

TiVo Warehouse Staging Guide

for MSOs

v9.0



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About Staging TiVo Devices

1

The *TiVo Warehouse Staging Guide for MSOs* provides a single reference for MSO warehouse technicians to perform staging procedures on all TiVo devices.

CableCo is the generic name used to represent any domestic Multi-System Operator (MSO).

Staging is the process of preparing a TiVo device for use by the subscriber. Many MSOs stage TiVo DVRs and other TiVo devices at a warehouse before delivering the devices to subscribers. Although not required, staging TiVo devices at the warehouse reduces the time needed for onsite installation.

The following chapters are included in this guide:

- [Chapter 1, *About Staging TiVo Devices*](#)—Provides information about the audience for this guide, the overview of the staging process, and the requirements for the staging environment.
- [Chapter 2, *Staging TiVo Devices*](#)—Describes the warehouse staging process for the TiVo T6 DVR, the TiVo Roamio DVR, the TiVo-Pace MG1 DVR, the TiVo Premiere Q DVR, the TiVo-Evolution IP Hybrid set-top box, TiVo Preview, TiVo Mini, and TiVo-Pace Mi3.
- [Chapter 3, *Staging TiVo Stream*](#)—Describes the warehouse staging process for TiVo Stream.
- [Appendix A, *LED Staging Behavior for TiVo Devices*](#)—Provides hardware information for each TiVo device.
- [Appendix B, *Ports and Connections for TiVo Devices*](#)—Provides hardware information for each TiVo device.

Audience for this document

The *TiVo Warehouse Staging Guide for MSOs* is designed for MSO *warehouse* technicians who have experience with Auto-Staging TiVo devices, and a working knowledge of racking procedures.

This guide assumes that the technician has the access and ability to issue a `serviceReset` API call on the devices to be staged.

Requirements for the warehouse staging environment

To manage and stage multiple devices at once, make sure that your warehouse meets the following requirements:

- Staging racks in a room with adequate ventilation and cooling.
- Staging racks should accommodate approximately 40 TiVo DVRs standing on end with non-marring cushioning.
- Adequate power to support every TiVo DVR—TiVo DVRs might draw up to 35 watts each. Other devices might draw less power.
- Power strip with outlets to support 40 devices and additional supporting equipment.
- Ethernet connection to each device, with full access to the Internet and stable connectivity.
- Gigabit switch or managed switch to support all equipment.
- Enough RF feeds for all TiVo DVRs being staged on the rack.
- HDMI-capable TV with an HDMI cable long enough to reach all DVRs.
- Optional—HDMI switch, TiVo staging appliance, Barcode printer, Fineline Barcode reader, and a laptop or computer to enter staging data and to perform CableCARD pairing.

Warehouse Configured Headend installation versus Installer Configured Headend installation

For the Warehouse Configured Headend installation, the TiVo DVR has already been configured for the subscriber's *specific* headend and the Program Guide Data (PGD) has been indexed during the warehouse staging process. You will need to set the service state and perform some setup tasks, but you won't need to perform Guided Setup. Because most of the DVR setup has been completed in the warehouse, this installation takes less time onsite than the Installer Configured Headend installation.

For the Installer Configured Headend installation, device configuration for the subscriber's *specific* headend has *not* been done during warehouse staging. The additional steps that are performed will configure the device to the subscriber's correct channel lineup based on their subscription. An Installer Configured Headend installation requires a briefer warehouse staging time, but a longer time at the subscriber's site.

Staging TiVo Devices

This chapter describes the warehouse staging procedures for the TiVo T6 DVR, the TiVo Roamio DVR, the TiVo-Pace MG1 DVR, the TiVo Premiere Q DVR, the TiVo-Evolution IP Hybrid set-top box, TiVo Preview, TiVo Mini, and TiVo-Pace Mi3. The following topics are included:

- [How Auto-Staging works on page 7](#)
- [Preparing for Auto-Staging on page 8](#)
- [Auto-Staging a TiVo device on page 8](#)
- [Completing staging for TiVo DVRs and TiVo Preview on page 9](#)
- [Verifying staging by using the TiVo Slide remote control on page 10](#)
- [Using Clear & Delete Everything to force Auto-Staging on page 11](#)
- [LED Staging Behavior for TiVo Devices on page 23](#)

For TiVo Stream staging information, see [Staging TiVo Stream on page 13](#).

For Troubleshooting information, see [Troubleshooting Auto-Staging Issues on page 19](#).

How Auto-Staging works

The Auto-Staging process for TiVo DVRs/STBs, TiVo Mini, and TiVo-Pace Mi3 includes the following events:

1. Checking the software version and upgrading the software as needed
If the software version has changed or if the device has been marked for restaging, Auto-Staging downloads the software from the TiVo Service.
2. Reimaging each of the partitions by removing any previous data
If the device has a CableCARD, then the CableCARD pairing data is preserved. After the new images are installed on the hard disk, the TiVo device restarts using the new software.
3. Performing a sequence of MSO and headend configuration tasks
The TiVo UI displays a set of screens (these screens are different from Guided Setup screens). The device does not respond to remote control input during the Auto-Staging process.
4. Removing the previous subscriber settings and setting the device to its MSO default (service state 22)
5. Indicating a successful Auto-Staging operation
See [LED Staging Behavior for TiVo Devices on page 23](#).

The device is ready to be scheduled for onsite installation. For TiVo Stream staging information, see [Staging TiVo Stream on page 13](#).

Preparing for Auto-Staging

1. Verify that each TiVo device has gone through a `serviceReset` API call and is in service state 22.

Follow the instructions for issuing the Service Reset that the MSO has provided.

2. Set the `msoServiceId`, `siteID`, and `tier` values by using a `deviceInfoStore` API call on the TiVo Service Number (TSN).

Auto-Staging configuration parameters are stored within the `msoServiceIds` that has been assigned to the MSO.

These commands are typically available through tools that are provided by the MSO's IT group.

- `msoServiceId`—Sets the ZIP code, market, and region information. The device sets its Program Guide Data (PGD) and channel lineup according to the ZIP code.
- `siteID`—Configures the market-specific Video on Demand (VOD) parameters.

Note: Other configuration parameters such as the channel guide display, recorded shows sorting display, and mandatory PGD are downloaded to the device during the Auto-Staging process.

The device is ready for Auto-Staging.

Auto-Staging a TiVo device

After completing the Auto-Staging preparation steps, follow these steps to start the Auto-Staging process:

1. Connect the device to Ethernet.
2. Power up the device.

Applying power to the device automatically starts the Auto-Staging process.

Note: Do not connect the device to the coaxial input.

3. **(Optional)** To see the messages displayed during Auto-Staging, connect the device to a TV with an HDMI connection.
4. Observe the pattern of LEDs on the front panel of the device to ensure that Auto-Staging is proceeding correctly.

See [LED Staging Behavior for TiVo Devices on page 23](#) for details about each device.

5. Wait until the LEDs indicate that Auto-Staging is complete, or Staging Complete screen displays (if connected to a TV).
 - a. Observe the pattern of LEDs for errors.
 - b. If there are Auto-Staging errors, troubleshoot the errors.
 - For TiVo-Pace MG1 errors, see [TiVo-Pace MG1 DVR seven-segment status and error display on page 27](#) and [Table A-1 on page 28](#).

- For general Auto-Staging troubleshooting tips, see [Troubleshooting Auto-Staging Issues on page 19](#).

