VIAVI

ONX-220

User Guide

Notice

Every effort was made to ensure that the information in this manual was accurate at the time of printing. However, information is subject to change without notice, and VIAVI reserves the right to provide an addendum to this manual with information not available at the time that this manual was created.

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Copyright release

Terms and conditions

Specifications, terms, and conditions are subject to change without notice. The provision of hardware, services, and/or software are subject to VIAVI standard terms and conditions, available at **www.viavisolutions.com/en/terms-and-conditions**.

Open Source Disclaimer - IMPORTANT READ CAREFULLY

The OneExpert CATV includes third party software licensed under the terms of separate open source software licenses. By using this software you agree to comply with the terms and conditions of the applicable open source software licenses. Software originated by VIAVI is not subject to third party licenses. Terms of the VIAVI Software License different from applicable third party licenses are offered by VIAVI alone.

Federal Communications Commission (FCC) Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by VIAVI could void the user's authority to operate the equipment.

CAUTION:

- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. The End user must follow the specific operating instructions for satisfying RF exposure compliance.
- This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Industry Canada Requirements

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Device operation in the band 5150–5250 MHz is only for indoor use.

Dans la bande de fréquence 5150-5250 Mhz, l’utilisation du produit doit être uniquement en intérieur.

Japan Radio Law

The GITEKI Mark can be found on the meter in the “System -> File Browser -> Documents” folder.

EU WEEE and Battery Directives

This product, and the batteries used to power the product, should not be disposed of as unsorted municipal waste and should be collected separately and disposed of according to your national regulations.

VIAVI has established a take-back process in compliance with the EU Waste Electrical and Electronic Equipment (WEEE) Directive, 2012/19/EU, and the EU Battery Directive, 2006/66/EC.

Instructions for returning waste equipment and batteries to VIAVI can be found in the WEEE section of the VIAVI Standards and Policies web page.

If you have questions concerning disposal of your equipment or batteries, contact the VIAVI WEEE Program Management team at **WEEE.EMEA@ViaviSolutions.com**.

EU REACH

Article 33 of EU REACH regulation (EC) No 1907/2006 requires article suppliers to provide information if a listed Substance of Very High Concern (SVHC) is present in an article above a certain threshold.

For information on the presence of REACH SVHCs in VIAVI products, see the **Hazardous Substance Control** section of the VIAVI Standards and Policies web page.

EU CE Marking Directives (LV, EMC, RoHS, RE)

This product conforms with all applicable CE marking directives. For details, please see the EU Declaration of Conformity documentation included in the shipping package and available on StrataSync.

China RoHS

China RoHS documentation is included in the shipping package and available on StrataSync.

California Proposition 65

California Proposition 65, officially known as the Safe Drinking Water and Toxic Enforcement Act of 1986, was enacted in November 1986 with the aim of protecting individuals in the state of California and the state's drinking water and environment from excessive exposure to chemicals known to the state to cause cancer, birth defects or other reproductive harm.

For the VIAVI position statement on the use of Proposition 65 chemicals in VIAVI products, see the **Hazardous Substance Control** section of the VIAVI Standards and Policies web page.

Compliance with 2014/53/EU Radio Equipment Directive (RED)

In accordance with Article 10.8(a) and 10.8(b) of the RED, the OneExpert DSP instruments for sale in the EU operates in the 5-205 MHz frequency range at a maximum RF transmit power of +15dBm.

Please contact us for more information:

VIAVI Solutions

Network Service Enablement

6001 America Center Drive

San Jose, CA, 95002

Precautions

WARNING:

The maximum "RF" input voltage to the meter is 125 Volts (AC or DC). A larger voltage will damage the meter.

WARNING:

Pursuant to FCC 15.21 of the FCC rules, changes not expressly approved by VIAVI might cause harmful interference and void the FCC authorization to operate this product.

WARNING:

The antenna used for this instrument is installed at the VIAVI factory or by VIAVI-approved repair facilities. During operation of the device, a distance of 20 cm or more should be maintained between the antenna in this device and person. To ensure compliance, do not operate at closer distances than this. The antenna on the unit is located inside the device at the top of the unit attached to the back plastic case. Do not use any antenna other than the installed antenna.

CAUTION:

Do not use the instrument in any manner not recommended by the manufacturer.

