Installing EMC Solutions Enabler

This chapter contains the following sections:

Installing the EMC Solutions Enabler for VMAX Storage

Before You Begin

To communicate with VMAX, Cisco UCS Director now supports a Windows-based EMC Solutions Enabler (SE). Before using this SE, install and configure a Secure Shell (SSH) server on it.

Installing and Configuring Windows Based Solutions Enabler

To set up an SSHD server, we recommend that you install Cygwin version 1.7.27, and use the SSH daemon on the host. Cygwin provides a Linux-like environment on Microsoft Windows. See Installing a Cygwin Package, on page 2 for information on downloading Cygwin and additional information about the SSHD server.

After you install the SSHD server on the Windows-based SE, modify the Path variable under System Variables to include the Solutions Enabler bin folder so that whoever uses SSH to get into the Windows SE can immediately run VMAX commands. After you install and configure the SSHD server, set up the new default paths to enable the user-installed software to override the system software.

Installing a Cygwin Package

Before You Begin

Follow these steps to download and install Cygwin version 1.7.27.

Step 1 Download the Cygwin executable from http://www.cygwin.com/.

Step 2 While installing the Cygwin package on the package selection screen, select the **openssh** and **openssl** packages to install. Ensure that you install the packages on a Windows-based host.

Configuring the SSHD Server

Step 1 Navigate to the `C:\<Cygwin-Install-Dir>` directory, open the `Cygwin.bat` in edit mode using any editor and add the following line: `set CYGWIN=binmode ntsec`
The following example shows the Cygwin.bat file contents after adding the line above:

```
@echo off
        C:
        chdir C:\<Cygwin-Install-Dir>\bin
        set CYGWIN=binmode ntsec
        bash --login -i
```

Step 2 Configure the SSHD service by running the `C:\<Cygwin-Install-Dir>\Cygwin.bat` file in a command prompt and enter the following command: `$ ssh-host-config`.

a) Answer the following questions:

Question	Recommended Response
Should privilege separation be used? <yes/no>	Select yes.
New local account 'sshd'? <yes/no>	Select yes.
Do you want to install sshd as a service? <yes/no>	Select no if SSHD is already installed as a service, otherwise select yes.
Enter the value of CYGWIN for the deamon: [ ] binmode ntsec	Enter the value as binmode ntsec
Do you want to use a different name? (yes/no)	Select yes.
Enter the new username: <new-username>	Enter the new username.
Reenter: <new-username>	Renter the new username.

Question	Recommended Response
Replace cloupia with new-username ? (yes/no)	Select yes.
Please enter the password: <password>	Enter the password for this account.
Reenter: <password>	Reenter the password for this account.

Configuring System Environment Variables

Step 1   Right-click the **Computer** icon and select **Properties**.

Step 2   If you don't have a computer icon on your desktop:

a) Click the **Start** button.

b) Right-click the **Computer** option in the Start menu.

c) Select **Properties**.

Step 3   Click **Advanced System Settings**.

Step 4   Under the **Advanced** tab, select **Environment Variables**.

Step 5   Under **System Variables** select the **Path** variable and append the following two binary paths: `c:\Program Files\EMC\SYMCLI\bin;c:\<Cygwin-Install-Dir>\bin`
Refer to the following example:

```
Variable Name: Path
    Variable Value: <Existing Folders Path>;c:\Program Files\EMC\SYMCLI\bin;c:\cygwin
    64\bin
```

Step 6   Add the following new **System Variable** name: `CYGWIN` and the following **Variable Value**: `binmode tty ntsec`

Starting the Cygwin SSHD Service

Start the Cygwin SSHD service manually under Window Services and configure it to start automatically on every boot.

Verifying SSH Access

Before You Begin

Ensure that you can run the SYMCLI commands without providing the absolute path at the command prompt. You can verify SSH access using any SSH client.

Step 1   Access a different machine that has the **SSH** client running and execute the following command:
`ssh<USERNAME>@<host-ipaddress> 'date'` or `ssh-1<USERNAME>@<host-ipaddress> 'date'`

Example:
For example, `ssh -l pjohn@host-ipaddress 'date'`

Step 2   The command prompts you to specify the password.
When you specify the correct password, the command returns the accurate date.

