TiVo Onsite Installation Train the Trainer

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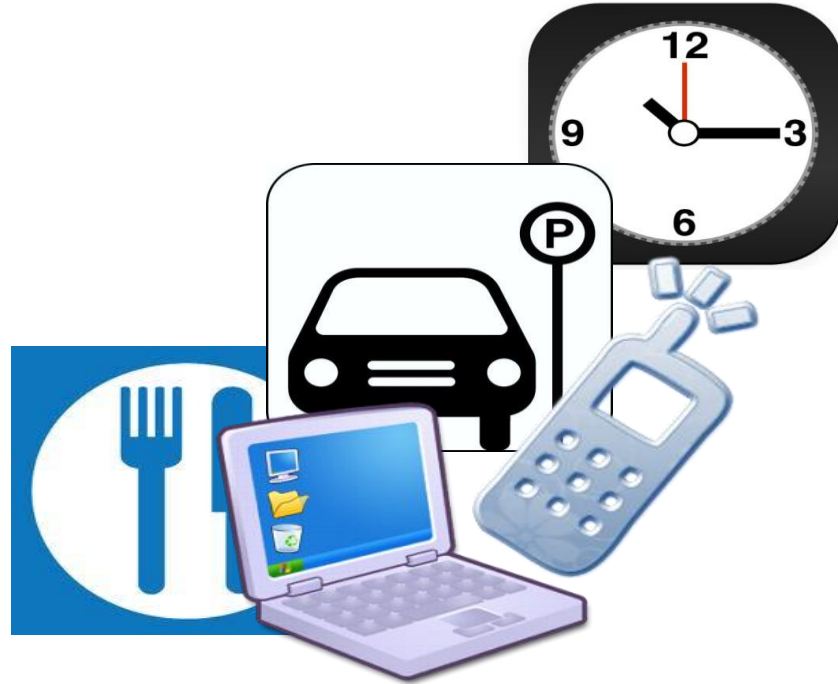This content is based on TiVo software
Version 20.6.1

Introductions

- About me:
  - My name
  - My role at TiVo
- About you:
  - Your name
  - Your role

Housekeeping

- Phones
- Laptops
- Breaks
- Lunch
- Parking Lot
- CableCo Logos

Reference Documents

Refer to the following guides for more detailed instructions and information:

- [TiVo Warehouse Staging Guide](#)
- [TiVo Onsite Installation Guide](#)
- [TiVo Product Support Handbook](#)
- [TiVo Onboarding Reference Companion](#)

Objectives: Onsite Installation

By the end of this module, you will be able to:

- Prepare for onsite installation
- Perform Warehouse Configured Headend (WCH) installation
- Install additional devices
- Perform subscriber education
- Troubleshoot onsite installation and activation issues

Service States

- Normal operational service states:
  - **22 Grace Period.** Device has been staged and most functionality can be tested. Typically function for 30 days. Will see prompts to activate service.
  - **3 Account in good standing.** Device is assigned to a subscriber and has full functionality.
  - **8 Canceled.** Cancelled either by subscriber request or for non-payment. Subscriber will see numerous prompts to activate service.
- Other service states:
  - **7 Suspended.** Grace period has expired. Will see prompts to activate service.