Note: TiVo Mini and TiVo-Pace Mi3 Auto-Staging is now complete. No further action is necessary.

6. After staging is complete, the device automatically initiates two calls to the TiVo Service to download PGD. Do not unplug the device for 90 minutes.
7. For TiVo/Pace DVRs and TiVo Preview, proceed to [Completing staging for TiVo DVRs and TiVo Preview](#) to activate the CableCARD and to verify video decryption.
8. For the TiVo-Evolution IP Hybrid set-top box, proceed to [Completing staging for CAL-based devices](#) to activate the CAL software and to verify video decryption.

Completing staging for TiVo DVRs and TiVo Preview

The post-staging tasks described in this section apply only to TiVo DVRs and TiVo Preview, not to the TiVo-Evolution IP Hybrid set-top box, TiVo Mini, or TiVo-Pace Mi3. After staging has completed successfully, perform the following steps:

1. Plug in the coaxial cable.
 - Note:** If TiVo DVR is intended for an OTA install, skip to step 5.
2. Activate the CableCARD and confirm CableCARD pairing.
 - a. Insert the CableCARD into the TiVo device.
 - b. From TiVo Central, choose **Settings & Messages > Settings > Remote, CableCARD, & Devices > CableCARD Decoder > CableCARD options (for Installers)** (Figure 2–1).

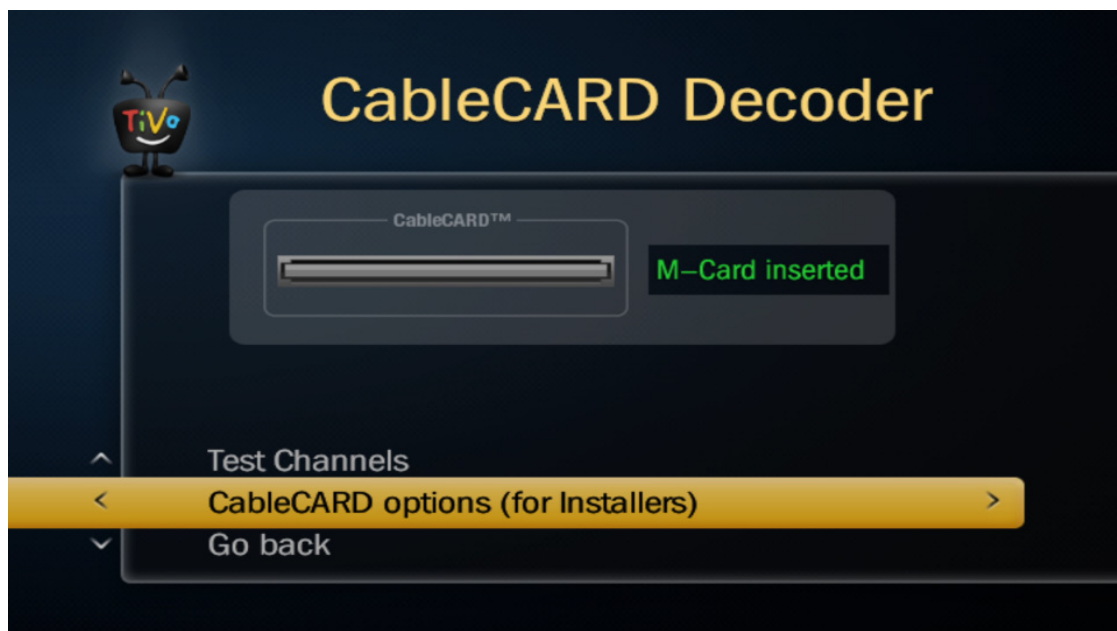


Figure 2–1: CableCARD options (for Installers)

Completing staging for CAL-based devices

3. Verify various types of channels.
 - a. Tune to unencrypted channels.
 - b. Tune to encrypted channels.
 - c. Tune to Premium channels.
4. Verify that the VOD launch point goes to the VOD catalog.
5. Verify that the MSO branding is correct.

The TiVo DVRs and TiVo Preview are staged and ready to be sent for onsite installation.

Completing staging for CAL-based devices

The post-staging tasks described in this section apply only to the TiVo-Evolution IP Hybrid set-top box. After staging has completed successfully, perform the following steps:

1. Plug in the coaxial cable.
2. Activate the CAL software.
3. Verify various types of channels.
 - a. Tune to unencrypted channels.
 - b. Tune to encrypted channels.
 - c. Tune to Premium channels.
4. Verify that the MSO branding is correct.

The TiVo-Evolution IP Hybrid set-top box is staged and ready to be sent for onsite installation.

Verifying staging by using the TiVo Slide remote control

Note: If you are using the standard TiVo remote control, do *not* use it in RF mode for warehouse staging purposes.

TiVo recommends that you use the TiVo Slide remote control with a Bluetooth USB receiver for verification purposes. You can plug the USB receiver into one device at a time for verification purposes without disrupting other devices. For information about how to obtain the TiVo Slide remote control and USB receiver, contact your TiVo account representative.

Alternatively, you can use the TiVo remote control in IR mode. To switch the remote control from RF mode to IR mode, press and hold the **TiVo+Red C** buttons until the activity indicator lights.

Using Clear & Delete Everything to force Auto-Staging

Some staging scenarios do not automatically start Auto-Staging. In these scenarios, use the **Clear & Delete Everything** option to force Auto-Staging.

Warning: Before proceeding, be aware of what the **Clear & Delete Everything** option does.

- Deletes everything in My Shows, the To Do list, the Season Pass Manager, and WishList saved searches.
- Clears all settings, including Parental Controls and Thumb ratings.

To run the Clear & Delete Everything option

1. Before you start this procedure, complete these tasks:
 - a. Ensure that an `msoServiceId` is configured for the TiVo device.
 - b. Ensure that the TiVo device has a working Ethernet connection.
 - c. Ensure that the TiVo device is in service state 22.
2. From TiVo Central, choose **Settings & Messages > Help > Restart or Reset > Restart or Reset**.



Figure 2–2: Clear & Delete Everything option

3. On the Restart or Reset System menu (Figure 2–2), select **Clear & Delete Everything**.

Note: If the **Clear & Delete Everything** option is *not* displayed on the Restart or Reset System menu, press **Clear+Pause+Thumbs Up+Enter** on the remote control.

The Clear & Delete screen appears.

