

# VNX5400 SW Installation

## Cloud Execution Environment

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### INSTALLATION INSTRUCTION

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# 1 Introduction

This installation instruction describes the software installation of the EMC VNX® 5400 model with VNX for Block (SAN) storage on the Cloud Execution Environment (CEE). It is part of the CEE installation flow as described in *CEE Installation*.

## 1.1 Concepts

This section defines the various concepts used within this instruction.

### **VNX Global Administrator User**

The VNX global administrator user is the first user created on a VNX when installed for the first time. This user has comprehensive administrative rights and it is used during the installation and later on for maintenance purposes and alert handling. For more information refer to *Security User Guide*.

### **Hot Spare Disk**

A hot spare disk automatically replaces a failed disk of the same type and size without any user intervention. EMC proposes one hot spare disk for every 30 disks.

### **LCT**

Local Craft Terminal (LCT) is a Windows based Laptop used for the installation, that has all necessary EMC software tools installed. In EMC documentation this machine is often referenced as “Management Station”.

### **SW Enablers**

Software (SW) Enablers are licence files which enable certain functionalities on the VNX. They are shipped together with the VNX.

### **Thin Provisioning**

Thin Provisioning, also called Over Provisioning, is a cost saving measure to provide storage in a virtualized environment. It gives the appearance of having more storage space than is actually physically available. More storage capacity is allocated on an as-needed base. Thin Provisioning works out as long as not all subscribers claim their permitted amount of storage space.

### **Thick Provisioning**

Thick Provisioning allocates exactly the permitted storage space per subscription. It allocates storage capacity as soon as it is permitted, regardless if the space will be used or not.



## 1.2 Prerequisites

This section describes the prerequisites for the installation.

### 1.2.1 Hardware and Software Required

This section lists the hardware and software required for the installation.

- Hardware
  - EMC VNX5400, for more information refer to *BOM for Certified HW Configurations*, Reference [1].
- Software
  - SW Enablers
    - “Thin Provisioning”
    - “VNX Snapshots”  
  
VNX Snapshots is part of the EMC “Local Protection Suite” Software License and is required for OpenStack Block Storage snapshots.
  - Firmware  
  
Firmware level according to *BOM for Certified HW Configurations*, Reference [1]. For download instructions see Section 5.3 on page 22.
  - EMC VNX firmware or software needs to be downloaded from the EMC support web page. To do that, an account must be created, as described in Section 5.1 on page 22.

### 1.2.2 Documents

Ensure that the following documents have been read:

- *Personal Health and Safety Information*
- *System Safety Information*
- *IP and VLAN Plan*, Reference [2]

**Note:** This document provides default values. In case a custom setup is needed, then a site-specific IP and VLAN Plan is required.

### 1.2.3 Tools

The following tools are required for the installation:



- LCT installed with the following software:
  - Unisphere Storage System Initialization Utility
  - Unisphere Service Manager
- Fast Ethernet switch with 3 or more ports
- 3 Ethernet cables, CAT5e or better, at least 3 meters long each

### 1.2.4 Conditions

The following conditions must be met before starting the installation process:

- All CEE hardware is installed and powered up. For more information refer to *HP c7000 HW Installation*.
- VNX5400 is powered up.
- Ports 2162 and 2163 are open on the LCT for UDP traffic.

**Note:** If these ports are closed (for example blocked by a firewall), the initialization wizard is not able to detect any VNX device.

### 1.2.5 Installation Data

For several installation steps the input of data is necessary. At the corresponding places this instruction contains only variable names, the values are shown in Table 1.

Table 1 contains columns for default values and customized values. The default values are applicable, if the default setup according to *IP and VLAN Plan*, Reference [2] is used. In case of a non-default site-specific setup, write down the customized values into the corresponding row and use them accordingly; in this case also adapt the file `config.yaml` inside the flow of *SW Installation in Multi-Server Deployment* to these values. For more information refer to the *Configuration File Guide*.

Table 1 Variable and Default Values

Variable name	Default value	Custom value
<lct_ip_address>	192.168.2.14	
<lct_default_gateway>	192.168.2.1	
<sp_a_ip_address>	192.168.2.12	
<sp_a_name>	SPA	
<sp_b_ip_address>	192.168.2.13	
<sp_b_name>	SPB	
<subnet_mask>	255.255.255.128	



<default_gateway>	0.0.0.0	
<EMC.USER>	(1)	
<EMC.PASSWORD>	(2)	
<STORAGE.POOL.NAME>	(3)	

(1) No default values are proposed. Choose a user name and reuse it later for the *Configuration File Guide*.

(2) No default values are proposed. Choose a password and reuse it later for the *Configuration File Guide*.

(3) No default values are proposed. Choose a pool name and reuse it later for the *Configuration File Guide*.





## 2 Preparing to Install VNX5400

The following preparations must be performed before going to the site and before starting the SW installation of VNX5400:

- Download the registration sheet. For more information see Section 5.5 on page 27.
- Download the firmware version according to *BOM for Certified HW Configurations*, Reference [1], for more information see Section 5.3 on page 22.
- Set up the LCT, for more information see Section 5.4 on page 23.
  - Download the necessary software tools, see Section 5.4.1 on page 24.
  - Install the Unisphere Storage System Initialization Wizard, see Section 5.4.2 on page 24.
  - Install the Unisphere Service Manager, see Section 5.4.3 on page 25.
  - Copy the SW enablers to the LCT, see Section 5.4.4 on page 25.
  - Make sure the user has appropriate privileges to change the IP settings of the LCT, see Section 5.4.5 on page 25.

