



Configuring Failover Between Redundant Cisco Vision Dynamic Signage Director Servers

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Cisco Vision Dynamic Signage Director supports an environment best described as *warm standby* between two servers that run the Cisco Vision Dynamic Signage Director software—one of the servers operates as the primary active server, and the other server operates as a secondary backup server. If a failure occurs, you can configure the backup server to become the active server, but the failover process is not automatic.

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Note: Restoring the primary server after failover to secondary requires a service interruption and should only be conducted during scheduled downtime. Be aware that until you change the IP address of the primary server to remove the addressing conflict with the newly active secondary server, you will be unable to schedule backups between the two servers. You will also need to reconfigure the backup/restore environment using the Text Utility Interface (TUI) after the restore. For more information, see [Backing Up and Restoring Cisco Vision Dynamic Signage Director Servers, page 77](#).

Prerequisites for Configuring Failover Between Redundant Cisco Vision Dynamic Signage Director Servers

Before you promote a secondary server to become the primary active server, be sure that the following requirements are met:

- You have either physical console access or an SSH client such as PuTTY to log into both Cisco Vision Dynamic Signage Director servers.
- You understand how to use the Text Utility Interface (TUI). For more information, see the [“Cisco StadiumVision Director Server Text Utility Interface” module on page 97](#). For simplicity in these tasks, the instruction to “select” a particular menu item implies that you type the character that corresponds to the menu option and press **Enter**.
- Verify that you have a successful backup of the primary server on the secondary server. For more information, see the [“Backing Up and Restoring Cisco StadiumVision Director Servers” module on page 67](#).

Restrictions for Configuring Failover Between Redundant Cisco Vision Dynamic Signage Director Servers

- The Cisco Vision Dynamic Signage Director backup server is on the same subnet as the primary server.
- The servers are using the Eth0 interface for connection to the network.
- You have the IP addresses of the primary and secondary servers.

Tip: The IP address for the server is displayed on the screen when you log into the TUI. You also can view the `/etc/hosts` information on each server using the **TUI System Settings > System Information** menu option.

Restrictions for Configuring Failover Between Redundant Cisco Vision Dynamic Signage Director Servers

The Cisco Vision Dynamic Signage Director server redundancy architecture has the following restrictions:

- Redundancy, and therefore failover, is not supported for Cisco Vision Dynamic Signage Director Remote servers.
- The Cisco Vision Dynamic Signage Director server architecture does not support automatic failover when a failure occurs on the active server.
- Depending on your environment, 30 minutes or more is needed to complete the manual failover process.
- In addition, after the manual failover process is completed, a script push will be required if you are in an active event, which depending on your deployment and content size, can take anywhere from minutes to an hour. When pushing the script again, there will be a service interruption.

Information About Failover Between Redundant Cisco Vision Dynamic Signage Director Servers

[Figure 1 on page 91](#) shows the architecture of Cisco Vision Dynamic Signage Director server redundancy under normal network conditions and operation. The primary and secondary servers are addressed as independent hosts with two different IP addresses on the same subnet in the Cisco Connected Venue (Connected Stadium) network.

While the secondary server is still connected to the network, notice that communication and control only occurs between the primary Cisco Vision Dynamic Signage Director server and the rest of the network, including the Digital Media Players (DMPs).

The secondary server is only connected to the network to be made available as a backup to the primary should a failure occur. In addition, the secondary server can (and should) be configured to be backed up with data from the primary server on a scheduled basis.