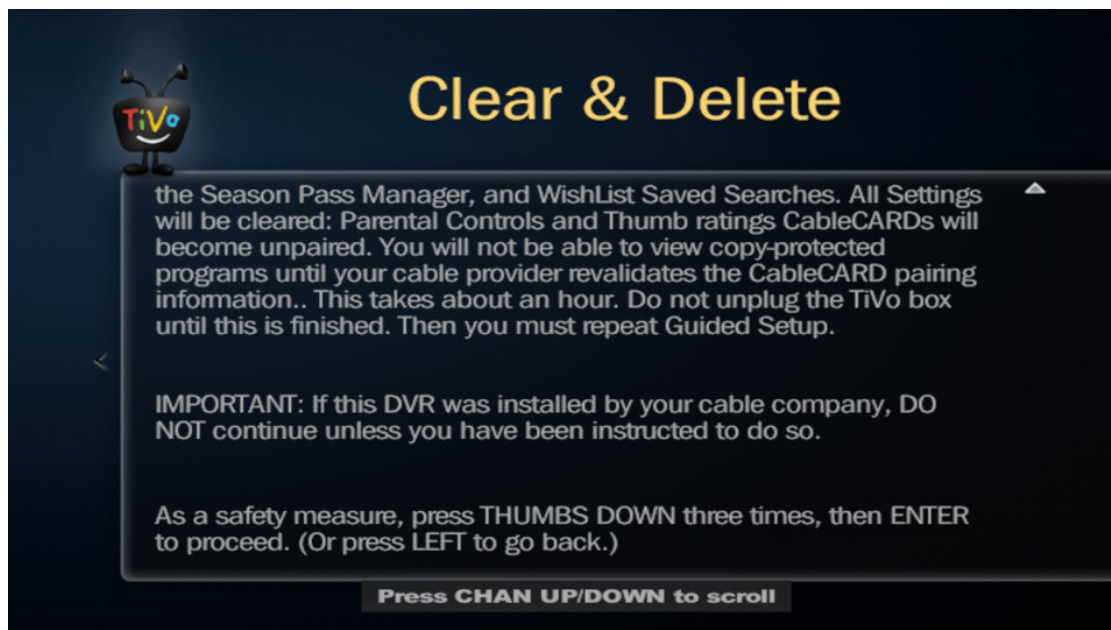


Figure 2–3: Clear & Delete screen

4. Press **Thumbs Down** three times (Figure 2–3), and then press **Enter**.
After the **Clear & Delete Everything** process completes, the Welcome! Starting up screen appears.
5. Wait for a few minutes until Auto-Staging automatically starts.
6. Observe the pattern of LEDs on the front panel of the device to ensure that Auto-Staging is complete.

Refreshing PGD on a previously-staged device

If you need to populate the PGD on the device before the device is installed at a subscriber’s site, you have two options:

- Power up the device, connect to the network, and then wait for the device to make a TiVo Service call to download the PGD.
- Power up the device, connect to the network, and then force a TiVo Service call:
From TiVo Central, choose **Settings & Messages > Settings > Network > Connect to the TiVo Service now**.

Staging TiVo Stream

3

This chapter describes the warehouse staging procedures and troubleshooting for TiVo Stream. The following topics are included:

- [About TiVo Stream on page 13](#)
- [Device specifications on page 14](#)
- [Staging TiVo Stream devices on page 16](#)
- [Troubleshooting TiVo Stream staging issues on page 17](#)

This chapter assumes that you know how to stage TiVo devices, are familiar with racking procedures, and have the appropriate power supply for TiVo Stream devices.

About TiVo Stream

TiVo Stream is a network (Ethernet) attached transcoding device that converts MPEG-2 streams to MPEG-4 streams, and then it streams the converted video to mobile devices. TiVo Stream allows subscribers to:

- Stream DVR recordings (including in-progress recordings) to watch on mobile devices within the home.
- Transfer DVR recordings to take out of the home on mobile devices.



Figure 3–1: TiVo Stream

Compatible host DVRs

TiVo Stream is compatible with the following DVRs running software release 20.2.1 or later:

- TiVo T6
- TiVo Roamio DVR
- TiVo-Pace MG1
- TiVo Premiere Q

Device specifications

TiVo Stream has the following component dimensions and weight:

- Dimensions: 4" W x 4" D x 1.05" H
- Weight: 0.3 lbs.

Back panel

The TiVo Stream back panel includes:

- Power/status (main) LED
- Gigabit Ethernet connector with link activity and link status LEDs
- 12V DC power supply



Figure 3–2: TiVo Stream back panel

Ethernet link LEDs

The two LEDs on the Ethernet connection are standard Ethernet link activity and link status LEDs. [Table 3–1](#) describes the LED states.

Table 3–1: Ethernet link LED states

Ethernet LED	LED state	Description
Left (link activity)	<ul style="list-style-type: none"> Off Flashing green 	<ul style="list-style-type: none"> No link activity Flashing green on packet RX (receive) and TX (transmit)
Right (link status)	<ul style="list-style-type: none"> Off Green Yellow 	<ul style="list-style-type: none"> No link Megabit half/full duplex Gigabit half/full duplex

Status LED

The third and main LED on the back of TiVo Stream, which can be either amber or white, indicates the overall status of the device, as described in [Table 3–2](#).

Table 3–2: States indicated by TiVo Stream status LED

Status LED state	Description
Off	No power. TiVo Stream is off.
Solid amber	TiVo Stream has powered up.
Flashing amber	TiVo Stream is applying a firmware update.
Flashing white	TiVo Stream is powering up.
Solid white	TiVo Stream is up and ready. DHCP lease and the IP address are obtained, connected, and discoverable.

It usually takes three minutes to power up TiVo Stream. It might take longer if a critical software update is needed, which typically occurs only the first time TiVo Stream is set up. All other software updates occur late at night when TiVo Stream is idle.

The TiVo Stream status LED goes through the following sequence during a normal power up process:

Solid Amber > Flashing White > Solid White

After TiVo Stream downloads the new software, if the TiVo App is in the TiVo Stream Guided Setup, TiVo Stream automatically restarts, which takes a few minutes.

Staging TiVo Stream devices

The TiVo Stream status LED goes through the following sequence as TiVo Stream powers on and installs the new software:

Off > Solid Amber > Flashing White > Flashing Amber > Off > Solid Amber > Flashing White > Solid White

With the additional phases, the time required for initial setup is longer than three minutes.

Staging TiVo Stream devices

1. Verify that each TiVo Stream has gone through a `serviceReset` API call and is in service state 22.

Follow the instructions for doing the Service Reset that the MSO has provided.

2. For each TiVo Stream, make the following connections in this order:
 - a. Connect an Ethernet cable to the Ethernet port on each TiVo Stream.
 - b. Connect the TiVo-supplied 12V DC power adapter to the 12V DC power receptacle on each TiVo Stream.

Note: Due to fire hazard, do *not* use any other type of power adapter as the output amps vary by device.

- c. Allow three minutes for all TiVo Stream devices to completely power up. The status LED flashes white.
3. After powering on, TiVo Stream devices automatically perform the following tasks:
 - a. Running Factory Reset.

Each TiVo Stream is checked for the latest version of TiVo client software. If it is not current, the latest software is installed onto each TiVo Stream.

Whether or not new software is installed, the Factory Reset clears any previous subscriber data by reimaging the user database partitions. This process takes about 15 minutes, during which TiVo Stream devices might be restarted.

During this step, the status LED displays alternating amber and white.
 - b. Verifying completion of staging.

After completing these steps, the status LED displays flashing amber, which indicates that the staging process was successful.
4. Starting with the power adapter, unplug all connections to each TiVo Stream.

Each TiVo Stream is now ready to be installed at a subscriber site.

TiVo Stream LED staging behavior

During the staging process, the status LED patterns indicate the staging status.

Table 3–3: TiVo Stream status LED staging behavior

Status LED state	Description
Flashing white	This status LED pattern persists until a Dynamic Host Configuration Protocol (DHCP) server is discovered, an IP address is provided, and the TiVo Network Time Protocol (NTP) server has been contacted.
Solid amber	There is an error and staging has failed.
Alternating white and amber	Staging is progressing.
Flashing amber	Staging is successful.