CAUTION:

A strong electromagnetic field may affect the measurement accuracy of the meter.

Precautions (continued)

CAUTION:

Use only the battery charger supplied with the meter. Use of any other charger may damage the battery.

NOTE:

All spent batteries should be disposed of according to local laws and guidelines.

Contents

About this Guide

Thank you for purchasing the ONX-220. This guide provides setup and operating instructions to get you up and running as soon as possible.

Purpose and scope

The purpose of this guide is to help you successfully use the product features and capabilities. Additionally, this guide provides a complete description of the VIAVI warranty, services, and repair information.

Assumptions

This guide is intended for novice, intermediate, and experienced users who want to use the product effectively and efficiently. We are assuming that you have basic computer and mouse/track ball experience and are familiar with basic telecommunication concepts and terminology.

Technical assistance

If you require technical assistance, call 1-844-GO-VIAVI / 1.844.468.4284.

Outside US: +1-855-275-5378

Email: **CATVsupport@viavisolutions.com**

For the latest TAC information, visit

https://support.viavisolutions.com

https://www.viavisolutions.com/en/services-and-support/support/technical-assistance

Safety and compliance information

Safety information is contained in a separate guide and is provided in printed format with the product.

For information about CE compliance, see the Declaration of Conformity. A copy of the declaration is included in the shipping package.

Conventions

This guide uses typographical and symbols conventions as described in the following tables.

Typographical conventions

Description	Example
User interface actions	On the Status bar, click **Start**.
Buttons or switches that you press on a unit	Press the **ON** switch.
Code and output messages	All results okay
Text you must type exactly as shown	Type: ***a:\set.exe*** in the dialog box
Variables	Type the new ***hostname***.
Book references	Refer to ***Newton's Telecom Dictionary***
A vertical bar | means "or": only one option can appear in a single command.	platform [a|b|e]
Square brackets [ ] indicate an optional argument.	login [platform name]
Slanted brackets < > group required arguments.	<password>

Keyboard and menu conventions

Description	Example
A plus sign + indicates simultaneous keystrokes.	Press **Ctrl+s**
A comma indicates consecutive key strokes.	Press **Alt+f,s**
A slanted bracket indicates choosing a submenu from menu.	On the menu bar, click **Start > Program Files**.

Symbol conventions

This symbol indicates a note that includes important supplemental information or tips related to the main text.

This symbol represents a general hazard. It may be associated with either a DANGER, WARNING, CAUTION, or ALERT message. See the *"Safety definitions" on page 24* for more information.

This symbol represents an alert. It indicates that there is an action that must be performed in order to protect equipment and data or to avoid software damage and service interruption.

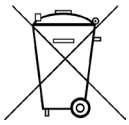
This symbol represents hazardous voltages. It may be associated with either a DANGER, WARNING, CAUTION, or ALERT message. See the *"Safety definitions" on page 24* for more information.

This symbol represents a risk of explosion. It may be associated with either a DANGER, WARNING, CAUTION or ALERT message. See the *"Safety definitions" on page 24* for more information.

This symbol represents a risk of a hot surface. It may be associated with either a DANGER, WARNING, CAUTION, or ALERT message. See the *"Safety definitions" on page 24* for more information.

Symbol conventions (continued)

This symbol represents a risk associated with fiber optic lasers. It may be associated with either a DANGER, WARNING, CAUTION or ALERT message. See the ***Safety Definitions*** below for more information.



This symbol, located on the equipment, battery, or the packaging indicates that the equipment or battery must not be disposed of in a land-fill site or as municipal waste, and should be disposed of according to your national regulations.

Safety definitions

Term	Description
DANGER	Indicates a potentially hazardous situation that, if not avoided, will result in death or serious injury. It may be associated with either a general hazard, high voltage, or other symbol.
WARNING	Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury. It may be associated with either a general hazard, high voltage, or other symbol.
CAUTION	Indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury and/or damage to equipment. It may be associated with either a general hazard, high voltage, or risk of explosion symbol. When applied to software actions, indicates a situation that, if not avoided, could result in loss of data or a disruption of software operation.
ALERT	Indicates that there is an action that must be performed in order to protect equipment and data or to avoid software damage and service interruption.

What ships with the ONX-220

When you unpack the OneExpert, the following items are included as standard.