Figure 1 Cisco Vision Dynamic Signage Director Redundancy Under Normal Operation

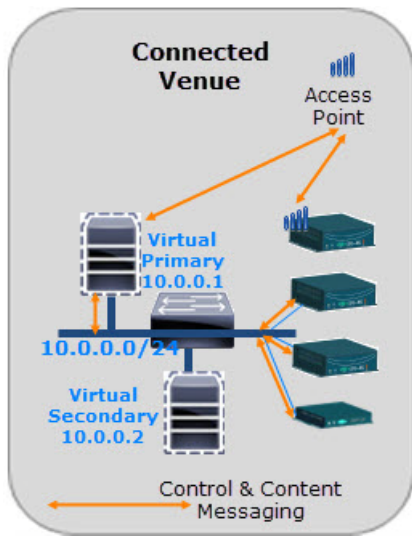
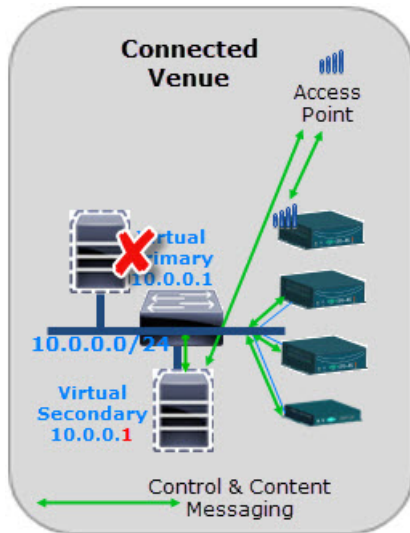


Figure 2 on page 92 shows the redundancy environment when connectivity from the primary Cisco Vision Dynamic Signage Director server fails. When the primary server fails, a manual process must take place to restore the secondary server from a backup, shut down the primary server, and activate the secondary server as the primary.

Notice that the secondary server must be reconfigured to use the same IP address the original primary server. In this example, the secondary server IP address is changed to 10.0.0.1 (from 10.0.0.2) to match the primary server address. When the process is complete, communication and control only occurs between the newly activated secondary server and the rest of the network.

Note: The word “failover” does not mean automatic activation of a secondary server. The failover process is manual.

Figure 2 Cisco Vision Dynamic Signage Director Redundancy Under Failover Operation



How to Promote a Standby Secondary Server to the Active Server

This section describes the related tasks to perform when a primary Cisco Vision Dynamic Signage Director server fails in a redundant server environment, or if you need to perform an upgrade of your Cisco Vision Dynamic Signage Director software. It includes tasks to activate the secondary server to replace the functionality of the primary server for Cisco Vision Dynamic Signage Director operation.

Note For simplicity in these tasks, any instruction to *go to* or *select* a particular TUI menu item implies that you type the character that corresponds to the menu option and press **Enter**.

This section includes the following tasks:

- [Starting and Configuring the Services on the Secondary Server, page 92](#) (required)
- [Restoring the Secondary Server with System Data From a Backup File, page 93](#) (required)
- [Stopping Services and Auto-Restart, and Shutting Down the Primary Server, page 93](#) (required)
- [Shutting Down Services on the Secondary Server, page 93](#) (required)
- [Changing the IP Address on the Secondary Server, page 94](#) (required)
- [Restarting the Network Service on the Secondary Server, page 95](#) (required)
- [Verifying Network Connectivity to the Secondary Server, page 95](#) (required)
- [Clearing the ARP Cache on the Switch, page 95](#) (optional)
- [Restarting Cisco Vision Dynamic Signage Director on the Secondary Server, page 96](#) (required)
- [Verifying the Cisco Vision Dynamic Signage Director Configuration on the Secondary Server, page 96](#) (required)

Starting and Configuring the Services on the Secondary Server

To start and configure the services on the secondary server, complete the following steps:

1. Log into the TUI as installer on the *secondary* server using a directly-connected console or SSH client.

How to Promote a Standby Secondary Server to the Active Server

The TUI Main Menu is displayed.

2. Go to the **Cisco Vision Server Administration > Failover** sub-menu.
3. Select the **Promote as Primary/Active** option.

The Cisco Vision Dynamic Signage Director services are started and also configured to start automatically when a reboot occurs.

Restoring the Secondary Server with System Data From a Backup File

To restore the secondary server with system data from a backup file, complete the following steps:

1. Log into Cisco Vision Dynamic Signage Director on the *secondary* server using an administrator account.
2. From the Cisco Vision Dynamic Signage Director main menu, click **Management Dashboard**.
3. From the Dashboard Drawers, select **Tools > Advanced > Restore system data from backup**.
4. Select the components that you want to restore, and select the date of the backup file to use for the restore.
5. Click **Apply**.