Troubleshooting TiVo Stream staging issues

This section presents the following issues indicated by the LED patterns displayed by the status LED on the TiVo Stream back panel:

- [All LEDs are off on page 17](#)
- [Solid amber \(for 20 minutes or more\) on page 17](#)
- [Rapidly flashing amber on page 18](#)
- [Flashing amber for brief period on page 18](#)
- [Flashing white \(for 20 minutes or more\) on page 18](#)

All LEDs are off

Indicates a power failure.

Solution

1. Try powering on twice.
2. If the device still fails to power up, request an RMA for TiVo Stream.

Solid amber (for 20 minutes or more)

Indicates a staging failure.

Solution

Restart the staging process.

Rapidly flashing amber

Disaster detected—thermal shutdown is indicated.

Solution

Immediately unplug TiVo Stream, let it cool down, and then plug it back in.

Flashing amber for brief period

This might indicate that TiVo Stream is performing a subscriber software installation. However, this can only occur in one of the following cases:

- The device is *not* in service state 22.
- The device is running TiVo Stream software earlier than v1.1 or 19.1.1

Flashing white (for 20 minutes or more)

There might be an issue with the network connectivity of the staging rack (LAN or WAN).

Troubleshooting Auto-Staging Issues

This chapter describes situations that commonly occur during the Auto-Staging process, and provides information on resolving the issues.

- [Returned TiVo device displays Welcome screen with U.S. and Canada options on page 19](#)
- [Returned TiVo device displays TiVo Central screen on page 19](#)
- [Front panel LEDs display failure pattern on page 20](#)
- [Device fails automatic TiVo Service call on page 20](#)
- [After Clear & Delete Everything, Auto-Staging does not start on page 20](#)

Note: The staging mode flag is not cleared until the entire process successfully completes. If the Auto-Staging process fails at any point, you can power cycle the device to repeat Auto-Staging.

Returned TiVo device displays Welcome screen with U.S. and Canada options

If a returned TiVo device going through warehouse staging displays the Welcome screen that presents options for the United States and Canada, Auto-Staging has failed.

Solution

1. Verify network connectivity.
2. If the network is up and running, ensure that `serviceReset` and `msoServiceId` are set on the device.
3. If the issue persists, follow standard TiVo escalation procedures.

Returned TiVo device displays TiVo Central screen

If a returned TiVo device going through warehouse staging displays the TiVo Central screen, Auto-Staging has failed.

Solution

1. Verify network connectivity.
2. If the network is up and running, ensure that `serviceReset` and `msoServiceId` are set on the device.
3. If the issue persists, follow standard TiVo escalation procedures.

Front panel LEDs display failure pattern

During the Auto-Staging process, the TiVo device's front panel LEDs display the platform-specific pattern that indicates staging failure.

Solution

1. Verify network connectivity.
2. Connect the TV output to the failed device, and then follow the on-screen instructions.

Device fails automatic TiVo Service call

The device fails the automatic TiVo Service call during the final portion of Auto-Staging (indicated when TiVo device displays the Welcome screen).

Solution

1. Verify network connectivity.
2. Connect the TV output to the failed device, and then follow the on-screen instructions.

After Clear & Delete Everything, Auto-Staging does not start

After the **Clear & Delete Everything** process completes, the TiVo device should start the Auto-Staging process.

If Auto-Staging does not start, the device automatically goes through a **Clear & Delete Everything** process again. This process can take up to a half hour or more, depending on how much recorded content was on the device.

Solution

As the device goes through the **Clear & Delete Everything** process, verify the network connection to help ensure that the next attempt to complete warehouse staging will succeed.

While the **Clear & Delete Everything** process is running, do the following:

1. Verify the network connection.
2. Verify that each TiVo device has gone through a `serviceReset` API call and is in service state 22.
3. Set the `msoServiceId`, `siteID`, and `tier` values by using a `deviceInfoStore` API call on the TiVo Service Number (TSN).
4. Wait 1 minute for those pieces of information to fully process in the TiVo system.

After Clear & Delete Everything, Auto-Staging does not start

5. Power cycle the device to initiate staging. Do this either after the **Clear & Delete Everything** process has completed, or after 15 minutes has elapsed since completing Steps 2 and 3.

LED Staging Behavior for TiVo Devices

A

The following front panel LED staging behavior applies to all TiVo devices except for TiVo Stream.

1. At the start of the staging process, each platform goes through its flashing pattern. The TiVo device's previous contents are removed (for example, all recordings), and the device is configured for software. When the removal process and software download are complete, the TiVo device restarts and installs the new software.
2. During the restart and installation process, solid power lights appear as the device is installing the downloaded software.
3. After the software installation is complete, the device automatically initiates its first call to the TiVo Service to download its activation information, MSO branding, and headend information specific to the `msoServiceId`.

During this first TiVo Service call, the TiVo device LED resumes flashing as it does during the first step of staging (the removal process and software download stage).




4. After this automatic TiVo Service call, the staging of the device is complete.

The following sections provide a summary of the LED behavior during the staging process for each device and explains any action you need to take.




- [TiVo T6 DVR LED staging behavior on page 24](#)
- [TiVo Roamio DVR LED staging behavior on page 25](#)
- [TiVo-Pace MG1 DVR LED staging behavior on page 26](#)
- [TiVo Premiere Q DVR LED staging behavior on page 29](#)
- [TiVo Preview LED staging behavior on page 30](#)
- [TiVo-Evolution IP Hybrid set-top box LED staging behavior on page 31](#)
- [TiVo Mini LED staging behavior on page 32](#)
- [TiVo-Pace Mi3 LED staging behavior on page 33](#)

See [Appendix B, Ports and Connections for TiVo Devices](#) for information about the back panels of the TiVo devices.

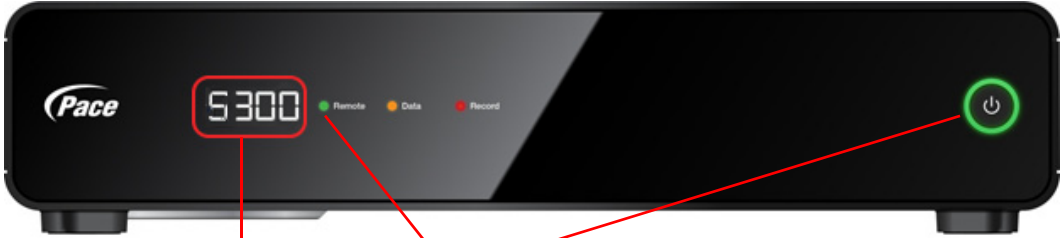


TiVo T6 DVR LED staging behavior

TiVo T6 DVR			
Staging state	LED lights	LED behavior	Action required
Staging in process	Green & amber	Alternating green and amber	No action required.
 <p>Flashing green and amber alternately</p>			
Staging error	Amber only	Flashing	Plug in the HDMI cable and follow the prompts.
 <p>Flashing amber only</p>			
Staging complete	Green only	Flashing	No action required.
 <p>Flashing green only</p>			

TiVo Roamio DVR LED staging behavior

TiVo Roamio DVR			
Staging state	LED lights	LED behavior	Action required
Staging in process	Green & amber	Alternating green and amber	No action required.
 <p>Flashing green and amber alternately</p>			
Staging error	Amber only	Flashing	Plug in the HDMI cable and follow the prompts.
 <p>Flashing amber only</p>			
Staging complete	Green only	Flashing	No action required.
 <p>Flashing green only</p>			

TiVo-Pace MG1 DVR LED staging behavior

TiVo-Pace MG1 DVR			
Staging state	LED lights	LED behavior	Action required
Staging in process	Green	Alternating green	No action required. During the staging process, the Power LED flashes green and the remote LED flashes green.
 <p>S300 state code indicates that staging is in progress.</p> <p>Flashing alternately</p>			
Staging error	Red only	Flashing	Plug in the HDMI cable and follow the prompts.
 <p>E311 error code indicates a failure while downloading software.</p> <p>Flashing red only</p>			
Staging complete	Green only	Flashing	No action required.
 <p>Current time displays when staging is complete.</p> <p>Flashing green only</p>			

TiVo-Pace MG1 DVR seven-segment status and error display

During normal operation, the seven-segment display on the front panel of the TiVo MG1 DVR displays the current time. During staging, however, the seven-segment display provides status and error codes.