- ONX-220 unit
- Battery (installed in the unit)
- USB-C power adapter & battery charger with international power adapter plugs (USA, UK, Australia, Euro, China)
- Fitted carrying case/glove
- ONX-220 Quick Start Guide
- Safety information sheet

Preparation for use

This section explains how to start using the ONX-220. When you unpack your instrument, do the following:

- Inspect the OneExpert for damage. If the instrument is damaged, put it back in the box and contact VIAVI customer service (see *"Technical assistance" on page 21*).
- If undamaged, save the box and packing materials in case you need to ship the instrument in the future.
- Remove the protective film from the LCD. This film is in place to protect the LCD during shipment. Use the tab in the lower right corner to easily remove the film.

Before using the OneExpert for the first time, do the following:

- Turn the OneExpert on (use the green button on the front of the instrument), and then verify it is operating properly by navigating through a few menus.
- If the **Batt** indicator is red, charge the battery.

Available models

The ONX-220 is available in Base, Plus, and Pro models. See *"Ordering information" on page 255* for details and available replacement parts and accessories.

NOTE:

For additonal information about OneExpert options and services, contact your local VIAVI representative or visit www.viavisolutions.com.

NOTE:

This hand-held instrument is not intended to be body worn, or operated while held against the body.

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Quick Tour

This chapter provides an overview of the unit, status indicators, connectors, and user interface, including the following:

About the ONX-220

The VIAVI ONX-220™ is an installation/service meter with ONX DNA, making it unequalled in speed, simplicity, and value.

When home network quality is unreliable, customers become dissatisfied and are more likely to churn. At the same time technical complexity is increasing, but technician skill and experience at the installation service tier is typically minimal. It's never been more important to have quick, effective troubleshooting tools that enable techs to quickly and efficiently verify performance as advertised. The ONX-220 is fast, complete, and follows up testing with simple cloud data storage to enable realtime close-out and reporting.

Benefits

- Fastest and most comprehensive tool for verifying high-speed DOCSIS (3.0 or 3.1) service activation and performance
- Rugged build quality, workmanship, and reliability expected from VIAVI and our years of measurement experience
- Technicians now have access to a rugged, precise measurement instrument at a budget-minded price
- Best balance of features, performance, and cost—designed to meet the budgets of installers and contractors

Key features

- **AutoChannel™** instantaneous channel lineup detection eliminates need for lineup editing, updating, and deploying
- **OneCheck** comprehensive mistake-proof automated tests, including: ingress, downstream channels and DOCSIS carriers at three demarcation points (Tap, GB, CPE)
- **DOCSISCheck** real-time analysis and powerful DOCSIS carrier and data service troubleshooting; upstream and/or downstream
- **ChannelCheck** real-time analysis and powerful downstream QAM, OFDM, and Analog carriers troubleshooting

- **DQI (Digital Quality Index)** focuses on raw information condition on the physical path, immediately detects intermittent and sustained issues within the stream
- Integrated Bluetooth connectivity enables leveraging mobile device GPS and multi-media capabilities with VIAVI Android/iOS Mobile Tech App
- Ready for high-speed Gigabit Ethernet and DOCSIS and WiFi* service testing, unavailable with other low-cost competing products
- **OneCheck Fiber** consolidates tests with P5000i and FiberChek Pro optical inspection scopes, SmartOTDR optical time domain reflectometer and MP60/80 optical power meter
- Certify home WiFi performance as part of a complete verification process and test coverage throughout the home, including throughput, airtime (traffic) and SNR with Advanced WiFi Option.

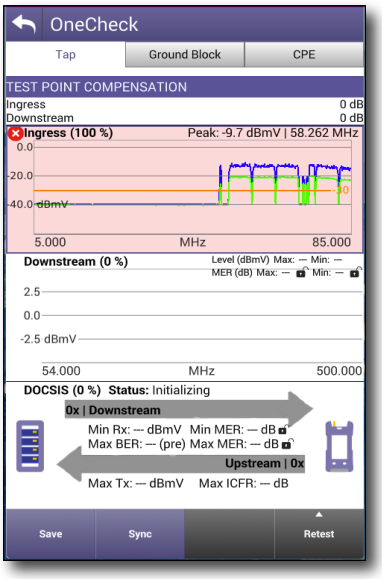
* Network service testing is included only on Plus and Pro models.