The restore begins. A dialog box appears notifying you when the restore process has successfully completed.

6. When the restore is complete, look around the system to verify that everything looks as expected.

Stopping Services and Auto-Restart, and Shutting Down the Primary Server

Note: If the primary server has become unavailable for this task, be sure that you power down the server so that it will not conflict with the newly active secondary server.

To stop services and auto-restart, and shut down the primary server, complete the following steps:

1. Log into the TUI as installer on the *primary* server using a directly-connected console or SSH client.

The TUI Main Menu is displayed.

2. Go to the **Cisco Vision Server Administration > Failover** sub-menu.
3. Select the **Configure as Secondary/Inactive** option.
4. Press any key to return to the Failover sub-menu.
5. Return to the **Cisco Vision Server Administration** menu by typing **R** and pressing **Enter**.
6. Select the **Power Off** option.

The primary server is shut down.

Shutting Down Services on the Secondary Server

To shut down services on the secondary server, complete the following steps:

1. Log into the TUI as installer on the *secondary* server using a directly-connected console or SSH client.

The TUI Main Menu is displayed.

2. Go to the **Cisco Vision Server Administration** sub-menu.
3. Select the **Shutdown Cisco Vision Dynamic Signage Director software** option.

How to Promote a Standby Secondary Server to the Active Server

All Cisco Vision Dynamic Signage Director services are stopped.

4. Return to the Main Menu by typing **R** and pressing **Enter**.

Changing the IP Address on the Secondary Server

Prerequisites

Before you change the IP address on the secondary server, be sure that the following requirements are met:

- You have the IP address of the primary server.
- You understand how to use the vi editor. For information about using the vi editor, see the [“Cisco StadiumVision Director Server Text Utility Interface” module on page 97](#).

Note: The system will run if the localhost entry exists but the hostname entry is missing in the /etc/hosts file. However, when the secondary hostname exists, the IP address of the secondary server must be changed to match the IP address of the primary server.

Procedure

To change the IP address on the secondary server, complete the following steps:

1. From the TUI Main Menu on the secondary server, go to the **System Settings** menu.
2. Select the **Network Settings** option.

The Network Settings sub-menu is displayed.

3. Select the **Setup Network Information** option.
4. At the Configure Network confirmation screen, press any key to continue.

The Select Action screen is displayed with the “Edit Devices” option highlighted.

5. Press **Enter** to select.

The Select a Device screen is displayed with the “eth0” network interface highlighted.

6. Press **Enter** to select.

The Ethernet Configuration screen is displayed.

Note: The Linux screen is misspelled “Devernet Configuration.”

7. Press the tab key until the cursor is positioned on the Static IP address line.
8. Press the backspace key to go to the beginning of the line and type in the IP address of the primary server.

In our example from [Figure 2 on page 92](#), this would be 10.0.0.1. Be sure to use the actual IP address of your primary server.

9. Press the tab key until the **Ok** button is highlighted and press **Enter**.

You return to the Select a Device screen.

10. Press the tab key until the **Save** button is highlighted and press **Enter**.

You return to the Select Action screen.

11. Press the tab key until the **Save&Quit** button is highlighted and press **Enter**.

You return to the TUI Configure Network screen.

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12. Press any key to return to the Network Settings sub-menu.
13. Select the **Edit hosts file** option.
14. Press any key to enter edit mode.
15. Replace this server's IP address with the IP address of the primary server.
16. Save the configuration and exit vi using the following command:

```
:wq
```

Restarting the Network Service on the Secondary Server

To restart the network service on the secondary server, complete the following steps:

1. From the TUI Main Menu on the secondary server, go to the **Services Control** sub-menu.
2. Select the **Networking** option.

The Networking sub-menu is displayed.

3. Select the **Restart networking** option.

The network daemon is restarted and the IP address change is put into effect on the secondary server.

Note: If you are connected to the server through the network using SSH, your session is disconnected and you will need to reconnect using the IP address of the primary server.