**Note:** The setup of the LCT only needs to be performed once. However it is advised to check the EMC support web page for updated versions of the used tools regularly.

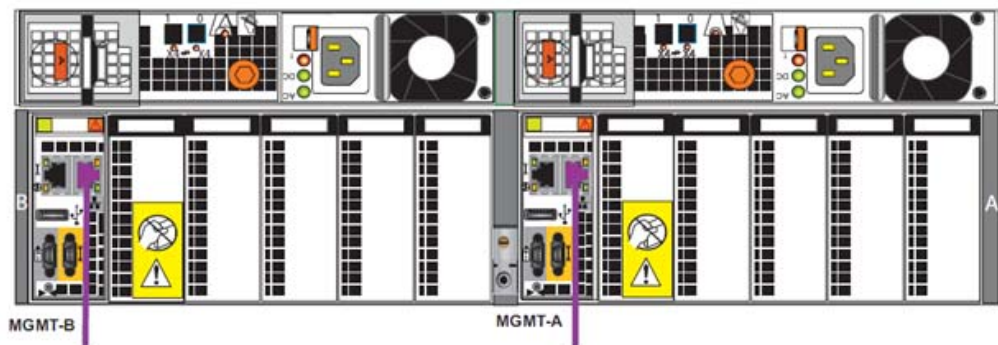
## 3 Install VNX5400

This section describes how to install the VNX5400 software package to the target system on site.

### 3.1 Connecting the LCT to the VNX

Follow these steps to connect the LCT to the VNX:

1. Locate the management ports of both Storage Processors. Figure 1 shows their positions, marked in purple color.



*Figure 1 Disk Processor Enclosure (DPE) Rear View, Location of Management Ports*

2. If the management ports are already occupied, unplug the cables and take a note, which cable was connected to which port. You will need to reconnect them properly once the installation is done.
3. Supply the switch with power and connect each VNX management port to a port of the switch with Cat5e cables (see Section 1.2.3 on page 2).
4. Connect the LCT to the switch with the third cable from your toolbox. Figure 2 depicts the recommended setup for connecting the LCT to the VNX.

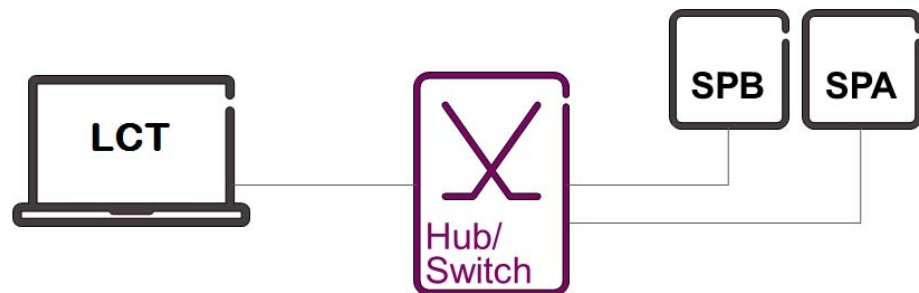


Figure 2 Installation Setup

5. Change the IP settings of the LCT, so that it shares a subnet with the VNX once initialized. For details see Section 5.4.5.1 on page 25.

## 3.2 Initializing the VNX

1. Start the Unisphere Storage System Initialization Wizard. After startup, the wizard automatically scans the broadcast domain for attached VNX storage systems.
2. Wait until the wizard has found the attached VNX. The serial number is presented in the “Uninitialized Systems” column.
3. Compare this number with the one found on the tag attached to the backside of the DPE.
4. Select the matching not initialized system and click **Next>>**.
5. The next screen shows a mask for the IP setup of the VNX.
6. Insert the following information:

Storage Processor A:

IP address: `<sp_a_ip_address>`

Name: `<sp_a_name>`

Storage Processor B:

IP address: `<sp_b_ip_address>`

Name: `<sp_b_name>`

IPv4 Common Parameters:

Subnet mask: `<subnet_mask>`

Default gateway: `<default_gateway>`



#### IPv6 Common Parameters:

Configuration Type: Disabled

7. Click **Next >>**.
8. Leave the default IP addresses for iSCSI unchanged. Click **Next>>** to continue.
9. Acknowledge the announcement of the wizard about unconfigured iSCSI data ports by clicking **Yes**.
10. The next window is about setting the name of the storage system and creating a user account. Provide the following information:

Storage system name:

Storage system name: User serial number as determined in Step 3 above

Security settings:

User name: *<EMC.USER>*

Password: *<EMC.PASSWORD>*

Confirm Password: *<EMC.PASSWORD>*

11. Click **Next** to proceed.
12. Verify all settings in the next windows. Click **Finish**.
13. Click **OK** in the next window, which announces, that the storage system has been initialized successfully.

**Note:** During the process of initially setting the IP addresses, the setup asks for permission to reboot both storage processors. During reboot the amber fault indicator on the back of the affected SP flashes. Once the reboot has completed the indicator remains off. Each reboot takes several minutes.

## 3.3 Installing the SW Enablers

To install the SW Enablers follow these steps:

1. Start the USM.
2. Click **Login**.
3. Enter the IP address *<sp\_a\_ip\_address>* and click **Connect** to continue.
4. Provide user name (*<EMC.USER>*) and password (*<EMC.PASSWORD>*) of the emergency user that you provided in Step 10 in Section 3.2 on page 7 and click **Login** to continue.



