
NEC

**EXPRESSCLUSTER X 4.1 Quick Start Guide
for Milestone XProtect VMS Products 2019 R1 on
Microsoft Windows Server 2019 Standard
Version 1**



NEC EXPRESSCLUSTER X 4.1 for Milestone XProtect VMS Products 2019 Quick Start Guide

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About this Guide

Using this guide

This guide provides a hands-on “Quick Start” set of instructions for the EXPRESSCLUSTER X (ECX) for Windows. The guide assumes its readers to have Windows system administration knowledge and skills with experience in installation and configuration of Microsoft Windows operating systems, networks, and Milestone XProtect VMS Products 2019 R1. The guide includes step-by-step instructions to install and configure EXPRESSCLUSTER X 4.1 with Milestone XProtect VMS Products 2019 R1.

This guide covers the following topics:

Chapter 1: [Overview](#) – describes the general steps of setup procedure.

Chapter 2: [System Requirements and Planning](#) – describes the overall system and network requirements and includes a set of tables for planning the installation and configuration.

Chapter 3: [Base System Setup](#) – describes the configurations required for each system before installing target application.

Chapter 4: [Milestone XProtect VMS Products 2019 R1 Installation](#) – describes the installation of Milestone XProtect VMS Products 2019 R1 on the Primary and Standby Servers.

Chapter 5: [EXPRESSCLUSTER X Server Installation](#)– describes the installation of EXPRESSCLUSTER X on the Primary and Standby Servers.

Chapter 6: [Base Cluster Setup](#)– describes required configuration to enable full cluster functionality.

Chapter 7: [Configure DB of Milestone XProtect VMS Products 2019 R1](#)– describes required configuration to enable full cluster functionality.

Chapter 8: [Final Deployment in a LAN Environment](#) – describes steps to verify the cluster and complete the deployment on a primary and a secondary server

Chapter 9: [Common Maintenance Tasks](#) – describes how to perform common maintenance tasks using the EXPRESSCLUSTER Manager.

Where to go for more information

Refer to additional documentation under the “documentation” directory on the EXPRESSCLUSTER X distribution CD or archive file.

For any further information, please visit EXPRESSCLUSTER X web-site <http://www.nec.com/EXPRESSCLUSTER>

We have the following guides for instant support:

- **Getting Started Guide** – This guide covers topics such as product overview, system requirements and known problems.
- **Installation and Configuration Guide** – This guide contains instructions for designing and configuring a cluster system with EXPRESSCLUSTER X.
- **Reference Guide** – This guide covers topics such as how to operate EXPRESSCLUSTER X function of each module and troubleshooting.
- **Maintenance Guide** - The guide is intended for administrators and system administrators who want to build, operate, and maintain the system. The guide describes maintenance-related information for EXPRESSCLUSTER X.
- **Hardware Feature Guide** - The guide describes features to work with specific hardware, serving as a supplement to the Installation and Configuration Guide.
- **Legacy Feature Guide** - The guide covers topics of EXPRESSCLUSTER X 4.1, Builder, and EXPRESSCLUSTER Internal version 12.00-12.12.

The above stated guides can also be found at

<http://www.nec.com/global/prod/EXPRESSCLUSTER/en/support/manuals.html>

You can also contact the Express Cluster team via the following E-mail address:

info@EXPRESSCLUSTER.jp.nec.com

1 Overview

The general procedure of clustering MILESTONE XPROTECT VMS PRODUCTS 2019 R1 with NEC EXPRESSCLUSTER X on two server machines (Primary and Standby) for high availability consists of the following major steps:

1. Performing system planning to determine requirements and specify configuration settings prior to start of actual system installation and configuration.
2. Prepare the Primary and Standby servers including OS installation and configuration (if necessary).
3. Install, configure, and verify MILESTONE XPROTECT VMS PRODUCTS 2019 R1 on the Primary and Standby servers respectively. If an existing production MILESTONE XPROTECT VMS PRODUCTS 2019 R1 system exists already then it could be use as the Primary Server without reinstallation of MILESTONE XPROTECT VMS PRODUCTS 2019 R1.
4. Install and configure NEC EXPRESSCLUSTER Server on the Primary and Standby servers.
5. Create and configure NEC EXPRESSCLUSTER X failover group to enable continuous protection and automatic recovery for MILESTONE XPROTECT VMS PRODUCTS 2019 R1.
6. Upload the configuration file on the server and start the cluster to complete the deployment.