Installing and Configuring a Linux Based Solutions Enabler

Note   You can add libraries and legacy libraries, such as glibc, to the VM.

You need gatekeepers to serve as Raw Device Mappings (RDMs). Allow 6,000 to 8,000 mappings for each RDM.

Step 1   Create the base Linux image for the VM you will use.
For the base Linux image, you can use an SMC or SPA servers that run CentOS, version 5.7 x86, or x86_64. For an SMC server, allow 20 GB of space. For an SPA server, allow at least 120 GB.

Step 2   Assign a few gatekeepers as RDMs.

Step 3   Reboot the Linux VM.

Step 4   From the EMC Powerlink site, download the EMC Solutions Enabler package for Linux and the Services Management Application System (SMAS) package `se7310-Linux-i386-ni.tar.gz`.
Note   See the Cisco UCS Director Compatibility Matrix to identify which version to download and install.

Use MD5 Checksum `9809ac14ed8bfcc19789d7d5671d6015`.

Step 5   Using SCP, transfer the tar file to your VM.

Step 6   At a command prompt, enter the following command to decompress the tar file: `[root@smc ~]# tar xzvf se7310-Linux-i386-ni.tar.gz`

Step 7   Install the EMC Solutions Enabler by entering the following command: `[root@smc ~]# ./se7310_install.sh -install]`

Step 8   Verify that the emc/symcli bin folder is in the Linux path, with this directory structure: `<symcli path>/bin`. An example is: /opt/emc/symcli/bin.

Step 9   To connect to the VMAX device from Cisco UCS Director, you must update the PATH variable with the SYMCLI binary dir by updating the .bashrc file for the user that logs in to VMAX.

         a)   Log in to the Solutions Enabler machine with the credentials that Cisco UCS Director will use.

         b)   Edit `.bashrc` using your editor of choice; for example, `vi.bashrc`

         c)   Add the following line to the .bashrc file:

             `PATH=$PATH:$HOME/bin:<symcli binary path>/bin`

         d)   Save the file and exit.

Adding an EMC VMAX Account

Before You Begin

You must install an EMC VMAX Solutions Enabler on a Linux or Windows Virtual Machine (VM).

Note   If you have Solutions Enabler 8.0 installed, when adding an EMC VMAX account, all Symmetrix device names are padded with a zero. This may cause issues with rollback operations for tasks that were executed against an older version of Solutions Enabler.

Step 1   Log in to Cisco UCS Director.

Step 2   Choose **Administration > Physical Accounts**.

Step 3   In the **Physical Accounts** pane, click **Add**.

Step 4   In the **Add Account** dialog box, complete the following fields:

Name	Description
Pod drop-down list	Choose a data center (Pod) for this account.
Category drop-down list	Choose **Storage**.
Account Type drop-down list	Choose **EMC VMAX** .

Step 5   Click **Submit**.

Step 6   In the second **Add Account** dialog box, complete the following fields:

Name	Description
Account Name field	The account name.
Description field	The account description.
Server Address field	The Solution Enabler IP address for the VMAX device.
User ID field	The user ID for this account.
Use Credential Policy check box	If checked, **Credential Policy** drop-down is shown.
Credential Policy drop-down	Choose from drop-down.
Password field	The password for this account.
Transport Type drop-down list	Choose **SSH**.
Port field	The Port number.
Symmetrix id field	The Symmetrix id can be manually entered or selected from a drop-down box that is shown if the Discover Symmetrix Arrays check box is selected.
Discover Symmetrix Arrays check box	If this box is checked, selection of the Symmetrix id can be done from the drop-down list that is shown.
Symmetrix id drop-down list	Select the Symmetrix id from the drop-down list. This list is only visible if Discover Symmetrix Arrays is checked.
Contact Email field	The contact's email.
Location field	The location for this account.

Step 7   Click **Submit**.

Step 8   In the **Physical Acccounts** pane, choose the account.

Step 9   Click **Test Connection**.