The clock can be enabled or disabled. From TiVo Central, choose **Settings > Displays > Lights on the Front of the DVR**. The clock display is independent and separate from the LED lights selection.

During Auto-Staging, the seven-segment LED displays the following:

- An SXXX code indicates the current state.
- An EXXX code indicates an error.

For example, if the device was previously in S320 (MFS reimaging) and an incorrect hash was detected on the downloaded file, the error code would be E322.

TiVo-Pace MG1 DVR Auto-Staging states

- S300—Auto-Staging started
Displayed until `factoryResetInstructions` is received.
- S310—Software/kernel installation
- S320—MFS reimaging
- S400—Retrieving `unguidedSetupInstructions`

TiVo-Pace MG1 DVR staging error codes

- EXX1—Download error
- EXX2—Bad hash detected
- EXX3—Unspecified error during hash checking
- EXX4—Boot parameter error
- EXX8—Unspecified error while closing the file pipeline
- EXX9—Unspecified error.

Auto-Staging is terminating and the device is placed in a bricked state. Power cycle the TiVo-Pace MG1 DVR (see [Table A-1](#)).




TiVo-Pace MG1 DVR staging errors**Table A-1: TiVo-Pace MG1 DVR staging errors**

State	Error	Description
S300		Auto-Staging has started. This status is displayed until the device has received <code>factoryResetInstructions</code> .
	E309	An unspecified error occurred while retrieving the Auto-Staging instructions from the service. Auto-Staging is terminated, and the device continues to start normally.
S310		Software/kernel install
	E311	Failure occurred while downloading the software.
	E312	The software and/or kernel images that were downloaded did not have the correct hash.
	E313	An unspecified software error occurred while checking the hash of the software or kernel images.
	E314	An error in setting the boot parameters occurred after downloading the software and kernel images.
	E318	An unspecified file pipeline error occurred while downloading the software and/or kernel images.
	E319	An unspecified error occurred while downloading or installing the software and/or kernel images. The DVR is currently in a bricked state.
S320		MFS reimaging
	E321	Failure occurred while downloading the software.
	E322	The MFS images downloaded did not have the correct hash.
	E323	An unspecified software error occurred while checking the hash of the MFS images.
	E328	An unspecified file pipeline error occurred while downloading the MFS images.
	E329	An unspecified error occurred while downloading or installing the software and/or kernel. The DVR is currently in a bricked state.
S400		Downloading Unguided Setup Instruction
		No errors are reported on the display. If there is an issue, the device continues to start normally.


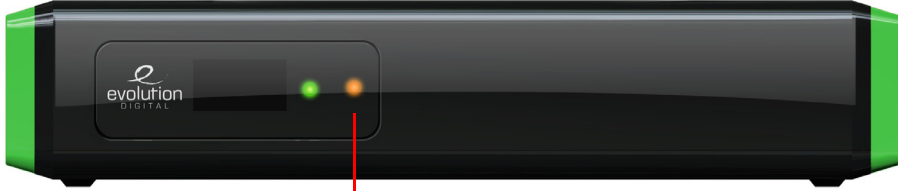

TiVo Premiere Q DVR LED staging behavior

TiVo Premiere Q DVR			
Staging state	LED lights	LED behavior	Action required
Staging in process	Blue & red	Alternating blue and red	No action required.
 <p>Flashing alternately</p>			
Staging error	Red only	Flashing	Plug in the HDMI cable and follow the prompts.
 <p>Flashing red only</p>			
Staging complete	Blue only	Flashing	No action required.
 <p>Flashing blue only</p>			

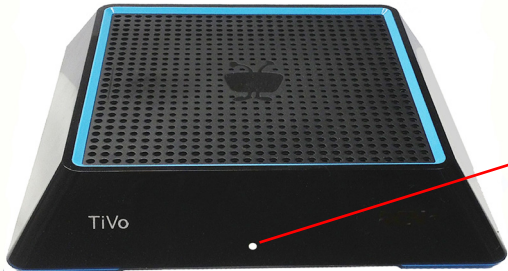
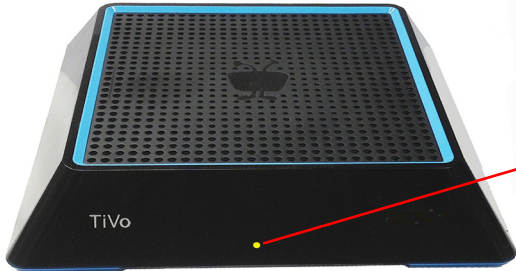
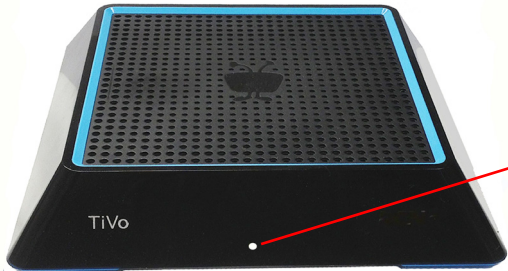
TiVo Preview LED staging behavior

TiVo Preview			
Staging state	LED lights	LED behavior	Action required
Staging in process	Status LED	Alternating yellow and green	No action required.
 <p style="text-align: center;">Flashing alternately</p>			
Staging error	Status LED	Flashing yellow	Plug in the HDMI cable and follow the prompts.
 <p style="text-align: center;">Flashing yellow only</p>			
Staging complete	Status LED	Flashing green	No action required.
 <p style="text-align: center;">Flashing green only</p>			

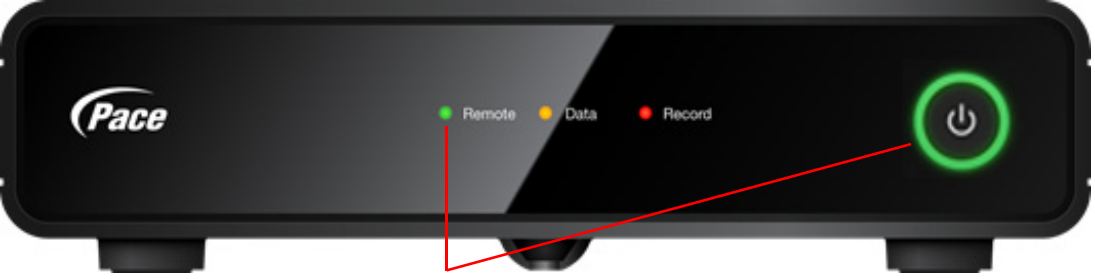


TiVo-Evolution IP Hybrid set-top box LED staging behavior

TiVo Preview			
Staging state	LED lights	LED behavior	Action required
Staging in process	Status LED	Alternating green and amber	No action required.
 <p style="text-align: center;">Flashing alternately</p>			
Staging error	Status LED	Flashing amber	Plug in the HDMI cable and follow the prompts.
 <p style="text-align: center;">Flashing amber only</p>			
Staging complete	Status LED	Flashing green	No action required.
 <p style="text-align: center;">Flashing green only</p>			

