



Installing EMC NaviSphere

- [Installing the EMC NaviSphere, page 1](#)

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To communicate with VNX, Cisco UCS Director now supports the Windows-based EMC NaviSphere. Before using NaviSphere, you must install and configure a Secure Shell (SSH) server on it.

Installing and Configuring Windows Based NaviSphere

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.

After installing the SSHD server on the Windows-based EMC NaviSphere, modify the Path variable under System Variables to include the NaviSphere bin folder. Therefore, whoever uses SSH to access Windows NaviSphere can immediately run VNX commands. After you install and configure the SSHD server, you should set up new default paths to enable the user-installed software to override the system software.

Installing a Cygwin Package

Follow these steps to download and install Cygwin version 1.7.27.

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- 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.
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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 above line:

```
@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 daemon: [] 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>	Reenter the new username.
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

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- Step 1** Right-click the **Computer** icon and select **Properties**.
- Step 2** If you don't have a computer icon on your desktop:
- Click the **Start** button.
 - Right-click the **Computer** option in the Start menu.
 - 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 (x86)\EMC\Navisphere CLI;c:\<Cygwin-Install-Dir>\bin`.
Refer to the following example:
Variable Name: Path
Variable Value: <Existing Folders Path>;c:\Program Files(x86)\EMC\Navisphere CLI;c:\cygwin 64\bin
- Step 6** Add the following new **System Variable** name: `CYGWIN` and the following **Variable Value**: `binmode tty ntsec`
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Starting the Cygwin SSHD Service

DETAILED STEPS

	Command or Action	Purpose
Step 1	Start the Cygwin SSHD service manually under Window Services and configure it to start automatically on every boot.	

Verifying SSH Access

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

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

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- Step 1** Search and download the **naviseccli** package for VNX from EMC Support for your specific platform.
For example,
`NaviCLI-Linux-64-x86-en_US-7.33.2.0.51-1.x86_64.rpm.`
- Step 2** Switch to root user using `su [username]` if you are not already.
- Step 3** Install the **naviseccli** package using the **rpm** command.
For example,
`rpm -i NaviCLI-Linux-64-x86-en_US-7.33.2.0.51-1.x86_64.rpm`
- Step 4** You are prompted to enter a certificate verifying level. Give verifying level as `medium[m]`.
- Step 5** Add the **naviseccli** bin directory, which is usually `/opt/Navisphere/bin`, to your system PATH. For example, add the following line to `~/.bash_profile` & `~/.bashrc` and then execute this file to make the setting effective by running `source ~/.bash_profile` or `source ~/.bashrc`.
`PATH=$PATH:/opt/Navisphere/bin`
`export PATH`
- Step 6** You must configure this installation of **the naviseccli** to work with each storage processor on each array that it connects to. For all storage processors on all arrays from which this agent collects data, run the following command:
`naviseccli -user username -password password -h sp_ip -scope 0 -np getagent`
- Step 7** . When you reach the security prompt, save the certificate (option 2).
- Step 8** Run the same command for each of the storage processors to be used, with a script if necessary. The security prompt should not show again.
- Step 9** Log in to UCS Director using an SSH Client as 'root' user. Run the following command against the **Navisphere** host where **Naviseccli** is installed.
This step must be done before adding a VNX Storage Array as an account in UCS Director.
`# ssh <navicli-user>@<navicli-host-ip> naviseccli -User sysadmin -Password <sysadmin-pass> -Scope 0 -Address <SP-A-IP> port -list`
- Step 10** Enter the password at the login prompt (after accepting the SSH certificate)
It should list VNX Storage Array port configuration. If it first asks to save the certificate, choose option-2
- Step 11** Run the same command shown in Step 9 against the SP-B IP Address as well to save the certificate.
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