Service States—Device Lifecycle with API Calls
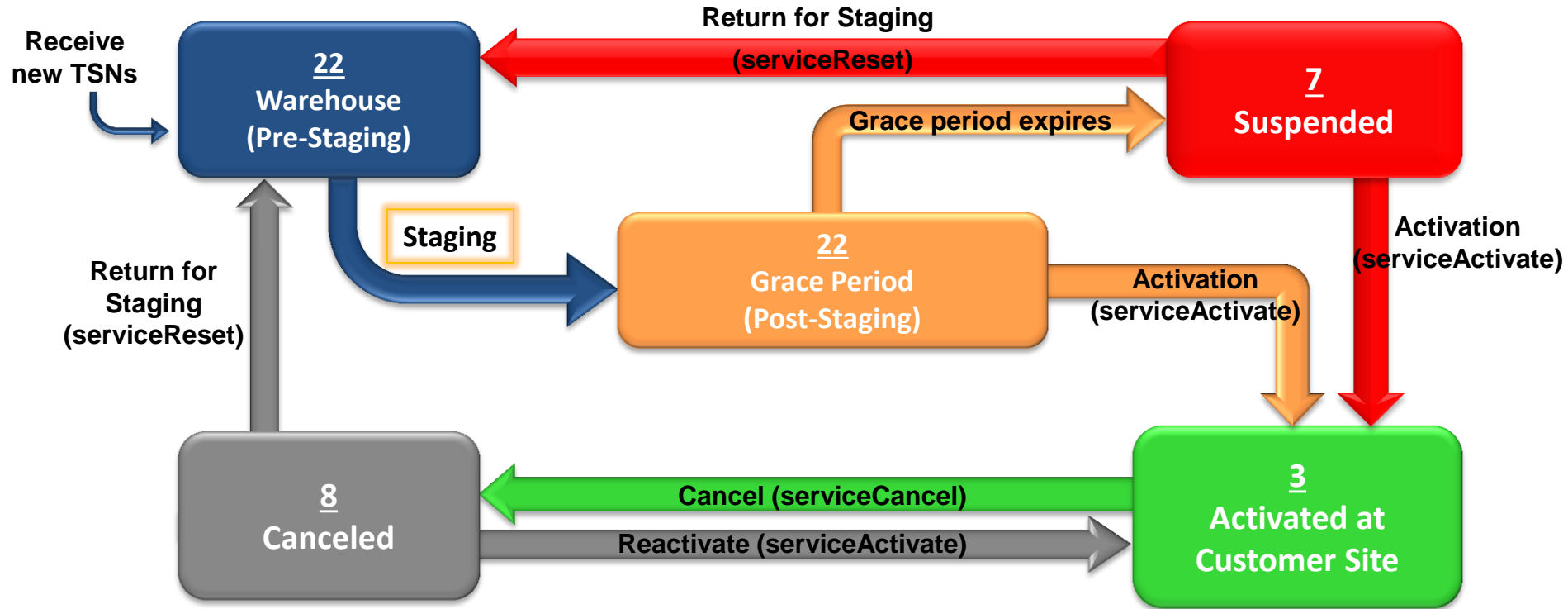
How Service States Are Changed

- Service states are maintained by the TiVo Data Center
- Changes are made through the MSO's activation portal built by the MSO using the TiVo Web Services API
- Changes take effect after a TiVo Service connection
  - Can manually force a TiVo Service connection
  - Or wait for the daily call (daily call runs every ~16-36 hours)

Subscriber's Environment Checklist

- Does this installation include MoCA?
  - The Multimedia over Coax Alliance (MoCA) technology carries IP network (Internet) content from outlet-to-outlet over existing home coaxial wiring
  - For detailed information about MoCA, refer to the Appendix in this training, and [What is MoCA](#) on the TiVo Support website
- Is Ethernet needed and available?
- What sort of subscriber education will be needed?

Requirements

Basic installation requirements (in order of what is used first):

1. Broadband Internet
2. TiVo power adapter or cord
3. Network cables
4. Local network, MoCA, or Ethernet
5. TiVo remote control
6. RF video source
7. Video connection cables

Preparing for Onsite Installation

- Gather the devices, accessories, tools, and materials
  - TiVo devices
  - Accessories (adapters, cables, remote control)
  - Standard tools
  - List of applications supported by the MSO
  - Leave-behind materials

