. Click on the Extract button. 
9. You have restored the configuration files.

## **Storage Share Restores**

Delete the contents of the storage shares.

1. Locate the first **[drive]**:\**directory\_name** share you want to restore.
2. In that directory delete all of the subdirectories.

**DO NOT DELETE THE TOPLEVEL SHARED DIRECTORY.**

1. Copy the **directory\_name.7z** file from the **[drive]**:\backups\_**HHRR**\**date** directory into the matching **[drive]**:\**directory\_name** directory.
2. Right-click on the **directory\_name.7z** file and select the 7-Zip option.
3. Select the **Open archive** option.
4. Double-click on the **directory\_name** directory.
5. Highlight everything in the displayed window. (Should be directories named 0-9 and A-F.)
6. Click on the Extract button. 
7. Repeat this process for each **[drive]**:\**directory\_name** directory that needs to be restored.

## **Run the Install Kit**

You will now need to run the installation kit on each of the servers where the application is installed for the environment that you are restoring.

1. Log onto the server from which you will be performing the restores.

You must be an administrator on the server. When you log onto the server, include the /admin command in the RDP **Computer:** field.

**Example**: usmlvv1edm067.usmlvv1d0a.smshsc.net /admin

1. Retrieve the install kit (**DMSetup.exe** file) from the **[drive]**:\backups\_**HHRR**\**date** directory and copy it onto the application server. Click [here](#_Obtaining_an_Installation) for instructions on obtaining a kit if one is not in the directory.
2. Double-click on the **DMSetup.exe** file that is now on the application server.
3. Select the appropriate **HHRR** for the environment that you are restoring.
4. Click **OK**.
5. Click the **Finish** button.
6. Repeat the process for each of the servers on which the instance of the application is running.

# **Smoke Test**

## **Smoke Test Overview**

This section details how to import and display documents after a system restore has been done. This process exercises a significant portion of the application’s overall functionality and serves as a good initial test to establish that base functionality has not been disrupted by the restore. This test should be repeated on each of the restored instances of the application.

## **Smoke Test Process**

To check out the application restore:

1. Launch the application from Internet Explorer.
2. Enter a logon ID and password for an account that has administrative access to the application.
3. On the **Help** menu, click **About**.
4. Verify that the Version number at the top center of the screen matches the build level of the software that you have just applied.
5. On the top menu of the application, click **Acquire**.
6. Select **Assisted Filing**.
7. Select a **Worklist** folder type.
8. Enter a **Worklist Name and Worklist title**.
9. Click **Find**. If the name does not exist, answer **Yes** to the create folder question.
10. Select the STM **Document type**.
11. Make sure the **Source** value is set to **Import**.
12. Select the TXT Text Files **File type**.
13. Click the **Browse** button and select a file with the *.TXT* extension.
14. Click the **Add to list** button. (If you get a new screen, you may have to resize it to see this question at the bottom: “This file is smaller than the blank page threshold. Do you wish to import it?” Click the **Yes** button.)
15. Click the **Import** button.  
    The document should appear on the **Folder Display** window.
16. In the document display on the right, click on the **X Clear** button to remove the document from the display.
17. On the left, click on the Folder **Retrieve** button. 
18. Select the Worklist folder type and enter the name of your worklist.
19. Click the **Find** button.
20. Under **Select folders** **to display**, double-click the name of your worklist.  
    The **Folder Display** window should appear.
21. Click the plus (+) sign next to the name of your worklist and verify that there is a document in the folder with today’s date on it.
22. Double-click that document and verify that the document successfully displays in the **Document Display** window on the right side of the screen.
23. Click on the icon next to the folder name and document name and make sure information is displayed.
24. On the left, click on the Document **Retrieve** button. 
25. Scroll down and highlight the STM document type by clicking it.
26. Specify today’s date in the **Document Date To** and **From** fields.
27. Click the **Find** button.
28. Double-click the document in the **Select documents to display** window.  
    The **Split Folder/Document Display** window should appear.
29. Double-click the document in the Folder Display window on the left of the display and verify that the document successfully displays in the **Document Display** portion of the screen on the right.
30. You may now use the **Maintain** documents and **Maintain** folders functions to remove the document and worklist.



# **Obtaining an Installation Kit**

To do a restore, you will obtain the DmSetup.exe file needed to install application. The DmSetup.exe file will be used on the server(s) where the application is installed. If the DmSetup.exe file is not in the **[drive]**:\backups\_**HHRR**\**date** directory, you can use the following process to obtain the kit.

## **Getting the files from Artifactory by way of Jenkins**

1. Go to Jenkins: <https://usmlvv1cto2874.usmlvv1d0a.smshsc.net/jenkins/>
2. To select the build you want:
3. Click on **DM-25.2** or **DM-25.3**.
4. Click on **IMS**.
5. Click on the **branch** you want. Usually you will apply the production build so the branch value will be either **25.2** or **25.3**.
6. Click on the build number you want.
7. Click on the **Artifactory Build Info** link. This will take you to Artifactory.
8. Under the **Published Models** tab, click on the link displayed.
9. Hover over the .zip file name and select the **Show in Tree** option.
10. Click on the icon next to the .zip file to show the files in the .zip file.
11. Right-click on the **DmSetup.exe** file and select **Download**.
12. When prompted, click the **Save** button.
13. When the file has downloaded, click on the **Open folder** button.
14. Obtain the **DmSetup.exe** file from the directory.
15. Copy the **DmSetup.exe** file to the application servers where you will be running the install.
16. You can close Arifactory and Jenkins now.