TiVo Mini LED staging behavior

TiVo Mini			
Staging state	LED lights	LED behavior	Action required
Staging in process	Status LED	Alternating amber and white	No action required.
 <p>Flashing alternately amber and white</p>			
Staging error	Status LED	Flashing amber	Plug in the HDMI cable and follow the prompts.
 <p>Flashing amber</p>			
Staging complete	Status LED	Flashing white	No action required.
 <p>Flashing white</p>			

TiVo-Pace Mi3 LED staging behavior

TiVo-Pace Mi3			
Staging state	LED lights	LED behavior	Action required
Staging in process	Green	Alternating green	No action required. During the staging process, the Power LED flashes green and the remote LED flashes green.
 <p>Flashing alternately</p>			
Staging error	Red only	Flashing	Plug in the HDMI cable and follow the prompts.
 <p>Flashing red only</p>			
Staging complete	Green only	Flashing	No action required.
 <p>Flashing green only</p>			

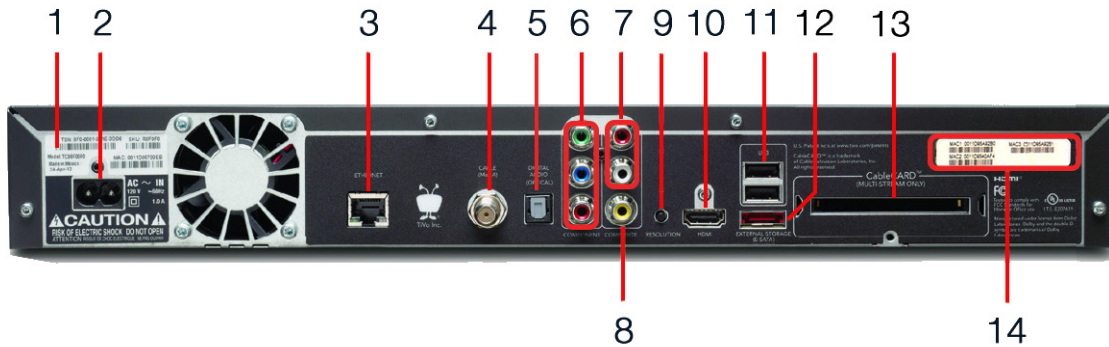
Ports and Connections for TiVo Devices

This appendix shows the ports and connections on the back panels of the TiVo devices that you might be installing at a subscriber's site.

- *TiVo T6 DVR back panel on page 36*
- *TiVo Roamio DVR back panel on page 37*
- *TiVo-Pace MG1 DVR back panel on page 38*
- *TiVo Premiere Q DVR back panel on page 39*
- *TiVo Preview back panel on page 40*
- *TiVo-Evolution IP Hybrid set-top box back panel on page 41*
- *TiVo Mini back panel on page 42*
- *TiVo-Pace Mi3 back panel on page 43*
- *TiVo Stream back panel on page 44*

TiVo T6 DVR back panel

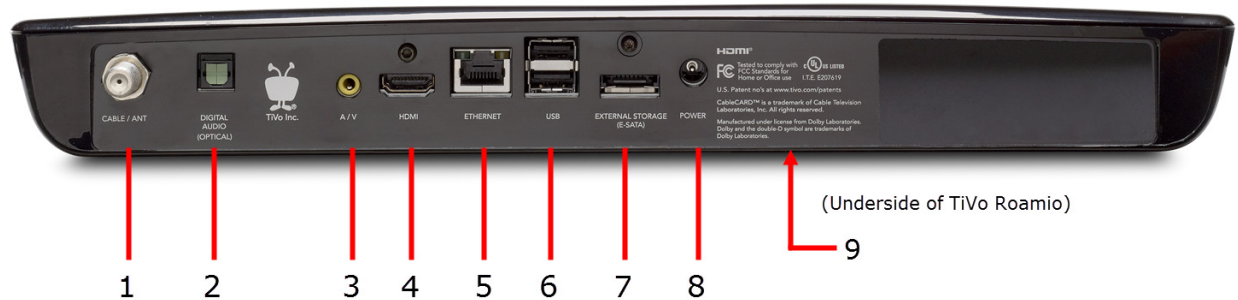
This section details the location of the items on the back panel of the TiVo T6 DVR.



Number	Item
1	TiVo Service Number (TSN)
2	Power connector: 110V AC
3	Ethernet 10/100/1000 Base-T
4	Digital Cable/MoCA coaxial input (QAM) jack
5	Optical digital audio output
6	Component RCA output (green)
7	Analog audio output (red, white)
8	Composite A/V output (yellow)
9	Resolution button—If the screen is black and the TiVo menus are inaccessible, press the button to change the video output format. The available formats are: 480i / 480p / 720p / 1080i / 1080p / 1080p24 / 1080p60 passthrough.
10	HDMI 1.4b output
11	USB 2.0 (two ports)
12	eSATA port for the DVR expander
13	CableCARD (M-Card) slot
14	MAC Address Label, containing: <ul style="list-style-type: none"> Ethernet/MoCA interface Built-in transcoder (TiVo Stream) <p>Note: If the subscriber's router is using MAC address filtering, the MSO must add both TiVo T6 DVR MAC addresses to the MAC address filter to control access.</p>

TiVo Roamio DVR back panel

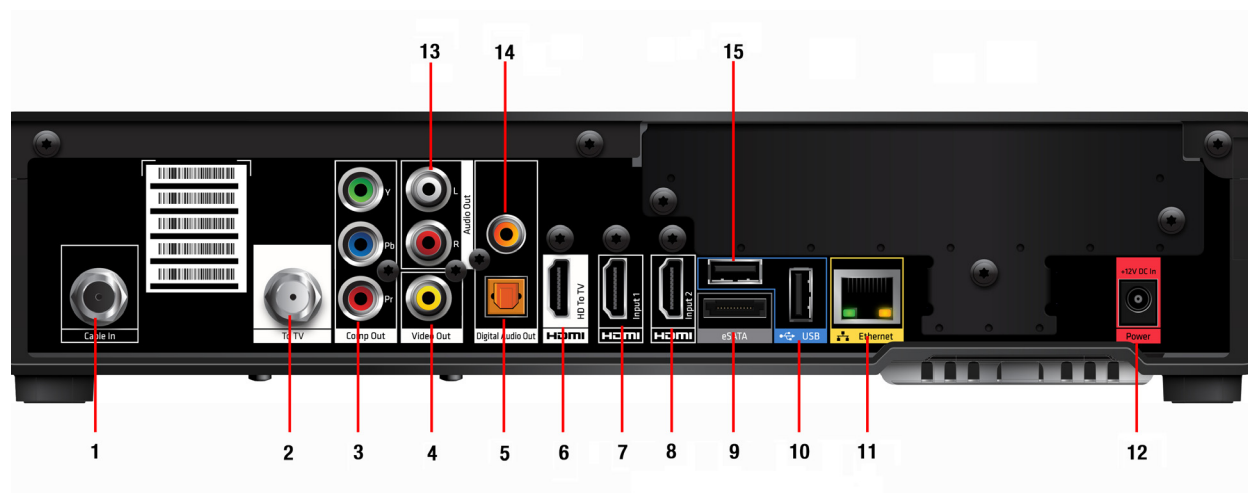
This section details the location of the items on the back panel of the TiVo Roamio DVR.