Connected

- Complete connectivity with the VIAVI MobileTech app via the technician's mobile device
- Real-time data connection updates supervisors and back office systems
- Provides complete information tracking that couples work orders to jobs and enables geotagging for validation of customer visits

Flexible and affordable

- Minimize expense by matching test capabilities to current needs, then changing as needed as part of software/service/support plans
- Expand meter functionality as the technician advances, adding new capabilities as needed
- Built-in support for fiber optic inspection and power measurements, along with home network integrity testing



OneCheck dashboard simplifies indentifying RF issues

Efficient

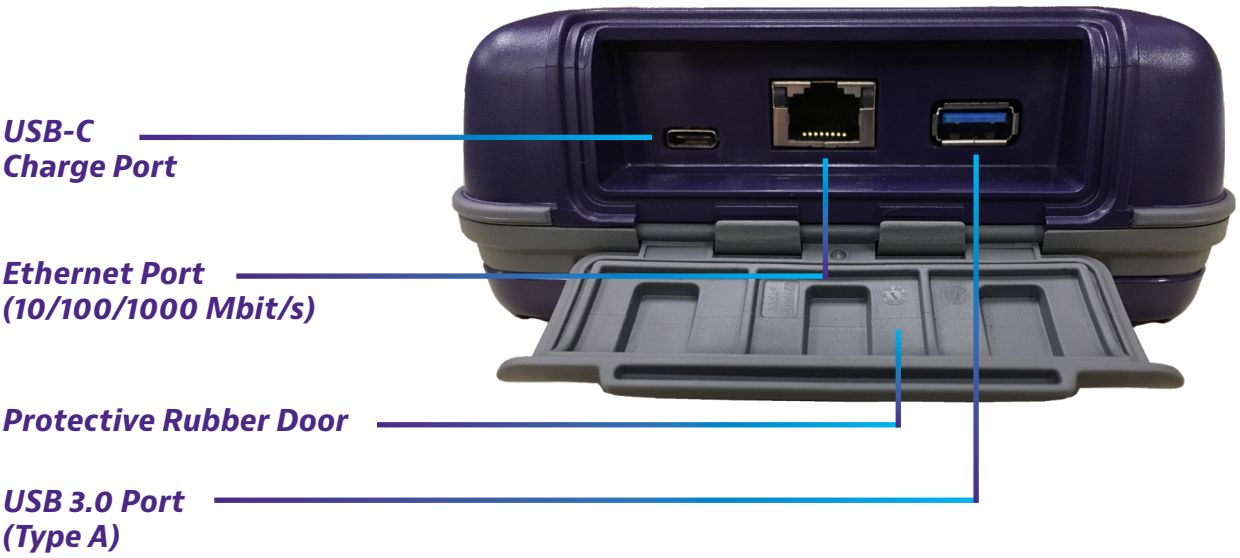
- Simple icon-based UI with capacitive touch screen control is easy for new technicians to learn
- Powerful measurement dashboards with simple Pass/Fail results for novice technicians while advanced techs can drill down for more detailed measurement results
- Technicians can quickly identify and resolve issues without needing years of field experience
- Powerful processing for faster measurements and complete autotest results in less than two minutes
- Works right out-of-the-box with each unit being factory synced to the customer's StrataSync account, so any configurations and limits are automatically configured upon arrival

Fast and easy connectivity, optional fiber scope and power meter

A guided tour of the ONX-220

Front view

Bottom view



NOTE:

In the image above, the protective rubber door is in the open position for illustrative purposes. This door should remain closed when not using any of these ports.

Status indicators

The indicators at the top of the meter show the battery and network connect status, as follows:

Power – Blinking green indicates the unit is powering up or down. Solid green indicates the unit is on.

Battery – Indicates the charge status. The indicator is off when the unit is not plugged in or charging.

- **Solid orange** – Charging
- **Solid green** – Charge complete
- **Flashing red** – Error in charging or powering the unit. In this case, the meter will need to be serviced by a Certified Repair Center. Before sending in the unit for repair, contact VIAVI for an RMA.