Tip: For detailed information, refer to the *TiVo Onsite Installation Guide*
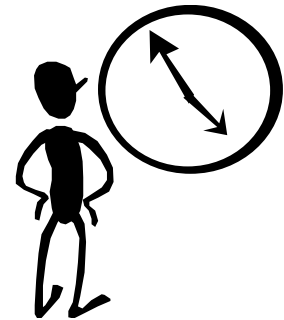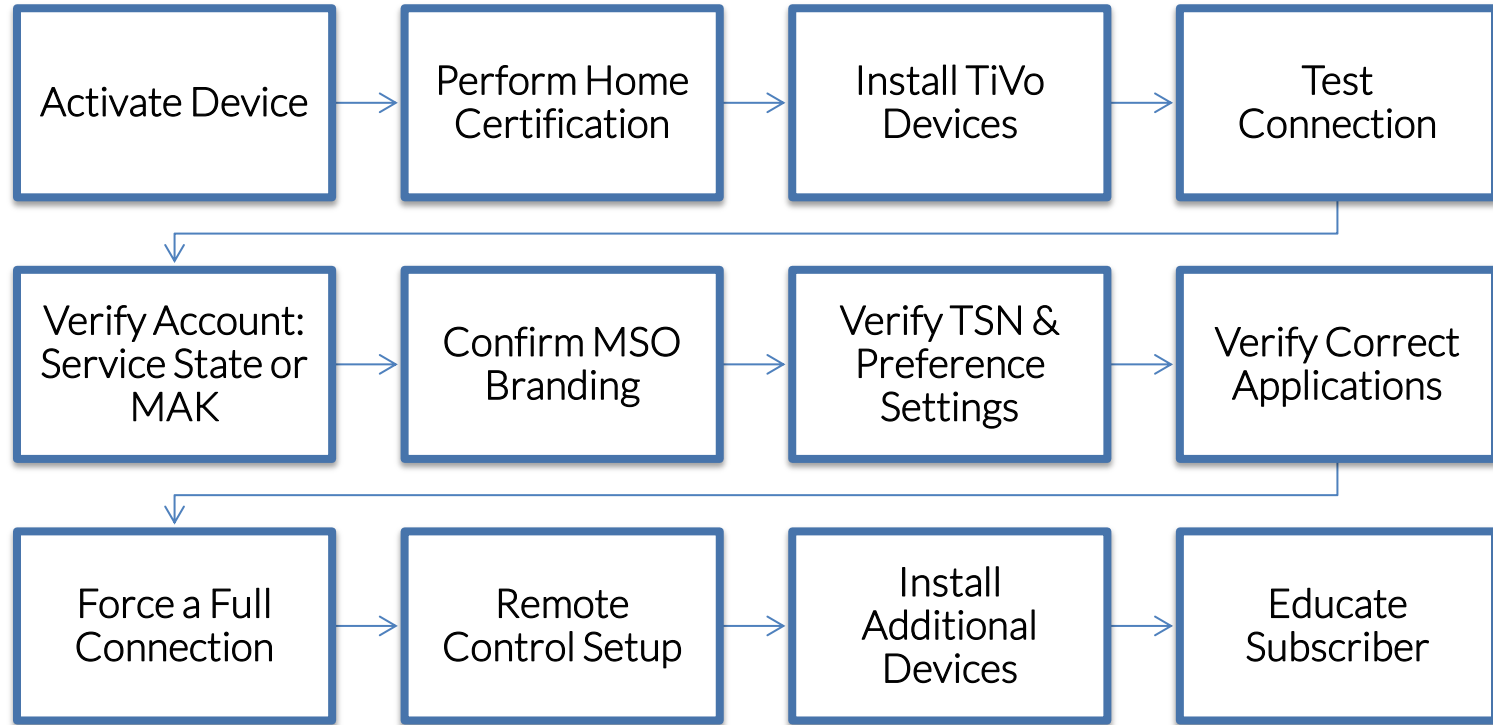
Warehouse Configured Headend

Warehouse Configured Headend (WCH)