Number	Item
1	Cable/antenna coaxial input
2	Optical digital audio output
3	Composite A/V output (yellow)
4	HDMI 1.4b output
5	Ethernet 10/100 Mbps
6	USB 2.0 (two ports)
7	eSATA port for the DVR expander
8	Power connector: 12V DC
9	CableCARD (M-Card) slot

TiVo-Pace MG1 DVR back panel

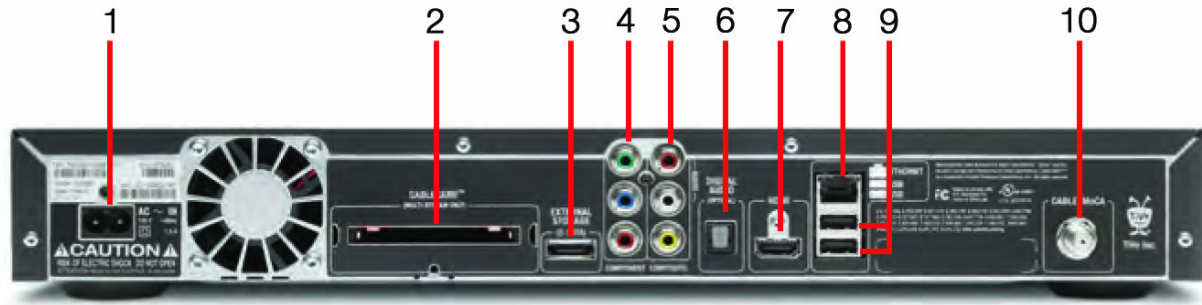
This section details the location of the items on the back panel of the TiVo-Pace MG1 DVR.



Number	Item	Number	Item
1	Digital Cable/MoCA coaxial input (QAM) jack	9	eSATA port (external HDD support)
2	To TV	10	USB 2.0 port
3	Component RCA output (green)	11	10/100 Ethernet
4	Composite A/V output (yellow)	12	Power connector: 12V DC input
5	Optical digital audio output	13	Analog audio output (red, white)
6	HDMI 1.4: HD To TV	14	Coaxial Digital audio output
7	HDMI 1.4: input 1 (not enabled)	15	USB 2.0 port
8	HDMI 1.4: input 2 (not enabled)		

TiVo Premiere Q DVR back panel

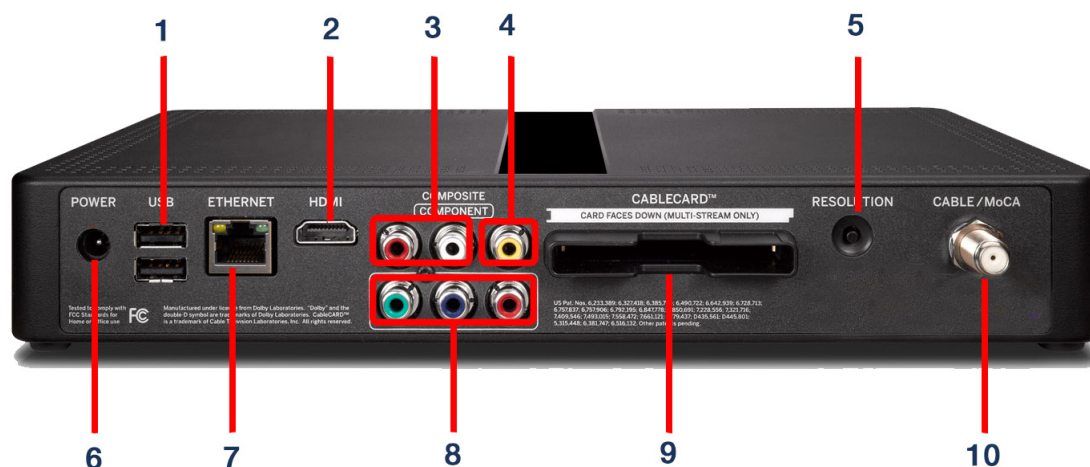
This section details the location of the items on the back panel of the TiVo Premiere Q DVR.



Number	Item	Number	Item
1	Power connector: 110V AC	6	Optical digital audio output
2	CableCARD (M-Card) slot	7	HDMI port
3	External storage (eSATA)	8	10/100/1000 Mbps Ethernet
4	Component RCA output (green)	9	USB 2.0 (two ports)
5	Composite A/V output (yellow)	10	Digital Cable/MoCA coaxial input (QAM) jack

TiVo Preview back panel

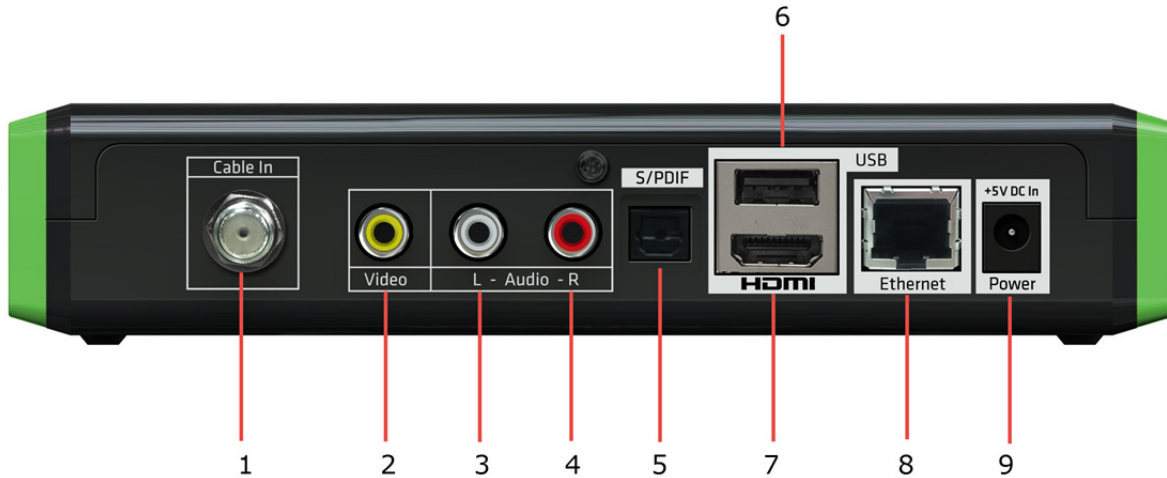
This section details the location of the items on the back panel of TiVo Preview.



Number	Item	Details
1	USB	Two external USB 2.0 ports for TiVo wireless network and Bluetooth adapters.
2	HDMI port	Connects to a TV, A/V receiver, or home theater system. HDMI provides a pure digital connection for HD video and digital audio in one cable.
3	Composite ports	Analog audio output (red, white).
4		Composite A/V output (yellow).
5	Resolution button	If the screen is black and the TiVo menus are inaccessible, press the button to change the video output format. The available formats are: 480i / 480p / 720p / 1080i / 1080p.
6	Power connector (12V DC)	Connects to A/C power.
7	Ethernet 10/100 Base-T jack	Connects TiVo Preview to your home network by using an Ethernet cable.
8	Component ports	Component (RGB) video output.
9	CableCARD (M-Card) slot	Supports a single M-Card CableCARD; S-Cards are not supported.
10	Digital Cable/MoCA coaxial input (QAM) jack	In a MoCA home network, connects TiVo Preview to your home network. Connect the coaxial RF cable coming from the wall to this jack.