5. The next window asks for an additional IP address for SPB. Enter `<sp_b_ip_address>`, leave **Control station address** empty and click **Add IP** to continue.
6. Confirm that the additional addresses were added successfully by clicking **OK**.
7. Prepare for the installation:
  - a. Select **Software** and then **System Software**.
  - b. Click **Prepare for Installation (Step-1)** step to check for any issues and address them if necessary.
  - c. Click **Next** in the following welcome window.
  - d. Press the **Browse** button in the following window and browse to the place where the software enablers are stored.
  - e. Select the enabler to be installed and press **Open**.

**Note:** It is also possible to select multiple entries.
  - f. Wait until USM has unpacked and transferred the enablers.
  - g. Click **Next>**.
  - h. Wait until USM has examined the package information. This can take several minutes.
  - i. The next window gives hints how to check some conditions. These conditions do not apply for CEE setup. Click **Next >** to proceed.
  - j. The **Server Readiness for Software Update** window states that no attached servers were found. Click **Next >** to proceed.
  - k. Choose “Collect the diagnostic information again” to collect diagnostic information. Click **Next >** to proceed.

**Note:** This can take several minutes to complete.
  - l. Click **Next >** to proceed to the rules check.
  - m. Examine the Health Check results and consider all **Rule Names**, which are marked with an exclamation mark (warnings or errors). They can be expanded by clicking on the exclamation marks.

Fix all errors before continuing and consider all warnings.

Disregard warnings that do not apply to your system (for example messages regarding attached VMWare ESX servers).



**Note:** Most likely an exclamation mark will indicate, that the rule “Special Conditions” requires special attention. This can be ignored as long as it deals with attached servers, since no servers at all are attached at this point.

Press the **Rerun** button to perform another rule check after you have solved an error.

- n. When no errors are listed, click **Next >** to continue.

**Note:** In case of warnings, a confirmation window appears, asking to proceed with warning(s).

Click **Yes** to continue.

- o. Read the information about the “Non-Disruptive Upgrade Delay” in the next window, leave the default setting of 360 seconds unchanged and click **Next >** to continue.
- p. The next window confirms the successful completion of the preparation. Click **Finish** to continue.

#### 8. Install the SW Enablers:

- a. Click **Install Software (Step-2)**.
- b. Read the warning message in the next window and choose **Next >** in the following window.

**Note:** The warning, stating that the firmware installation could last several hours, does not apply, since we install SW enablers at this point in time.

- c. Choose **Express Install (Recommended)** then click **Next >**.
- d. The next window **Express Install Information Verification** shows the enablers to be installed. Verify the information.

All SW enablers you want to install (namely: “Thin Provisioning” and “VNX Snapshots”) must be listed. If one is missing, click **Cancel** and repeat the Preparation (see Step 7 in Section 3.3 on page 8).

If all SW enablers are listed, acknowledge the information and click **Next >**.

- e. The next window shows the progress of the installation. Wait for the installation to finish.

**Note:** The installation takes up to 45 minutes.

If the post-install tasks are not started automatically click **Next >** to proceed and start the post-install tasks in the next window.



- f. The next window shows the result of the post-install tasks. Click **Next >** to continue in case tasks were run successfully.

In case of reported problems, create `SPcollects` as described in Section 5.2 on page 22, and consult the next level of support. Further actions are outside the scope of this instruction.

- g. The next window shows an overview of the **Express Install Progress**. Click **Next >** to continue.
  - h. The next window gives a summary about the successful installation of the SW enablers and recommends to restart USM. Uncheck the box “Notify your service provider with updated storage system configuration information” and click **Finish**.
  - i. Close USM.
9. Start USM.
  10. Verify that the installed SW Enablers are active:
    - a. While still being connected through USM, click **View System Configuration** under **Reports**, see Figure 3.
    - b. Follow the instructions of the “System Reports Wizard”. After the wizard is completed a report file is generated and opened automatically in a web browser.
    - c. Select **Storage Applications** and **System Software Summary** in the recently opened browser window and check the enablers, see Figure 4). Both enablers, “Thin Provisioning” and “VNX Snapshots” must be listed as “active”.