2 System Requirements and Planning

2.1 Milestone XProtect VMS Products 2019 R1 requirements

- .Net Framework 3.5

System Requirements

Machine 1: Primary Server

Machine 2: Standby Server

Machine 3: Test Client Machine

	Machine 1 Primary Server	Machine 2 Standby Server	Machine 3 Test Machine
CPU	Xeon – 2.10 GHz or better		i5 - 2.10 GHz or better
Memory	8 GB or more		8 GB or more
Disk	1 disk OS partition: 20 GB or more space available (to include the installation of MILESTONE XPROTECT VMS PRODUCTS 2019 R1) Cluster partition: RAW Partition of 1GB or more, available for EXPRESSCLUSTER X management, same size required for each server system Data partition: enough partition space to store MILESTONE XPROTECT VMS PRODUCTS 2019 R1		1 disk with 1 GB or more space available
OS	Windows Server 2012 (Standard or Enterprise) or later		Windows 7 or later
Software	Web browser		Web browser
Network	2 100Mbit or faster Ethernet network interface cards		100Mbit or faster Ethernet network interface card

Table 1 System Requirements

2.2 System Planning

Review the requirements from last section and then fill out the tables of the worksheet below. Use for reference in the following sections of this guide. See [Appendix B](#) for an example worksheet.

Machine 1 Primary Server
 Machine 2 Standby Server
 Machine 3 Test Client Machine

Machine	Host name	Network Connection	IP Address	Subnet Mask	Default Gateway	Preferred DNS Server
1		Public: Interconnect:				
2		Public: Interconnect:				
3						

Table 2 System Network Configuration

Floating IP (FIP) addresses:

Web Management Console FIP: (1) _____

Machine	OS	Disk 0 (OS Disk)	Disk 1 (Data Disk)
1		Boot Partition: Drive Letter: Size:	Cluster Partition: Drive Letter: Size (>1 GB) :
2		Boot Partition: Drive Letter: Size:	*Data Partition: Drive Letter: Size:
3			

Table 3 System OS and Disk Configuration

* The size must be large enough to store all data files for Milestone XProtect VMS Products 2019 R1 to meet current and expected future needs.

Machine #	Login	Password
Machine 1 Administrator		
Machine 2 Administrator		
Machine 3 Administrator		

Table 4 System Logins and Passwords

3 Base System Setup

3.1 Setup the Primary Server (Machine 1)

1. If necessary, install required hardware components and a supported OS including any required service pack as specified in [Chapter 2](#)
 2. Ensure availability of basic system boot, administrator login functionality and of required hardware components as specified in [Chapter 2](#).
 3. Configure network interface names
 - Rename the network interface to be used for network communication with client systems to **Public**.
 - Rename the network interface to be used for internal EXPRESSCLUSTER X management and data mirroring network communication between servers to **Interconnect**.
 4. Configure network interface TCP/IP Settings:
 - In the Network Connections window, right-click Public and then click on Properties.
 - In the Properties dialog box, double-click Internet Protocol (TCP/IP).
 - Click the Use the following IP address: option button.
 - Type the IP address, Subnet mask, and Default gateway values (Refer [Section 2](#)).
 - Click the Use the following DNS server addresses: option button and enter the Preferred DNS server address (Refer [Section 2](#)).
 - Click the Advanced button. Click the DNS tab. Click to clear the Register this connection's addresses in DNS check box. Click OK. Click OK.
 - Go back to the Network Connections window. Right-click Interconnect and then click Properties.
 - In the Properties dialog box, double-click Internet Protocol (TCP/IP).
 - Click the Use the following IP address: option button.
 - Type the IP address and Subnet mask values (Refer [Section 2.2](#)). Click OK. Click OK.
 5. Configure network interface binding order:
 - In the Network Connections window, click on the Advanced menu tab, and click Advanced Settings.
 - On the Adapters and Bindings tab, under Connections; use the up and down arrow buttons to move Public to the first (top) position. Click OK.
 - Close the Network Connections window.
 6. Connect the network interfaces:
 - Connect the network interface, Interconnect to the Cluster Interconnect Network and verify a healthy physical link status.
 - Connect the network interface Public to the Public Network and verify a healthy physical link status and connectivity to the Management Console/Test Client (Machine 3).
-

7. Configure the Data Disk:

- Make sure the disk device or LUN is initialized as a Windows Basic disk device
- Create a mirrored disk cluster partition on the disk with specified size in Table 3 and make sure it is 1 GB or greater. Assign drive letter specified in Table 3 to the partition but do NOT format it.
- Create a mirrored disk data partition on the disk with specified size in Table 3. Assign drive letter specified in Table 3 to the partition and format it as NTFS file system.
- Verify the mirrored disk cluster and data partitions are visible in Windows Explorer under their respective assigned drive letters.