WiFi – Indicates the WiFi radio status

Bluetooth – Indicates the Bluetooth radio status

Modem Online – Indicates the DOCSIS modem status

UP – Indicates the upstream mode

DN – Indicates the downstream mode

Touchscreen display

The touchscreen display operates similar to a smart phone or tablet, where you swipe to go to the next page or zoom in/out by pinching or opening your fingers. Touch the screen to select options or navigate menus.

Softkeys

Use the softkeys to select screen-specific options or to select pop-up menus associated with each key.

Back and Power buttons

The **Back** and **Power** buttons are found under the main screen.

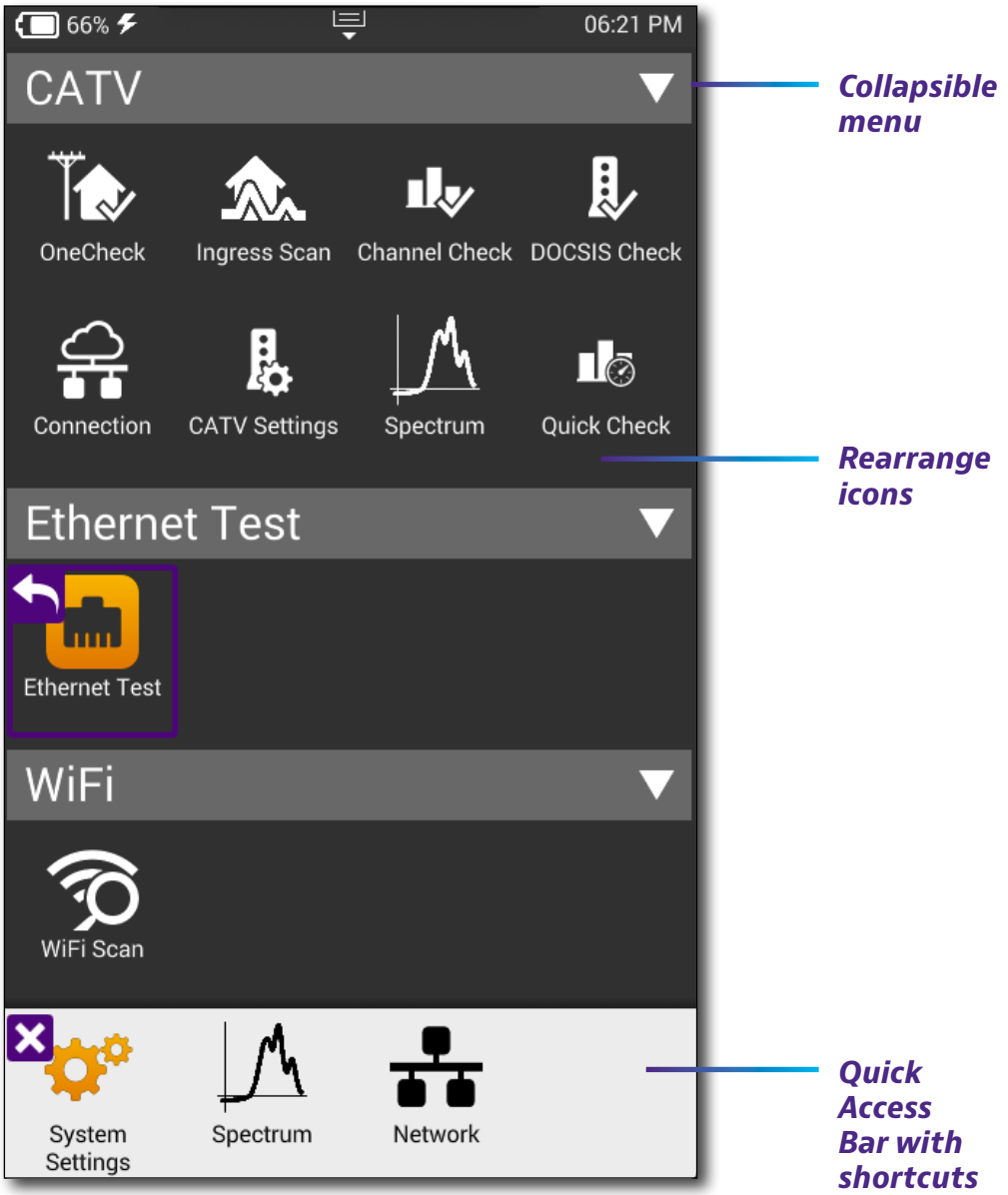
Back/Cancel – Exit a menu or go back to the previous menu.