Verifying Network Connectivity to the Secondary Server

To verify network connectivity to the secondary server, complete the following steps:

1. From the TUI Main Menu on the secondary server, go to the **Troubleshooting** sub-menu.
2. Select the **Ping a host** option.
3. At the "Enter hostname" prompt, type the hostname or IP address of the secondary server and press **Enter**.
4. Look for successful transmission and receipt of PING packets.

Note: If you cannot reach the secondary server, go to [Clearing the ARP Cache on the Switch, page 95](#).

5. Press **Ctrl-C** to stop sending PING packets.
6. Press any key to return to the Troubleshooting menu.

Clearing the ARP Cache on the Switch

This task is optional, as the ARP cache on the switch will refresh in 5-10 minutes. However, if you cannot access the secondary server after changing its IP address, you can clear the ARP cache for that IP address on the switch using the **clear ip arp** privileged EXEC command.

To clear the ARP cache on the switch, complete the following steps:

1. Use a directly-connected console, or if you know the IP address of the switch, use Telnet to access the switch as shown in the following example, where *ip-address* is the address of your switch:

```
telnet ip-address
```

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2. At the corresponding prompts, enter your login information as shown in the following example, where *yourname* and *yourpass* are your username and password:

```
Username: yourname
Password: yourpass
switch>
```

3. Enter privileged EXEC mode using the **enable** command and corresponding password:

```
switch> enable
Password: enablepassword
switch#
```

4. To clear the ARP cache of the newly-assigned IP address now used by the secondary server, use the **clear ip arp** command as shown in the following example:

```
clear ip arp 10.0.0.1
```

Restarting Cisco Vision Dynamic Signage Director on the Secondary Server

To restart Cisco Vision Dynamic Signage Director on the secondary server, complete the following steps:

1. Do one of the following on the *secondary* server:
 - If still logged into the TUI, go to the Main Menu.
 - If not still logged into the TUI as installer on the secondary server, use the new IP address and log in again using a directly-connected console or SSH client.

The TUI Main Menu is displayed.

2. Go to the **Cisco Vision Server Administration** sub-menu.
3. Select the **Restart Cisco Vision Dynamic Signage Director software** option.

All Cisco Vision Dynamic Signage Director services are started.
4. Press any key to return to the Cisco Vision Server Administration sub-menu.
5. Press **R** and **Enter** until you return to the Main menu.
6. Press **X** to exit the TUI.

Verifying the Cisco Vision Dynamic Signage Director Configuration on the Secondary Server

To verify the Cisco Vision Dynamic Signage Director configuration on the secondary server, complete the following steps:

1. Log into Cisco Vision Dynamic Signage Director on the *secondary* server using an administrator account.
2. From the Cisco Vision Dynamic Signage Director main menu, click **Management Dashboard**.
3. From the Dashboard Drawers, select **DMP and TV Controls > Monitoring > Get Status**.

Confirm that you have successful communication between the DMPs and Cisco Vision Dynamic Signage Director.
4. Verify that all of the content is on this server.
5. To establish control of the DMPs, start a script without any content and with the No Staging radio button selected. This should only require less than 10 minutes.

Note: You can push a script with content, but this will result in a longer period of downtime.

How to Restore the Primary Server to Active

Note: This task requires a service interruption.

At a scheduled downtime, you should restore the primary server as the active server to re-establish your normal operating environment to clean up the original primary server from a failure or prepare to do a software upgrade, make IP addressing changes, and have regularly scheduled backups again between the two servers.

Note: For simplicity in these tasks, any instruction to *go to* or *select* a particular TUI menu item implies that you type the character that corresponds to the menu option and press **Enter**.

This section includes the following tasks:

- [Prerequisites, page 97](#)
- [Stopping Services and Auto-Restart on the Secondary Server, page 97](#) (required)
- [Changing the IP Address on the Secondary Server, page 98](#) (required)
- [Verifying Network Connectivity on the Secondary Server, page 99](#) (required)
- [Starting and Configuring the Services on the Original Primary Server, page 99](#) (required)
- [Verifying Network Connectivity to the Primary Server, page 99](#) (required)
- [Restoring the Original Primary Server with System Data From a Backup File, page 100](#) (as required)
- [Restarting the Cisco Vision Dynamic Signage Director Software, page 100](#) (required after restore run)
- [Verifying the Cisco Vision Dynamic Signage Director Configuration on the Original Primary Server, page 100](#) (required)
- [Upgrading the Primary Server Software, page 101](#) (as required)
- [Reconfiguring the Backup Environment After Upgrades, page 101](#) (as required)

Prerequisites

If you have made any administrative changes on the active secondary server, be sure that a successful backup has been run.