3.2 Setup the Standby Server (Machine 2)

Perform steps 1-7 in [Section 3.1](#) on the Standby Server

4 Milestone XProtect VMS Products 2019 R1 Installation

Install Milestone XProtect VMS Products 2019 R1 in primary and standby server, for installation refer Milestone installation guide.

5 EXPRESSCLUSTER X Server Installation

5.1 Install EXPRESSCLUSTER X on the Primary Server (Machine 1)

1. Open EXPRESSCLUSTER X 4.1 setup for Windows.
2. On the License Agreement screen, click **I Agree**.
3. On the pop up window select NEC EXPRESSCLUSTER for Windows.
4. Now, click on NEC EXPRESSCLUSTER X for Windows
5. On the Welcome screen click **Next**
6. On the Choose Destination Location screen, click **Next**.
7. On the next screen, click **Install**.
8. On the Port Number screen, if you to use any port numbers that are different from the default numbers listed, change on this screen. Click **Next**.
9. On the Filter Settings of Shared Disk screen, click **Next**.
10. On the Confirmation screen, click **Yes**.
11. On the License Manager screen, click **Register**.
12. On the next screen, click **Register with License File**.
13. Select an EXPRESSCLUSTER license file and click **Open**. (Example: ECX-.key).
14. On the License Registration screen, click **OK**.
15. On the License Manager screen, click **Register**.
16. On the next screen, click **Register with License File**.
17. Select an EXPRESSCLUSTER X Replicator license file and click **Open**.
18. On the license registration screen, click **OK**.
19. On the next screen, click **Finish**.
20. On the Install Shield Wizard Complete screen, click the **No, I will restart my computer later** option button and then click **Finish**.
21. On the next screen, click **Finish**.

5.2 Install EXPRESSCLUSTER X on the Standby Server (Machine 2)

Perform the steps 1-21 in [Section 5.1](#) on the Standby Server (Machine 2).

5.3 Restart the Primary and Standby Servers (Machines 1 & 2)

First restart the Primary Server and then restart the Standby Server.

6 Base Cluster Setup

This section describes the steps to create a cluster using EXPRESSCLUSTER Manager running on the Management Console/Test Client (Machine 3).

6.1 Start the cluster manager

The cluster manager can be started by double clicking on the new desktop icon “**Cluster Manager**” or by accessing port 29003 from the web browser of any of the nodes (Machine1 or Machine 2). Example: <http://localhost:29003>

6.2 Create a cluster

For all of the steps below, refer to **Table 2 System Network Configuration** for the IP addresses and Server names.

1. Open cluster manager then click on “**change to config mode**”.
2. Then click on “**cluster generation wizard**”.
3. After that “**Define cluster name**”, “**select language**”, “**management IP**” then click on **Next**.
4. Click on “**Add**” to add secondary server in cluster then type “**server IP**” and click **Ok**.
5. Now both servers would appear on the list then click on **Next**.
6. Select the network you would like to use for Heartbeat path as Kernel Mode. If the Mirroring is also happening through the same network cards, then we will need to specify the mirror connect on the respective network fields then click **Next**.
7. To configuration of NP resolutions add select ping in “Type” and type IP address in “ping target” then click on **Next** to continue.

6.3 Create a failover group

For all of the steps below, refer to **Table 2 System Network Configuration** for the IP addresses and Server Names.

1. Now in the cluster generation wizard, we are in the groups section.
2. Click **Add** to add a group.
3. In the newly opened window, select the type of the group as Failover and give this group a name (e.g.: Milestone_cluster) and click **Next** and then click **Next**.
4. Let the default options for the group attribute settings and click **Next**.

6.4 Create floating IP and mirror disk resources

1. Now in the Group resources section of the Cluster generation wizard.
2. Click on **Add** to add a resource.
3. In the next window, to add a Floating IP Resource (FIP) select “floating ip resource” from the drop down list. Click **Next**.
4. By default, the FIP resource is not dependent on any other resources. Follow the default dependency and click **Next**.
5. Use the default options and click **Next**.