- For a Warehouse Configured Headend (WCH) installation, the Program Guide Data (PGD) was downloaded at the warehouse during staging
  - You don't need to perform Guided Setup
- You will set the service state and perform some setup tasks

Warehouse Configured Headend (WCH) Installation Tasks Overview

Activate Device → Perform Home Certification → Install TiVo Devices → Test Connection

Verify Account: Service State or MAK → Confirm MSO Branding → Verify TSN & Preference Settings → Verify Correct Applications

Force a Full Connection → Remote Control Setup → Install Additional Devices → Educate Subscriber

Activate Device

Activate Device

- Activation should be done as early as possible before physical installation – reduces waiting time for processing to complete
- Ensure `msoServiceId` and `siteId` are set on TSNs
- Run `deviceInfoStore` API call, if applicable
- Processing time: 1 minute + any internal MSO delays

Perform Home Certification

Perform Home Certification

- Verify the coaxial connection to the MSO headend
- Ensure that a network connection with Internet access exists
- Ensure there is a viable means to connect a TiVo device to local network
  - Check the router
  - Each TiVo device needs its own IP address
  - Use DHCP or static addresses

Install TiVo Devices

Install TiVo Devices

- Always connect the TiVo device first
- Connect coax-to-cable input on the TiVo device
- Connect audio and video to the TV
- Connect to Internet via local network (Ethernet or MoCA)
- Connect the TiVo device to the power source
  - Processing time: about 5 minutes

Test Connection

Test Connection

- After power up, the TiVo Central screen appears
- Configure network connection
  - **TiVo Central > Settings & Messages > Settings > Network > Change network settings**
    - This screen shows the type of network connection
    - Choose the appropriate setting from the list
    - You might need to change from Ethernet to MoCA

Test Connection, *continued*

Test Connection

- Test Internet connection
  - **TiVo Central > Settings & Messages > Settings > Network > View network diagnostics > Test Internet connection**
  - Connection to the TiVo Service starts immediately
  - Processing time: 2-5 minutes
    If you accidentally force a full connection, you will have a long processing time
  - No PGD is downloaded
    - If an error is made, unplug the device to restart

Note: This is where processing time is greatly reduced for WCH, because the PGD was downloaded during staging at the warehouse

Verify Account: Service State

Verify Account: Service State

- Verify the service state
  - **TiVo Central > Settings & Messages > Account & System Info > System Information**
  - Check the TiVo Service Account Status field
    - Should be 3: Account in Good Standing
    - If service state is 22, force a test connection to the TiVo Service to update the device status
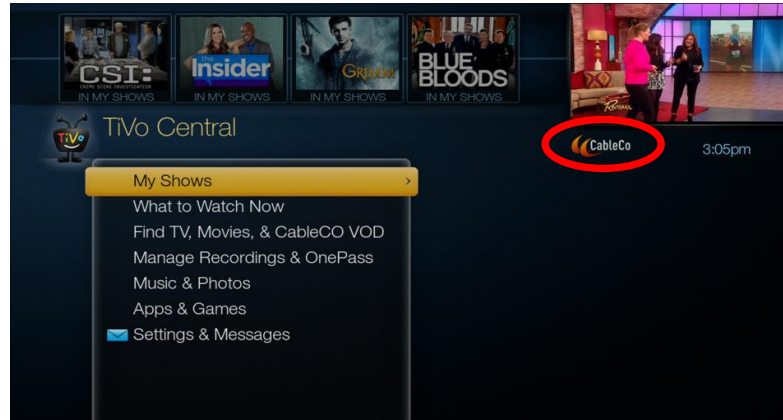
Verify Account: MAK

Verify Account: MAK

- Verify that Media Access Key (MAK) appears
  - TiVo Central > Settings & Messages > Account & System Info > Media Access Key
- Verify that the MAK is the same for all installed devices