While the secondary server is still active, re-configure the backup environment and run a manual backup from the Management Dashboard. The latest backup will then be copied to the primary (inactive) server. For more information, see [Backing Up and Restoring Cisco Vision Dynamic Signage Director Servers, page 77](#).

Stopping Services and Auto-Restart on the Secondary Server

To stop services and auto-restart of them on the secondary server, complete the following steps:

1. Log into the TUI as installer on the *secondary* server using a directly-connected console or SSH client.

The TUI Main Menu is displayed.

2. Go to the **Cisco Vision Server Administration > Failover** sub-menu.
3. Select the **Configure as Secondary/Inactive** option.
4. Press any key to return to the Failover sub-menu.

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5. Return to the **Cisco Vision Server Administration** menu by typing **R** and pressing **Enter**.
6. Select the **Shutdown Cisco Vision Dynamic Signage Director software** option.

Changing the IP Address on the Secondary Server

Prerequisites

Before you change the IP address on the secondary server, be sure that the following requirements are met:

- You have the IP address of the secondary server.
- You understand how to use the vi editor. For information about using the vi editor, see [Cisco Vision Dynamic Signage Director Server Text Utility Interface, page 103](#).

Procedure

To change the IP address on the secondary server, complete the following steps:

1. From the TUI Main Menu on the *secondary* server, go to the **System Settings** menu.
2. Select the **Network Settings** option.
The Network Settings sub-menu is displayed.
3. Select the **Setup Network Information** option.
4. At the Configure Network confirmation screen, press any key to continue.
The Select Action screen is displayed with the “Edit Devices” option highlighted.
5. Press **Enter** to select.
The Select a Device screen is displayed with the “eth0” network interface highlighted.
6. Press **Enter** to select.
The Ethernet Configuration screen is displayed.
Note: The Linux screen is misspelled “Devernet Configuration.”
7. Press the tab key until the cursor is positioned on the Static IP address line.
8. Press the backspace key to go to the beginning of the line and type in the IP address of the secondary server.
In our example from [Figure 1 on page 91](#), this would be 10.0.0.2. Be sure to use the actual IP address of your secondary server.
9. Press the tab key until the **Ok** button is highlighted and press **Enter**.
You return to the Select a Device screen.
10. Press the tab key until the **Save** button is highlighted and press **Enter**.
You return to the Select Action screen.
11. Press the tab key until the **Save&Quit** button is highlighted and press **Enter**.
You return to the TUI Configure Network screen.
12. Press any key to return to the Network Settings sub-menu.

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13. Select the **Edit hosts file** option.
14. Press any key to enter edit mode.
15. Replace this server's IP address with the IP address of the secondary server.
16. Save the configuration and exit vi using the following command:

```
:wq
```

Verifying Network Connectivity on the Secondary Server

To verify network connectivity to the secondary server, complete the following steps:

1. From the TUI Main Menu on the *secondary* server, go to the **Troubleshooting** sub-menu.
2. Select the **Ping a host** option.
3. At the "Enter hostname" prompt, type the hostname or IP address of the secondary server and press **Enter**.
4. Look for successful transmission and receipt of PING packets.

Note: If you cannot reach the secondary server, go to [Clearing the ARP Cache on the Switch, page 95](#).