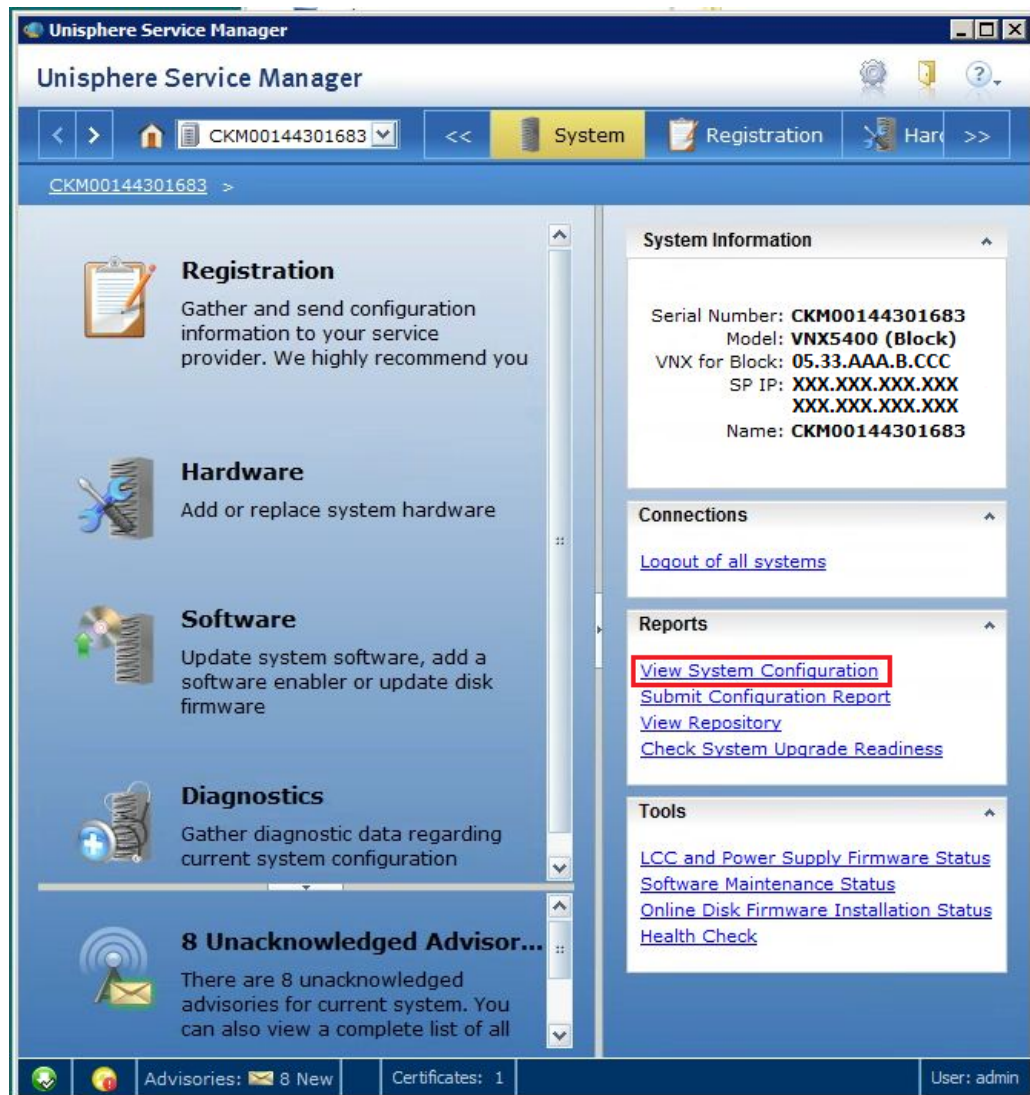


Figure 3 View System Configuration





Storage system: CKM00144301683 XML File: SystemConfigurations/CKM00144301683/20150316\_115816\_CKM00144301683 EMC-UEM-Telemetry.xml

General

System Profile

Storage Applications

Configuration

Servers

View ALL

View XML Source

System Software Summary

Asynchronous Mirrors

Synchronous Mirrors

SAN Copy Sessions

SnapView Snapshots

Sn

Current NDUs			
Software	Revision	Needs Commit	Status
AnalyzerProvider	1.3.3.1.0079	No	Active
Base	05.33.000.5.079	No	Active
CDES	05330005.079	No	Active
CLIPProvider	1.3.3.1.0079	No	Active
ConnectEMC	1.3.3.1.0079	No	Active
DeduplicationEngine	05.33.000.5.079	No	Active
DriveFirmware	05.33.000.5.079	No	Active

Enablers	
Software	Active
-FAST	Active
-FASTCache	Active
-ODXCopy	Active
-SANCopy	Active
-ThinProvisioning	Active
-Unisphere	Active
-UnisphereAnalyzer	Active
-UnisphereBlock	Active
-VNXSnapshots	Active

Figure 4 System Software Summary: Enablers

## 3.4 Upgrading the Firmware

1. While still being connected through USM, inspect the version of the currently installed firmware of “VNX for Block:” under **System Information**. The version level is indicated as “AAA.B.CCC” as shown in Figure 5.