-
6. Provide a floating IP address that is not used by any other network element. Click **Finish**.
 7. Click **Add** to add a mirror disk resource.
 8. In the next window, to add a Mirror Disk Resource (MD) select “Mirror Disk resource” from the drop down list. Click **Next**.
 9. Again, follow the default dependency. Click **Next**.
 10. Use the default options and click **Next**.
 11. Now, add both of the servers one by one. Click **Add** to add the first server. In the pop-up window click on the Connect button to refresh the partition information. Select the data partition and click **OK**.
 12. Repeat step 11 for standby server as well.
 13. Click **Finish**.
 14. Now click **Add** to add a Virtual Computer Name.
 15. In the next window, to add a Virtual Computer Name (VCOM) select “Virtual Computer Name resource” from the drop down list. Click **Next**.
 16. Define the virtual computer name like in this case “milestone” and select Target FIP that was created in previous section. Click **Finish** and again click **Finish**
 17. Click **Next**.
 18. All the monitors would be added automatically. Click **Finish** to add the monitors.
 19. To apply the configuration, click on File menu and then click on **Apply the Configuration File**.

7 Configure DB of Milestone XProtect VMS Products 2019 R1 for Cluster Setup

7.1 Move the EC failover group to the Primary Server

Perform the following functions on the primary server:

1. Create a new directory on the mirror disk: **[your drive letter:] \MSSQL**
2. Inside MSSQL create another new directory: **[your drive letter:] \MSSQL\DATA**

7.2 Moving the Master and Resource Database to Disk on Primary Server

Follow the following steps:

1. From the Start Menu, point to apps, point to Microsoft SQL Server 2016 and then click SQL Server Configuration Manager.
2. In the SQL Server Services node, right-click on SQL SERVER (MSSQLSERVER) and click on Properties.
3. In the SQL Server(MSSQLSERVER) Properties dialog box, click Startup Parameters tab.
4. Edit the Startup Parameters values to point to planned location for the master database data and log files, and click **OK**. (Moving the error log file is optional.)

The parameter value for the data file must follow the `-d` parameter and the value for the log file must follow the `-l` parameter. The following example shows the parameter values for the default location of the master data and log files.

```
-dC:\Program Files\Microsoft SQL Server\MSSQL13.MSSQLSERVER\MSSQL
\DATA \master.mdf;
-eC:\Program Files\Microsoft SQL Server\MSSQL13.MSSQLSERVER\MSSQL
\LOG\ERRORLOG;
-lC:\Program Files\Microsoft SQL Server\MSSQL13.MSSQLSERVER\MSSQL
\DATA \mastlog.ldf
```

If the planned relocation for the master data and log files is on the mirror disk: `[your drive letter:] \MSSQL\DATA`, the parameter values would be changed as follows:

```
-d[your drive letter:] \MSSQL\DATA\master.mdf; -
eC:\ProgramFiles\MicrosoftSQLServer\MSSQL10.MSSQLSERVER\MSSQL\LOG\E
RRORLOG;
-l[your drive letter:] \MSSQL\DATA\mastlog.ldf
```

1. Move the **master.mdf** and **mastlog.ldf** files to mirror disk by using copy and paste
2. Set all Microsoft SQL services to Manual and make sure that they are stopped.

7.3 Configure DB of Milestone on Secondary Server

1. Move the cluster to the secondary server.
2. Perform all of the steps in [section 7.2](#) on the Standby Server (Machine 2) except Step 5.
3. Then, move the cluster to the primary server.

-
4. (Optional)Run Query Analyzer to test your database on Primary Server
 5. (Optional)Run Query Analyzer to test your database on Secondary Server
 6. In order to run this utility, the failover group has moved onto the Secondary Server.

7.4 Set the DB and application Server Services to Manual

After the SQL Server setup has completed on both servers, set all of the SQL Server and Milestone Services to manual, and make sure that they should stop.