5. Press **Ctrl-C** to stop sending PING packets.
6. Press any key to return to the Troubleshooting menu.

Starting and Configuring the Services on the Original Primary Server

To start and configure the services on the original primary server, complete the following steps:

1. Power on the original *primary* server.
Note: It might take a few minutes for SSH to be available as the server boots.
2. Log into the TUI as installer on the original *primary* server using a directly-connected console or SSH client.
The TUI Main Menu is displayed.
3. Go to the **Cisco Vision Server Administration > Failover** sub-menu.
4. Select the **Promote as Primary/Active** option.
The Cisco Vision Dynamic Signage Director services are started and also configured to start automatically when a reboot occurs.
5. Press any key to return to the Failover sub-menu.
6. Depending on the state of the server when it went down and what was done while the server was down, a script might be running on the original primary Cisco Vision Dynamic Signage Director server. If a script is running, end the script in the Cisco Vision Dynamic Signage Director software.

Verifying Network Connectivity to the Primary Server

To verify network connectivity to the primary server, complete the following steps:

1. From the TUI Main Menu on the original *primary* server, go to the **Troubleshooting** sub-menu.
2. Select the **Ping a host** option.

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3. At the “Enter hostname” prompt, type the hostname or IP address of the primary server and press **Enter**.
4. Look for successful transmission and receipt of PING packets.
Note: If you cannot reach the secondary server, go to [Clearing the ARP Cache on the Switch, page 95](#).
5. Press **Ctrl-C** to stop sending PING packets.
6. Press any key to return to the Troubleshooting menu.
7. Press **R** and **Enter** until you return to the Main menu.
8. Press **X** to exit the TUI.

Restoring the Original Primary Server with System Data From a Backup File

If any administrative changes were made to the system while in failover to the other server, you should restore the backup from the secondary.

Note: This step requires that a backup was run from the secondary server to the primary before reactivating the primary server.

To restore the original primary server with system data from a backup file, complete the following steps:

1. Log into Cisco Vision Dynamic Signage Director on the original *primary* server using an administrator account.
2. From the Cisco Vision Dynamic Signage Director main menu, click **Management Dashboard**.
3. From the Dashboard Drawers, select **Tools > Advanced > Restore system data from backup**.
4. Select the components that you want to restore, and select the date of the backup file to use for the restore.
5. Click **Apply**.

The restore begins.

Restarting the Cisco Vision Dynamic Signage Director Software

After you perform any restore on a Cisco Vision Dynamic Signage Director server, you must restart the Cisco Vision Dynamic Signage Director software to resume normal operation of the services.

To restart the Cisco Vision Dynamic Signage Director software, complete the following steps:

1. Log into the TUI as installer on the original *primary* server using a directly-connected console or SSH client.
The TUI Main Menu is displayed.
2. Go to **Cisco Vision Server Administration > Restart Cisco Vision Dynamic Signage Director Software**.
3. Press **R** and **Enter** until you return to the Main menu.
4. Press **X** to exit the TUI.

Verifying the Cisco Vision Dynamic Signage Director Configuration on the Original Primary Server

To verify the Cisco Stadium Vision Director configuration on the original primary server, complete the following steps:

1. Log into Cisco Vision Dynamic Signage Director on the original *primary* server using an administrator account.
2. From the Cisco Vision Dynamic Signage Director main menu, click **Management Dashboard**.

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3. From the Dashboard Drawers, select **DMP and TV Controls > Monitoring > Get Status**.

Confirm that you have successful communication between the DMPs and Cisco Vision Dynamic Signage Director.

4. Verify that all of the content is on this server.
5. Test the system by looking at the status in the Management Dashboard and by running test scripts to verify operation of the system.

Upgrading the Primary Server Software

Note: This task is only necessary when performing a software upgrade on redundant servers according to the instructions in [Cisco Vision Software Installation and Upgrade Guide: Dynamic Signage Director Release 5.0](#).

After you complete the process of restoring the original primary server to active status after an upgrade of the software on the secondary server, you are ready to upgrade the primary server software.

Reconfiguring the Backup Environment After Upgrades

After you complete software upgrades for both the secondary and primary servers, you need to reconfigure the backup environment to re-enable the backup account on the secondary server and to configure the primary server for automatic backup and restore. For more information, see [Backing Up and Restoring Cisco Vision Dynamic Signage Director Servers, page 77](#).

How to Restore the Primary Server to Active