TiVo-Evolution IP Hybrid set-top box back panel

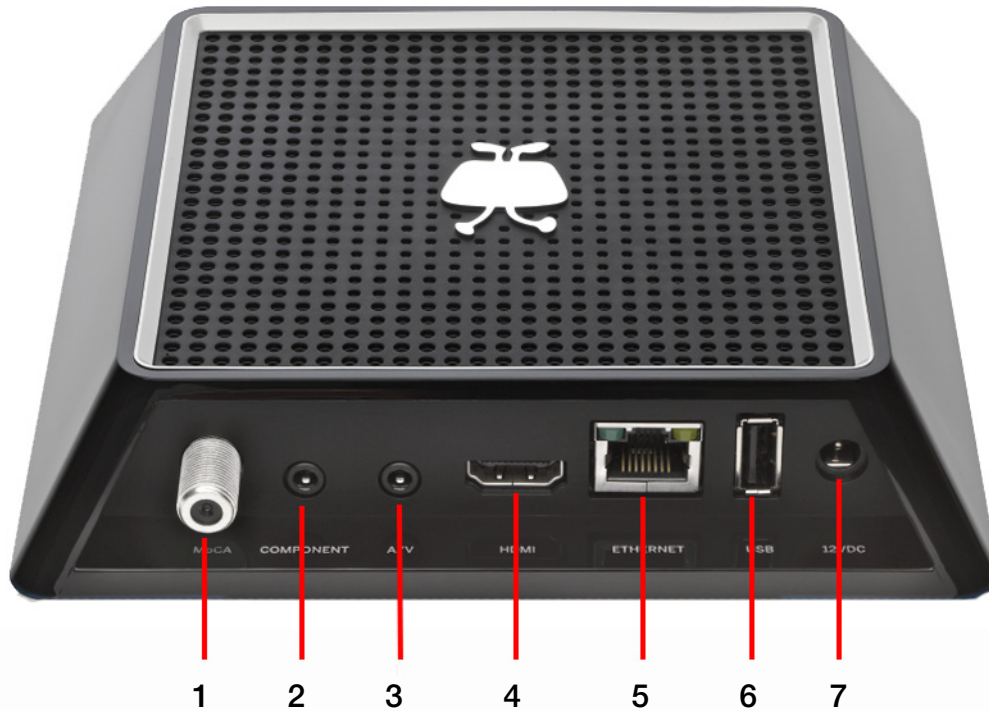
This section details the location of the items on the back panel of the TiVo-Evolution IP Hybrid set-top box.



Number	Item
1	Digital Cable/MoCA coaxial input (QAM) jack
2	Composite A/V output (yellow)
3	Analog audio output (white)
4	Analog audio output (red)
5	S/PDIF optical digital audio output
6	USB 2.0 port
7	HDMI 1.4a output
8	Ethernet 10/100 Mbps
9	Power connector: 5V DC input

TiVo Mini back panel

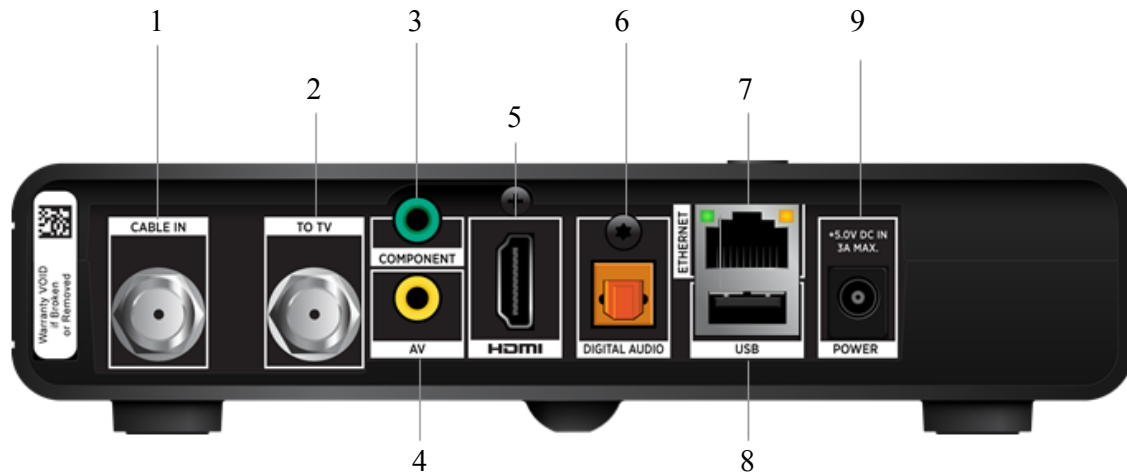
This section details the location of the items on the back panel of TiVo Mini.



Number	Item	Details
1	MoCA coaxial input jack	In a MoCA home network, connects TiVo Mini to your home network. Connect the coaxial cable coming from the wall to this jack.
2	Component RCA output (green)	Connects to a TV or A/V system. Component video provides a high-definition (HD) picture using a component video cable.
3	Composite A/V output (yellow)	Connects to a TV or A/V system. Composite video provides very good standard-definition (SD) picture quality. It does not provide HD video.
4	HDMI port	Connects to a TV, A/V receiver, or home theater. The HDMI port provides a pure digital connection for HD video and digital audio all in one cable.
5	Ethernet jack	Connects a TiVo Mini to your home network using an Ethernet cable.
6	USB	Reserved for future use.
7	Power connector (12V DC)	Connects to A/C power.

TiVo-Pace Mi3 back panel

This section details the location of the items on the back panel of TiVo-Pace Mi3.



Number	Item	Details
1	Coaxial input jack	The Cable In connector is designed to connect the TiVo-Pace Mi3 to your cable network. Connect the coaxial cable coming from the wall to this jack. You must not connect any other equipment, such as a VCR, to this input.
2	To TV	Coaxial RF cable output to TV.
3	Component RCA output (green)	Connects to a TV or A/V system. Component video provides a high-definition (HD) picture using a component video cable. If your HDTV does not have an HDMI connector, but has component video (YPbPr) inputs, connect your HDTV here.
4	Composite A/V output (yellow)	Connects to a TV or A/V system. Composite video provides very good standard-definition (SD) picture quality. It does not provide HD video. Connect to the composite video and analog audio inputs on your SDTV.
5	HDMI port	Connects to a TV, A/V receiver, or home theater. The HDMI port provides a pure digital connection for HD video and digital audio all in one cable. Connect to the HDMI input on your TV.
6	Optical digital audio output	S/PDIF output. Connect to the optical digital audio equipment, such as an audio decoder or home theater receiver.
7	Ethernet jack	Connects a TiVo Mini to your home network using an Ethernet cable.
8	USB	Reserved for future use.
9	Power connector (5V DC)	Connects to A/C power.

TiVo Stream back panel

This section details the location of the items on the back panel of TiVo Stream.



The TiVo Stream back panel includes:

- Power/status (main) LED
- Gigabit Ethernet connector with link activity and link status LEDs
- 12V DC power supply