Confirm MSO Branding

Confirm MSO Branding

- Confirm that the MSO's logo appears on the TiVo Central screen

Verify TSN Settings

Verify TSN &
Preference Settings

- Verify TSN settings
  - Channel List
- Optional preference settings
  - Adjust LED if light is too bright for sleeping
  - Sound effects can be turned off

Verify Correct Applications

Verify Correct
Applications

- Compare the installed product against the list of supported applications that the MSO provided to you

- The installed applications are listed under **TiVo Central** > Apps & Games

Force a Full Connection

Force a Full Connection

- Force a connection
  - **TiVo Central > Settings & Messages > Settings > Network > Connect to the TiVo Service now**
    - If the device has less than 1 day of PGD, force a connection to get 1 - 3 days of PGD
    - Another service call is scheduled about 30 minutes later to download the full 12 – 14 days of PGD in the background

Remote Control Setup

Remote Control Setup

1. Pair the remote control to the device to enable RF transmission.

- TiVo Central > Settings & Messages > Settings > Remote, Conditional Access Information, & Devices > Remote Control Setup
- Choose Part 5: Remote control pairing, and then press Select

Remote Control Setup, *continued*

Remote Control Setup

2. If the TiVo remote control has not auto paired: while you are within 3 feet of the screen, press and hold the **TiVo**+**Back** buttons until the activity indicator lights.

Remote Control Setup, *continued*

Remote Control Setup

3. Find the remote code for a specific TV manufacturer to pair with the TV.

   – **TiVo Central > Settings & Messages > Settings > Remote, Conditional Access Information, & Devices > Remote Control Setup**
   – Choose **Part 1: TV power, volume, and mute**. The device displays a list of TV brands

Remote Control Setup, *continued*

Remote Control Setup

4. On the Television Brand screen, use the **Channel Up** and **Channel Down** buttons on the remote control to scroll the brand list.

5. Press and hold the **TiVo**+**TV Pwr** buttons until the red or amber LED at top of the remote control stays on.

Remote Control Setup, *continued*

Remote Control Setup

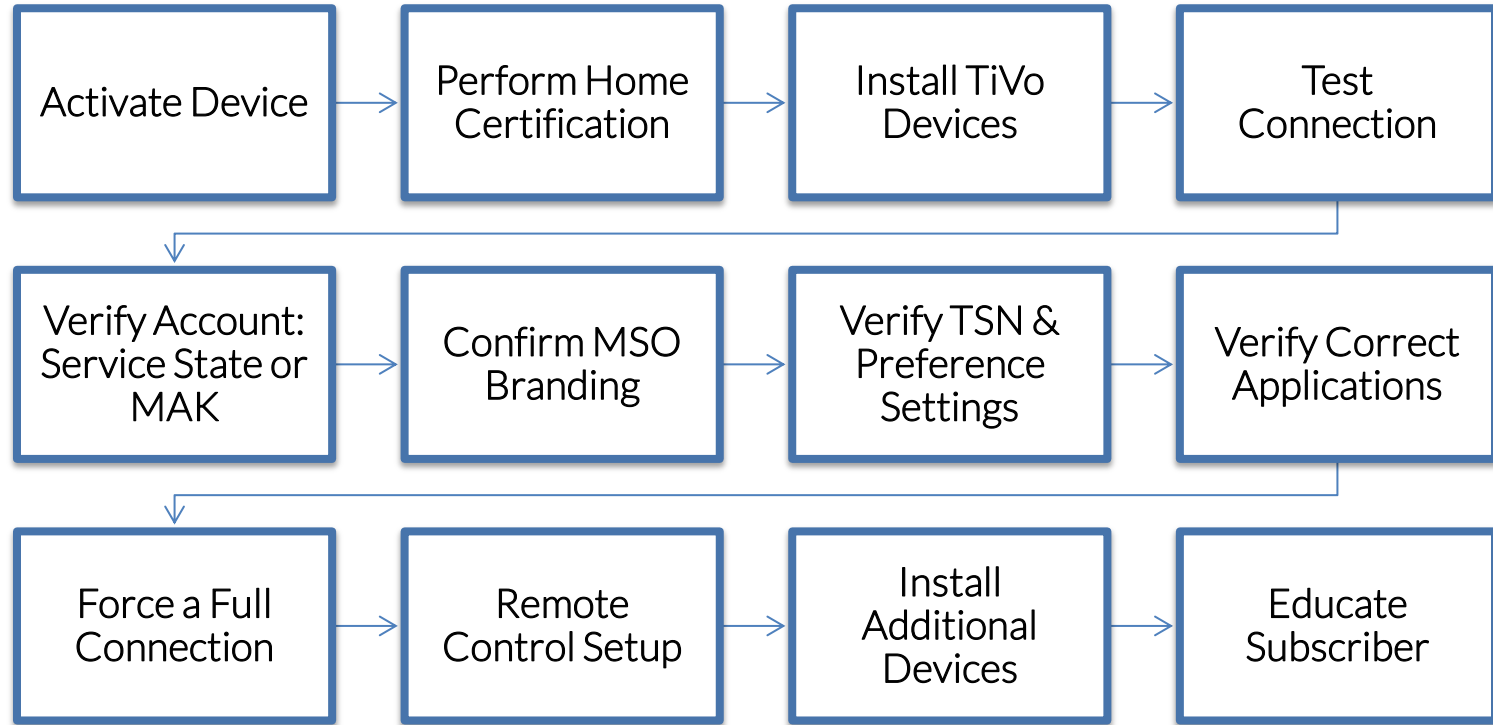6. Enter the first of the four-digit remote control codes at the top of the TV Remote Codes screen.