7.5 Cluster Services Setup

1. Right click on **failover** and click **Add Resource** in builder window.
2. Choose **service resource**.
3. Type a service name to the resource (Ex: **MSSQLSERVER**) and add optional comments if required.
4. Click **Next**
5. Click on Connect and select the service **MSSQLSERVER** from the drop down.
6. Click **OK**
7. Click **Next** (for default values) to learn more about parameters please refer the Express Cluster Reference Guide. Click **Next**.
8. Click **Finish**.
9. Right click on **failover** and click **Add Resource** in builder window.
10. Choose **service resource**.
11. Type a service name to the resource (Ex: **Milestone Data service**) and add optional comments if required.
12. Click **Next**
13. Click on Connect and select the service **Milestone XProtect Data Collector Server** from the drop down.
14. Click **OK**
15. Click **Next** (for default values) to learn more about parameters please refer the EXPRESSCLUSTER X Reference Guide. Click **Next**.
16. Click **Finish**.
17. Right click on **failover** and click **Add Resource** in builder window.
18. Choose **service resource**.
19. Type a service name to the resource (Ex: **Milestone XProtect Management Server**) and add optional comments if required.
20. Click **Next**
21. Click on Connect and select the service **Milestone XProtect Management Server** from the drop down.
22. Click **OK**
23. Click **Next** (for default values) to learn more about parameters please refer the EXPRESSCLUSTER X Reference Guide. Click **Next**.
24. Click **Finish**.
25. Right click on **failover** and click **Add Resource** in builder window.
26. Choose **service resource**.

-
27. Type a service name to the resource (Ex: **Milestone XProtect Event Server**) and add optional comments if required.
 28. Click **Next**
 29. Click on **Connect** and select the service **Milestone XProtect Event Server** from the drop down.
 30. Click **OK**
 31. Click **Next** (for default values) to learn more about parameters please refer the EXPRESSCLUSTER X Reference Guide. Click **Next**.
 32. Click **Finish**.
 33. Select **File** and then **Upload the Configuration File**.
 34. Click **OK**, then Navigate back to cluster manager and select **Start Cluster**

8 Final Deployment in a LAN Environment

This chapter describes the steps to verify a LAN infrastructure and to deploy the cluster configuration on Primary and the Secondary server

1. Configure and verify the connection between the primary and standby servers to meet the following requirements:
 - Two logically separate IP protocol networks: one for the Public Network and one for the Cluster Interconnect.
 - The Public Network must be a single IP subnet that spans the primary and standby server to enable transparent redirection of the client connection to a single floating server IP address.
 - The Cluster Interconnect should be a single IP subnet that spans the primary and standby server to simplify system setup.
 - Proper IP network between client and server machines on the Public Network on both the primary and standby servers.
2. Make sure that the primary server is in active mode with a fully functional target application and the Standby Server is running in passive mode.
3. Ping both primary and secondary servers with the test system and make sure the secondary has all the target services in manual and stopped mode.
4. Start the cluster and try accessing the application from the Primary Server and then move cluster to the Secondary server. Check the availability of the application on the Secondary Server after failover.
5. Deployment is completed.

9 Common Maintenance Tasks

This section describes how to perform common EXPRESSCLUSTER maintenance tasks using the EXPRESSCLUSTER X WebUI.

9.1 Start Cluster Manager

There are two methods to start/access Cluster Manager through a supported Java enabled web browser. The first method is through the IP address of the physical server running the cluster management server application and the second method is through the floating IP address for cluster management server within a cluster.

The first method is typically used during initial cluster setup before the cluster management server floating IP address becomes effective:

1. Start **Internet Explorer** or another supported Java enabled Web browser. Type the URL with the IP address of the active physical server followed by a colon and the cluster management server port number. Example: Assuming cluster management server is running on active physical server (10.1.1.1) on port number 29003, <http://10.1.1.1:29003/>
2. The second method is more convenient and is typically used after initial cluster setup
Start **Internet Explorer** or another supported Java enabled Web browser. Type the URL with the cluster management server floating IP address followed by a colon and the cluster management server port number. Example: Assuming cluster management server is running with floating IP address (10.1.1.3) on port 29003, <http://10.1.1.3:29003/>

9.2 Reboot/shutdown one or all servers

9.2.1 Reboot all servers

1. Start Cluster Manager. ([Section 9.1](#))
2. Right-click the **%cluster name%** and click **Reboot**.
3. In the Confirmation window, click **OK**.

9.2.2 Shutdown all servers

1. Same as “Reboot all servers,” except in step 2 click **Shutdown**.

9.2.3 Shutdown one server

1. Start Cluster Manager. ([Section 9.1](#))
2. Right-click the **%machine name%** and click **Shutdown**.
3. In the Confirmation window, click **OK**.

9.3 Startup/stop/move failover groups

1. Start Cluster Manager. ([Section 9.1](#))
2. Under **Groups**, right-click **Failover** and then click **Start/Stop/Move**.
3. In the Confirmation window, click **OK**.