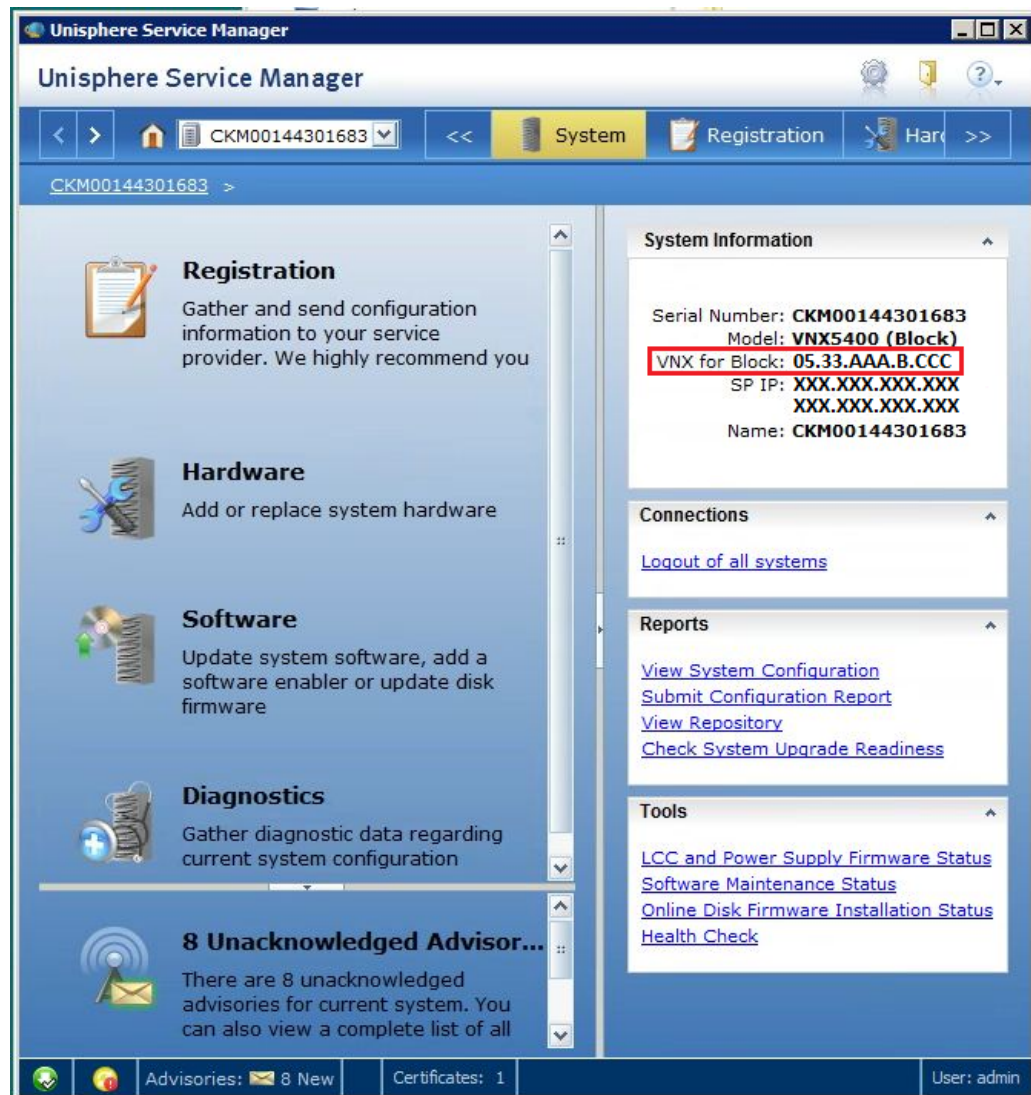


Figure 5 VNX For Block Firmware Version

2. If the version is lower than the level specified in the BOM, continue with Step 3, otherwise continue with Section 3.5 on page 16.
3. Prepare to upgrade the firmware:
  - a. In the toolbar select **Software** and then **System Software**.
  - b. Run the **Prepare for Installation (Step-1)** step to check for any issues and address them.
  - c. Click **Next** in the following welcome window.
  - d. In the following window press the **Browse** button, browse the downloaded firmware and click **Open**.



- e. Wait until USM has unpacked and transferred the firmware. This can take several minutes.
- f. Click **Next>**.
- g. Wait until USM has examined the package information. This can take several minutes.
- h. The next window gives hints how to check some conditions. These conditions do not apply for CEE setup. Click **Next >** to proceed.
- i. The next window “Server Readiness for Software Update” states that no attached servers were found. Click **Next >** to proceed.
- j. In the next window choose “Collect the diagnostic information again” to collect diagnostic information. Click **Next >** to proceed.

**Note:** This can take several minutes to complete.

- k. Click **Next >** to proceed to the rules check.
- l. Examine the health check results and consider all **Rule Names** which are marked with an exclamation mark (warnings or errors). They can be expanded by clicking on the exclamation marks.

Fix all errors before continuing and consider all warnings.

Disregard warnings that do not apply (for example, messages regarding attached VMWare ESX servers).

**Note:** It is possible that an exclamation mark will indicate, that the rule **Special Conditions** requires special attention. This can be ignored as long as it deals with attached servers, since no servers are attached at this point.

Press the **Rerun** button to perform another rule check after an error has been solved.

- m. When no errors are listed, click **Next >** to continue.

In case of warnings, a confirmation window appears, asking to proceed with warning(s).

Click **Yes** to continue.

- n. Read the information about the “Non-Disruptive Upgrade Delay” in the next window, leave the default setting of 360 seconds unchanged and click **Next >** to continue.
- o. The next window confirms the successful completion of the preparation. Click **Finish** to continue.

#### 4. Install the firmware:



- a. Choose **Install Software (Step-2)**.
- b. Read the warning message in the next window and choose **Next >** in the following window.
- c. Choose **Express Install (Recommended)** then click **Next >**.
- d. The **Express Install Information Verification** window shows the firmware to be installed. Verify the information.

The firmware to be installed must be listed. If it is missing or not matching, click **Cancel** and repeat the Preparation, see Step 3 in Section 3.4 on page 13.

If everything is done, acknowledge the information and click **Next >**.

- e. The next window shows the progress of the installation. Wait for the installation to finish.

**Note:** The installation takes up to 2 hours.

If the post installation tasks are not started automatically click **Next >** to proceed and start the post installation tasks in the next window.

- f. The next window shows the result of the post installation tasks. Click **Next >** to continue.

In case of reported problems, create `SPcollects` as described in Section 5.2 on page 22, and consult the next level of support. Further actions are outside the scope of this instruction.

- g. The next screen shows an overview of the “Express Install Progress”. Click **Next >** to continue.
- h. The next window gives a summary about the successful installation of the firmware and recommends to restart the USM. Uncheck the box “Notify your service provider with updated storage system configuration information”.

Acknowledge the information in the window by clicking **Finish**.

5. Check the recently installed firmware as described in Step 1 and Step 2 (both in Section 3.4 on page 13), and verify the upgraded firmware number.

**Note:** In case a VNX firmware upgrade is planned with an already running CEE (which is outside the scope of this instruction), the active “cinder-volume” process on a CIC must be stopped before the VNX upgrade, and it must be restarted after the VNX firmware upgrade is completed.