7. Test the **TV Pwr** button on the remote control. Repeat steps if needed.

Note: If you can't find an appropriate code for your TV brand, check to see if another manufacturer built the TV, and try to use that code.

Warehouse Configured Headend (WCH) Installation Tasks Review

```
Activate Device → Perform Home Certification → Install TiVo Devices → Test Connection

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Force a Full Connection → Remote Control Setup → Install Additional Devices → Educate Subscriber
```

Basic Installation Complete

At this point, the basic installation tasks are done

- If you have additional devices to install, repeat these steps for each device

- If you aren't installing additional devices, you can go directly to Educate the Subscriber

Educate the Subscriber

Demonstrations

Educate the Subscriber

- Remote Control
- Live TV (Trick Play)
- The Guides (Live, Grid, Mini)
- Parental Controls
- Pick one or more apps and demonstrate how to launch them

Tip: For more details on subscriber education, see the *TiVo Onsite Installation Guide*

WoW! Applications

Menu Items	Apps
Find TV, Movies & Videos	Netflix * Hulu Plus * Vudu Amazon Prime YouTube AOL On MLB.TV Web Video Hotlist Yahoo
Music & Photos	Plex Spotify Pandora iHeartRadio
Apps & Games	Opera TV Store Moviefone TechCrunch Huffington Post HSN

* Pending SOW and contractual agreement with Netflix and technical update with Hulu

Installer Leave-Behinds

Educate the Subscriber

- Be sure to give the TiVo leave-behind materials to the subscriber to help with using the new devices
- Installation is finished!

Troubleshooting Installation Issues

Device Doesn't Power Up

The TiVo device does not power up correctly

Action to take

- If the device is installing new software
  - Wait for the software update to complete

- If the device reboots repeatedly or will not power up
  - You might need to replace the device – Return Merchandise Authorization (RMA)

Features Fail or Are Unavailable

You discover that some features are not working or are not available

Action to take

- Verify that the device has been activated

- Check to see if a software update is needed

Guide Data Is Missing

Many programs are not available in the Guide (To Be Announced message)