Power – Press and hold the **Power** button to turn the ONX-220 on or off.

Navigating the user interface

The user interface of the ONX-220 is designed to be intuitive and easy to use. The LCD is a touchscreen that operates similar to a mobile device (such as an iPad or similar Android device), where you swipe to go to the next page or zoom in/out by pinching or opening your fingers. Using the interface, you can view test results, set up the ONX, and configure test parameters.

When you power up the ONX-220 the **Home** screen appears. The Home screen indicates the options enabled on your instrument.



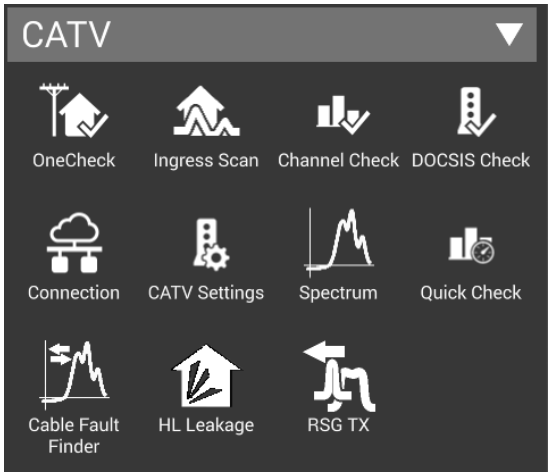
Battery status and time

The area at the top of the screen provides the battery status (using a graphic of the battery charge remaining), indicates whether the adapter is plugged in (using a lightning bolt next to the battery), and displays the current time.

Expanding a menu

Each item on the main menu is a collapsible menu. You can expand each of the collapsible menu items by pressing the triangle on the right.

The triangle points down to show the menu is expanded.

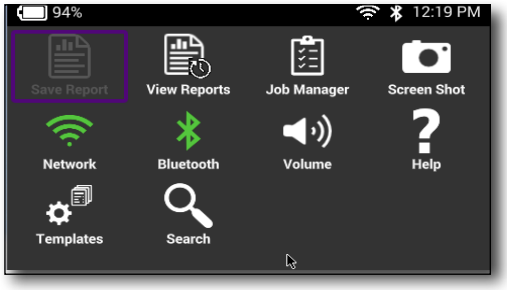


Selecting a menu option

After you expand a collapsible menu, you can select a specific option by pressing the menu option.

Using the tray menu

The Tray menu allows access to commonly used functions. It can be accessed by swiping downward from the top of the screen.



Save Report – Saves the results to a report. Formats available: XML, PDF, or HTML.

View Reports – Views a saved report. Select View Report and then select the saved report to view. If there are no saved reports, the text will be grayed out.

Job Manager – Allows you to see all your current jobs.

Screen Shot – Takes a screen capture of the current menu (the screen you were viewing when you launched the tray menu).

Network – Enables or disables the home/Ethernet network.

Bluetooth – Enables or disables Bluetooth.

Volume – Control the device volume.

Help – Provides TAC phone numbers.

Templates – Displays available templates from StataSync.

Search – Search for files, reports, and screenshots.

Entering data

Some menu options may require you to enter text or numbers (for example, test settings or user information). The process is similar to data entry on a mobile device.

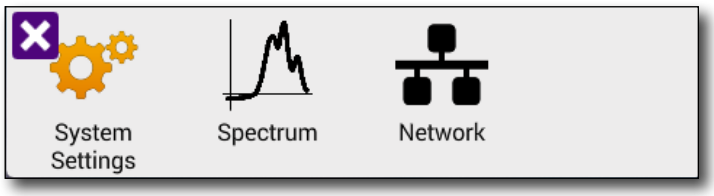
1. Press the desired item. A data entry box appears.
2. Tap in the box. A keypad appears on the screen.
3. Use the keypad to enter the data.
   - To switch from letters to numbers, use the **123 or ABC** button.
   - On the alpha keypad, the up arrow is the shift button.
   - On the numeric keypad, the second button (1/2) allows you to move among multiple numeric screens.
   - The left pointing arrow with the X in it is the backspace button.
4. Press the enter/return button on the onscreen keypad. The data is entered and stored.