9.4 Isolate a server for maintenance

1. Start Cluster Manager. ([Section 9.1](#))
2. In the Cluster Manager window, go to the **Config mode**.
3. Click the **%cluster name%** and then right-click **Properties**.
4. Click the **Auto Recovery** tab. If you would like to manually return the server to the cluster, select **off** for the **Auto Return** option. Otherwise, leave it set to **on** for automatic recovery when the server is turned back on. Click **OK**.
5. If a change was made, upload the configuration file.
6. Shut down the machine that is the server you wish to isolate for maintenance.
7. The server is now isolated and ready for maintenance tasks.

9.5 Return an isolated server to the cluster

Start with the server that was isolated in the steps listed above (“Isolate a server for maintenance”).

9.5.1 Automatic Recovery

1. Turn the machine back on.
2. Recovery starts automatically to return the server to cluster.

9.5.2 Manual Recovery

1. Turn the machine back on and wait until the boot process has completed.
2. Start Cluster Manager.
3. In the Cluster manager window, right click the name of the server which was isolated and select **Recover**. The server, which was isolated, will return to the cluster.

10 Appendix A: EXPRESSCLUSTER X Server Un-installation

Follow the steps below to uninstall EXPRESSCLUSTER X from each of the server systems.

1. On the Management Console/Test Client, in Cluster Manger, under **Groups**, right-click **Failover** and then click **OK**.
2. Close Cluster Manger
3. On the server system that you are starting the uninstall process for EXPRESSCLUSTER, stop all EXPRESSCLUSTER services. To stop all services, follow the steps below:
 - On the **Start** menu, point to **Programs**, point to **Administrative Tools**, and click **Services**.
 - In the right pane, scroll down and double-click the entry for **EXPRESSCLUSTER**. Click the **Stop** button.
 - In the **Stop Other Services** dialog box, click **Yes**. Click **OK**.
 - Repeat steps 3.b. above for the entry for **EXPRESSCLUSTER EVENT**, and then click **OK**.
4. On the Start menu, point to Settings, and click Control Panel. Double-click Add or Remove Programs.
5. In the Add or Remove Programs window, under currently installed programs, click NEC EXPRESSCLUSTER Server. Click the Change/Remove button.
6. On the Question screen, click Yes to start the uninstall process.
7. On the NEC EXPRESSCLUSTER Server Setup screen, click Yes to stop the SNMP service.
8. On the next screen, click Yes to reset the registry settings to disable the media sense functions of TCP/IP disconnect detection.
9. On the first Install Wizard Complete screen, click Finish.
10. On the next Install Wizard Complete screen, select the Yes, I want to restart my computer now option button. Click Finish.

This completes the uninstall process for an individual server system.

Note

You must be logon as an administrator or an account with administrator privileges to uninstall Express Cluster Server.

If a shared disk is used, unplug all disk cables connected to the server after un-installation is completed.

11 Appendix B: Example System Planning Worksheet

Machine 1 Primary Server

Machine 2 Standby Server

Machine 3 Test client Machine

Table 1: System Network Interfaces

Machine	Host name	Network Connection	IP Address	Subnet Mask	Default Gateway	Preferred DNS Server
1	Primary	Public	10.1.1.1	255.255.255.0	10.1.1.3	10.1.1.3
		Interconnect	192.168.1.1	255.255.255.0	-----	-----
2	Standby	Public	10.1.1.2	255.255.255.0	10.1.1.3	10.1.1.3
		Interconnect	192.168.1.2	255.255.255.0	-----	-----

Table 2: System OS and Disks

Machine	OS	Disk 0 (OS Disk)	Disk 1 (Data Disk)
1	Win Server 2012 R2 Std. Ed. or later	Boot Partition: Drive Letter: C Size: 60 GB	* Cluster Partition: Drive Letter: W Size: 1GB Data Partition: Drive Letter: D Size: 20GB
2	Win Server 2012 R2 Std. Ed. or later	Boot Partition: Drive Letter: C Size: 60 GB	
3	Win 7	C: 20 GB	

* Must be a raw partition and larger than 1GB.

Floating IP (FIP) addresses:

Web Management Console FIP: (1) 10.0.0.222

Table 3: System Logins and Passwords

	Login	Password
Machine Administrator 1	Administrator	admin1234
Machine Administrator 2	Administrator	admin1234