Action to take

- If a TiVo Service call is in progress, wait for it to complete

- Verify ZIP or Postal code is correct

- Force a connection to do a full PGD download via a TiVo Service call

Lineup Is Not Correct

When looking at the Guide, you see that channels are missing, or the lineup is incomplete

Action to take

- If channels are missing
  - Go to the channel list and select the missing channels
  - TiVo Central > Settings & Messages > Settings > Channels > Channel List
- If an incorrect lineup is configured
  - Configure the correct msoServiceId

Apps Are Missing

Over-the-top (OTT) applications, such as YouTube and Pandora, are missing from TiVo menus

Action to take

- Verify network connectivity and if application is available

Missing MSO Branding

You notice that the logo/branding for your company doesn't appear directly below the Video Window on TiVo Central

Action to take

- Contact your escalation team, who will then contact TiVo

Service Is Not Active

You see a message indicating that service has been suspended, isn't fully active (Please Activate Service), or the service appears to be degraded

Action to take

- Verify that the device is activated
  - Account status should be service state 3 (*not* 22)

- Test the Internet connection

TiVo Service Call Fails

You can't make a TiVo Service call, or the Test Internet connection process fails

Action to take

- Perform general network troubleshooting
  - Check cables and configuration
- Check to see if other devices are working
- If the Internet and non-TiVo devices are working, and you have checked everything else, you might need to escalate

Video Display Problems

You connect the TiVo device to the TV and discover that the video does not display or is distorted

Action to take

- If there is no display
  - Verify that the TV is connected to the correct video source, the cables are secure and correct source is selected
  - Try another cable type (such as HDMI, composite, component)

- If the display is distorted
  - Check the video output settings (aspect ratio and output resolution)

Lab Practice: Onsite Installation

Summary & Feedback

Feedback Survey

Please complete the course feedback survey provided by your trainer. Your input is important to us, and your comments will be used to improve future training sessions.

Thank you!

Appendix

MoCA Information

What is MoCA?

- **Multimedia over Coax Alliance (MoCA)** is a technology that carries IP network data from outlet-to-outlet over existing coaxial wiring
- MoCA technology works on any type of coax
- Does not require separate Ethernet cable
- MoCA can be used for most TiVo devices

What is MoCA?, *continued*

- Home network products with MoCA instantly turn your existing coax TV cable into a powerful easy to use network for Internet access

- Additional resources:

  - http://www.mocaisinyourhouse.com/

  - http://www.mocalliance.org/

MoCA Communication

- MoCA creates a mesh
  - Devices communicate with each other directly
  - TiVo DVRs can stream from any DVR in the network

- Automatically forms a MoCA network after two or more MoCA devices are connected
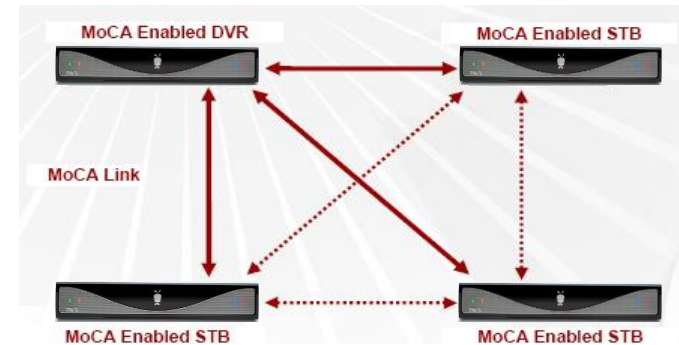
MoCA Terminology

- **MoCA bridge:** Device that has the ability to bridge an IP network from an Ethernet medium across a coaxial medium
- **MoCA client:** Device that can connect to a MoCA network and receive IP network connectivity
- **Data Over Cable Service Interface Specification (DOCSIS):** An international telecommunications standard that permits the addition of high-bandwidth data transfer to an existing cable TV (CATV) system