## 3.5 Configuring the Storage Pool

To configure the storage pool follow these steps:

1. Start a browser and enter the IP address `<sp_a_ip_address>` in the URL line.
2. Provide the login credentials for the VNX global administrator user (`<EMC.USER>`, `<EMC.PASSWORD>`) and enter the IP address of SPB (`<sp_b_ip_address>`).
3. Click the system you have recently installed for configuration in the overview page.
4. Select **Storage**.
5. Select **Storage Pools**.

An overview of defined storage pools is displayed. No pools are defined, since the system is freshly installed.

6. Select **Create**.

Make sure that under “Storage Pool Parameters” the “Storage Pool Type” “Pool” is selected.

7. Insert the following information:

Storage Pool Name: `<STORAGE.POOL.NAME>`

8. Select “RAID5 (4+1)” under “RAID Configuration” and select “20 (recommended)” under “Number of SAS Disks”.

**Note:**

- The certified configuration contains a fully equipped DPE, which means 25 Serial Attached SCSI (SAS) disks with a capacity of 600 GB each. Four disks are used by the system (the so called “Vault disks”) and one disk is reserved as “hot spare disk”. Therefore 20 disks are available for the pool.

Up to the size of 1TB each RAID5 is the recommended RAID level, while two different RAID5 setups are available: “4+1” and “8+1”. Unisphere recommends a multiple of those sums when it comes to selecting the number of disks to be used. Possible options for “4+1” are 5,10, 15 or 20 disks, while the options for “8+1” are 9, 18 or 27.

“RAID5 (4+1)” with a number of 20 disks makes best use of the available SAS disks.

- For disk capacities higher than 1TB, EMC recommends RAID6 either in the configuration of “6+2” or “14+2”. It is recommended to use a configuration that matches the number of available disks.

The recommendation is founded by the larger capacity of those disks, which results in longer RAID recovery time. During this recovery time RAID6 still offers protection due to the redundant parity layout.

9. Click **OK**. A new window “Confirm: Create Storage Pool” opens. Click **Yes** to continue.

Acknowledge the Message “Create Storage Pool” by clicking **OK** in the newly opened window.

**Note:** If the number of selected disks is not a multiple of the sum of disks mentioned in the selected RAID configuration, a warning window “Warning: Create Storage Pool” opens and informs about a non optimal configuration. Continue with **Yes** or click **No** to change the configuration or number of the disks.

The creation of the pool takes several minutes.

10. Acknowledge the message “Create Storage Pool” by clicking **OK** in the newly opened window.
11. Check the state of the created pool. The pool is ready to be used when the **State** is “Ready”.

**Note:** Use the **refresh** button to update the screen since it does not update automatically.





## 3.6 Health Check

To perform a health check follow these steps:

1. Use the USM to perform a final health check to verify if the initialization and installation was successful.
2. Select the system you have recently installed.
3. Click **Health Check** in the “Tools” area (see Figure 6). A window opens and the health check is being performed.

Wait until the health check is finished. This can take several minutes.