MoCA Devices: General Products

- **MoCA network adapter:** External adapter used as a MoCA bridge or a MoCA client
  - Used to connect non-MoCA enabled devices to a MoCA network via an Ethernet port
- **MoCA router:** Combination of an Ethernet router with a built-in MoCA bridge
  - Sends network data over the coaxial connection
- **Point of Entry (POE) filter:** Low pass filter used to filter out MoCA signals
  - Should be used in every MoCA household network to prevent MoCA signals from leaving the house or interrupting non-MoCA devices connected by coax (such as DOCSIS 2.0 cable modems)
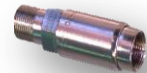
MoCA Requirements

- MoCA network adapter
  - Also called an ECB or MoCA Bridge
  - Bridges the connection between an Ethernet network and a MoCA network
- Point of Entry (POE) filter
  - Keeps the MoCA signals in the home
  - Install at the point where the cable line enters the home
- Coaxial splitter
  - Directs one coaxial input to two or more outputs
  - Bring a variety of splitters to a subscriber's site (2-, 3-, 4-, and 5-way outputs)

MoCA Specifications

- TiVo devices comply with MoCA v2.0 Standards

- Support for up to 16 nodes

- Maximum cable distance between source and end node is ~ 300 feet
  - More than 300 feet might cause too much latency between nodes for MoCA to communicate reliably

- TiVo devices typically use MoCA in the 1150-1500 MHz frequency range
  - MoCA D-Band
  - To avoid interference with cable data on the same coaxial network

MoCA-enabled TiVo Devices

Product	MoCA -enabled	Built-in ECB
TiVo-Evolution IP Hybrid STB	Y	N

MoCA Troubleshooting

MoCA signal strength is poor

Action to take

- Confirm that POE filter is installed at the coaxial entry to the site
  - POE functions not only as an isolator but also as a reflector to boost MoCA signal strength within the network

Additional troubleshooting suggestions:

- https://support.tivo.com/articles/Troubleshooting/MoCA-Troubleshooting

MoCA Troubleshooting, *continued*

You have problems connecting to the MoCA network

Action to take

- Ensure that you are using automatic settings across all devices
- Verify that a device is connected as the MoCA bridge and has connectivity to the router
- Check that the router is stable and can provide IP addresses
- Verify no end device is connected by more than 300 feet of cabling
- Ensure devices are not preventing MoCA signal pass-through
  - Some amplifiers and splitters might prevent MoCA signals from working, especially those that do not allow 1150-1500 MHz to pass through
- Ensure no MoCA loops have been created
  - Only a single MoCA bridge should be connected to the router

MoCA Troubleshooting, *continued*

You are trying to verify MoCA installation

Action to take

- The PHY rates provide the best indicator to verify installation
- For MoCA 1.0 and 1.1, PHY rates should be greater than 180Mbps to maintain 100Mbps aggregate UDP throughput
- Lower PHY rates will result in lower throughput
- The RX and TX PHY rates should normally be symmetric. While non-symmetric rates do not necessarily indicate an issue, if one PHY rate is drastically lower, it could indicate an installation issue, such as the presence of an amplifier
- TX Power Estimate is not useful for debugging link quality
- RX Power Estimate indicates received power, but does not fully capture other link impairments

Onsite Installation Overview

- Installation requirements
  - Confirm you have the right equipment before going out
    - Hardware, cables, leave behind collateral, remote, batteries, etc.
  - Verify that the subscriber site will have broadband Internet connection at sufficient speeds

- Set up hardware
  - Activate all TiVo devices
  - For quick initial setup, use Test Internet Connection to call

Onsite Installation Overview, *continued*

- General Troubleshooting for Installation
  - All devices must be on the same account
    - If needed, attempt additional calls to update service state
    - Same MAK on all devices
  - Ensure a correct network setup, with router and other equipment all configured as needed
    - Every device needs an IP address and Internet connection
    - POE installed
    - No MoCA loops
  - If an additional device has been added, ensure that all devices have called in again

Thank You!