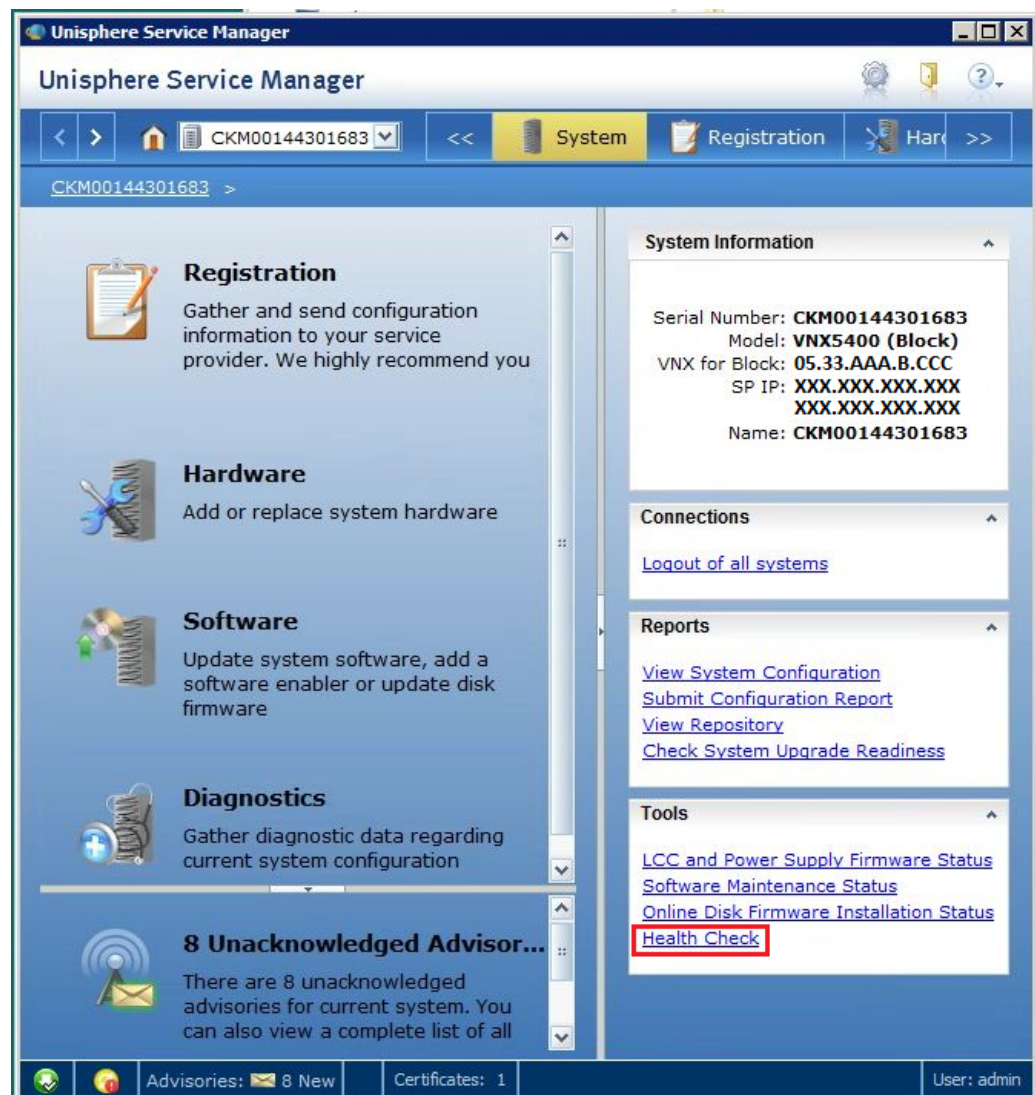


Figure 6 Health Check

4. Check the messages under “Rules Check Complete”.



In case of reported problems, create `SPcollects` as described in Section 5.2 on page 22, and consult the next level of support. Further actions are outside the scope of this instruction.





## 4 Post-Installation Activities

This section describes the post-installation activities needed for VNX5400 software package.

After the installation and health check of the VNX5400 follow these steps:

1. Make an SPcollect for both SPs as described in Section 5.2 on page 22 (to be able to upload them to the registration account at a suitable time).
2. Register the system. See Section 5.5 on page 27 for details.
3. Close the Tools on the LCT:
  - a. Close the Browser.
  - b. Close USM.
4. Revert the IP settings of the LCT to the original state (for details see Section 5.4.5.2 on page 26).
5. Disconnect the LCT from the VNX:
  - a. Disconnect the network cables from the NIC of the LCT and from the management ports of the storage processors.
  - b. Disconnect the network cables from the switch.
  - c. Disconnect the switch from the power supply.
  - d. If you needed to unplug cables from the management ports of the VNX before, reconnect them now.



## 5 Appendix

The following sections describe additional details about preparations for the initialization, installation and post-installation activities or the VNX5400.

### 5.1 EMC Account

An EMC account is needed to access the EMC download area, where software tools and firmwares can be obtained.

EMC accounts are available for customer installation and for internal usage:

- An EMC account for customer installation can be requested at the *EMC support and download portal*, Reference [3].
- The Ericsson EMC account for internal use can be requested at the next level of support.

**Note:** Even though it is a common account, do not disclose the credentials.

Do not change the password.

### 5.2 Retrieving SPcollects

This chapter describes how to get the `SPcollects`.

**Note:** The following instruction is a slightly modified partial copy from the EMC support web page Reference [3]. The original can be acquired by entering the phrase “Gathering SPcollect files on a VNX Series array” in the search field.

1. Log in to Unisphere client
2. Select the VNX, either from the dashboard or from the Systems drop-down menu. Click **System** on the toolbar.
3. On the right pane, under Service Tasks, select **Capture Diagnostic Data**. This launches USM. Alternatively USM can be launched directly from the Windows Start menu.
4. Select the Diagnostics tab and select **Capture Diagnostics Data**. This launches the Diagnostic Data Capture Wizard.
5. The wizard captures and retrieves “SPcollect” files from both storage processors and Support Materials from the file storage, which will then be combined into a single zip file.



## 5.3 Downloading the Firmware

To download the firmware from the EMC support web page, follow these steps:

1. Go to the EMC online support web page, Reference [3].
2. Click **Support** and then **Support by Product**.
3. Type “VNX5400” into the search bar and click on the search symbol >>. You are directed to the “VNX5400” area.

**Note:** There are no spaces in the product name “VNX5400”.

4. Click the **Downloads** link. A list with expandable items like **RECOMMENDED**, **FULL RELEASE**, and **UPDATE** is presented.
5. Expand the item **FULL RELEASE** by clicking on the + sign on the left side.
6. Locate the Firmware package and download it to the LCT.

Refer to *BOM for Certified HW Configurations*, Reference [1] to verify which firmware to download.

**Note:** The estimated download time for the firmware is 20 minutes (550MB with 500kB/s).

## 5.4 Local Craft Terminal Setup

The LCT must fulfill the following requirements:

- Operating System Windows Vista (32/64bit) or Windows 7 (32/64bit)
- Java

The following 32 bit Java Platforms are verified by EMC and compatible for use with Unisphere and the Unisphere Service Manager (USM):

- Oracle Standard Edition 1.7 up to Update 75
- Oracle Standard Edition 1.8 up to Update 25

The 32-bit Java Runtime Environment (JRE) is required even on 64 bit systems. JRE Standard Edition 1.6 is not recommended because Oracle has stopped support for this edition.

- Network Interface Card (NIC) with RJ45 connector
- Ports “2162” and “2163” must be open for UDP traffic.

**Note:** If these ports are closed (for example blocked by a firewall), the initialization wizard is not able to detect any VNX device. In this case the wizard does not return an error message, the VNX device will simply not show up in the list.



- Internet browser installed with activated Java plugin (Firefox preferred)
- Unisphere Storage System Initialization Wizard installed

This tool discovers the connected VNX and performs the initial setup (user account, TCP/IP setup).

- Unisphere Service Manager (USM) installed

USM is a Java-based desktop application for updating, installing, and maintaining your VNX hardware and software. It also provides contact information as well as system information to EMC.

It is also used to install SW enablers, firmware upgrades and for adding to or replacing hardware on the VNX.

### 5.4.1 Downloading the Software Tools

The software tools can be directly accessed through the EMC Support VNX5400 download area. See Section 5.1 on page 22 for details.

To download the software tools follow these steps:

1. Log in to the EMC support web page, Reference [3].
2. Navigate to **SUPPORT** and then to **Support by Product**.
3. Type “VNX5400” into the search bar and click on the search symbol >>.

**Note:** There are no spaces in the product number “VNX5400”.

You are forwarded to the VNX5400 product page.

4. Click the **Downloads** link, and then click the **Tools** link.
5. Download the following software:
  - “Unisphere Storage System Initialization Utility (Windows)”
  - “Unisphere Service Manager (USM) (Windows)”

### 5.4.2 Installing the Unisphere Storage System Initialization Utility

To install the Unisphere Storage System Initialization Utility follow these steps:

1. Log on to the LCT as administrator or as a user with administrative privileges.
2. Run the downloaded executable file to install the initialization wizard.
3. Follow the instructions on the installation screen to install the initialization utility.



4. When the installation is complete, click **Done**.

### 5.4.3 Installing Unisphere Service Manager

To install the Unisphere Service Manager on the LCT follow these steps:

1. Log on to the LCT as administrator or as a user with administrative privileges.
2. Run the downloaded executable file to install USM.
3. Follow the instructions that appear. The wizard verifies that the Management Station is running a supported version of the JRE.
4. When the installation is complete, click **Done**.

### 5.4.4 Copying the SW Enablers

To copy the SW enablers on the local hard disk of the LCT follow these steps:

1. Check if the folder `c:\emc\repository\Downloads\VNX` exists on the LCT. It is created as default repository during the USM installation process. If the folder does not exist, create it.
2. Copy the enablers to the local hard disk of the LCT:
  - a. Insert the “Local Protection Suite” CD-ROM or DVD and browse for the enabler file with `.ena` extension.
  - b. Copy the `.ena` file to the `c:\emc\repository\Downloads\VNX` folder on the LCT.
  - c. Insert the “Thin enabler” CD-ROM or DVD and browse for the enabler file with `.ena` extension.
  - d. Copy the `.ena` file to the `c:\emc\repository\Downloads\VNX` folder on the LCT.

### 5.4.5 LCT IP Settings

This chapter describes how to change the IP settings of the LCT to be able to communicate with the VNX.

**Note:** The user must have the appropriate privileges to be able to change the IP settings on the LCT.

#### 5.4.5.1 Changing the IP Settings of the LCT

1. Open **Control Panel**.
2. Open **Network and Sharing Center**.
3. Click on **Change adapter settings**.



4. In the following window locate the entry for the physical wire bound Ethernet interface and open its **Properties**.

**Note:** Usually it is named “Local Area Connection”.

5. Confirm the “User Account Control” question by clicking **Yes**.
6. In the following window select the entry **Internet Protocol Version 4 (TCP/IPv4)** and click the **Properties** button.
7. In case a static IP address is used (the checkbox **Use the following IP address** is already checked), write down the values and continue with Step 9. Otherwise proceed to Step 8.
8. Check the radio button for **Use the following IP address**.
9. Check the radio button for **Use the following IP address** and provide the following information:

IP address:	<lct_ip_address>
Subnet mask:	<subnet_mask>
Default gateway:	<lct_default_gateway>

10. Click **OK** to confirm the changes.
11. To verify, that the IP address change worked open a command prompt and type **ipconfig**.
12. Search for the adapter, which settings you have changed recently and check the “IPv4 Address”, “Subnet Mask”, and the “Default Gateway”. Its name is the same as the one you have selected in Step 4 (in Section 5.4.5.1 on page 25).

#### 5.4.5.2

#### Reverting the IP Settings of the LCT at Post-Installation

1. Open the **Control Panel**.
2. Open the **Network and Sharing Center**.
3. Click on **Change Adapter settings**.
4. In the following window locate the entry for the physical wire bound Ethernet interface and open its **Properties**.

**Note:** Usually it is named “Local Area Connection”.

5. Confirm the **User Account Control** question.
6. In the following window select the entry **Internet Protocol Version 4 (TCP/IPv4)** and click the **Properties** button.
7. Revert the settings to the original state.



- Check the radio button **Obtain an IP address automatically** if this setting was used before.

or

- Insert the IP addresses you have noted down before.

8. Click **OK** to confirm the changes.

## 5.5 EMC Registration

After the VNX is installed, it needs to be registered. This registration requires a spreadsheet to be filled out and sent by email, and diagnostic files (`SPcollects`, see Section 5.2 on page 22) to be uploaded to an FTP area. The spreadsheet can be downloaded from the same FTP area.

To register the installed VNX follow these steps:

1. Download the registration spread sheet.

Connect to the EMC FTP area with your credentials, navigate to the folder `register` and download the file `RegistrationForm.xlsx`.

2. Fill out the registration sheet. Consult the next level support in case help is needed.
3. Upload the `SPcollects` to the FTP area into the `register` folder.
4. Send the filled out spreadsheet to `EricssonRegistration@emc.com` at a suitable time. Enter **VNX registration** as subject.



# Reference List

## Documents

- [1] *BOM for Certified HW Configurations*, 1/006 51-CSA 113 125/5 Uen
- [2] *IP and VLAN Plan*, 2/102 62-CRA 119 1862/5 Uen

## EMC Web Pages

- [3] *EMC support and download portal*, <https://support.emc.com/>