Personalizing the user interface

If you have a test or function that you use frequently, you can make it a shortcut. You can create up to four shortcuts.

Shortcuts

- To create a shortcut, press and hold the icon for the function and then drag it to the bottom of the screen to the shortcut bar.
- To remove a shortcut, press and hold the icon and then drag it off of the shortcut bar.



Rearranging icons

To rearrange icons inside a menu, touch and hold the icon and then drag it to the new location. For example, if you frequently use the Ingress Scan test, touch and drag the Ingress Scan icon from the CATV menu to the top row.

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Utilities

This chapter describes utilities found in the System menu and the Tray menu. The utilities are used to set up your instrument, upgrade the software, specify user information, generate job tickets and test reports, capture screenshots, and perform other tasks, including the following:

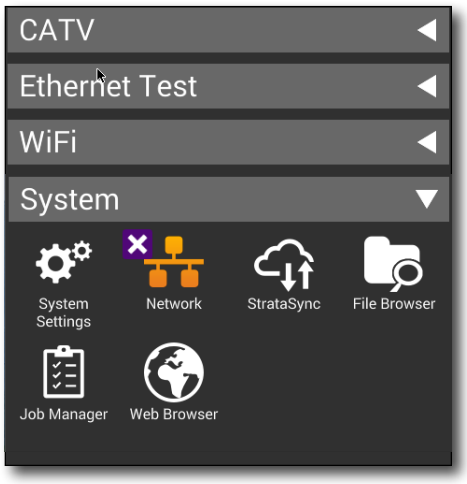
Accessing system utilities

System utilities are accessed using the **System Settings** or **Tray** menus on your instrument.

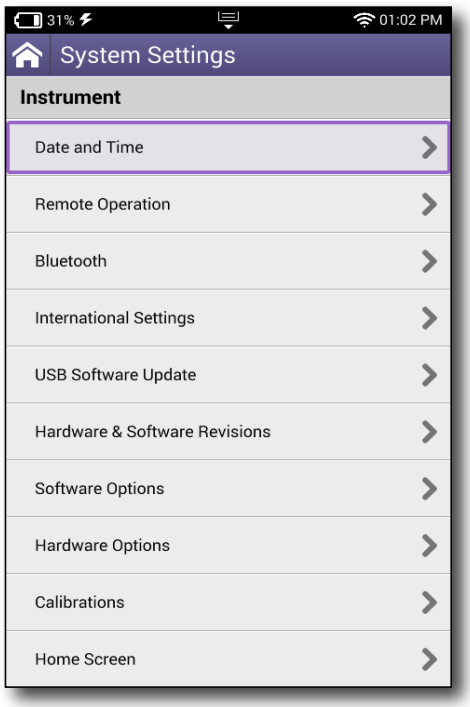
Displaying the System Settings menu

Using the items provided on the **System Settings** menu, you can turn on remote operation (via VNC Viewer), change screen and power settings, control the volume, view hardware and software versions, view options purchased with the ONX-220 meter, and complete USB software updates.

1. From the Main menu, press the **System** menu item.



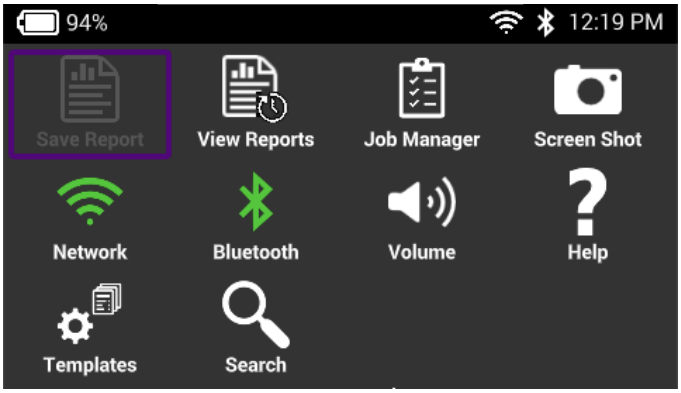
2. Press the **System Settings** icon. The **System Settings** menu appears.



Displaying the Tray menu

Using the icons provided on the **Tray** menu, you can specify settings required for network, WiFi, and Bluetooth® connectivity, control the volume on your instrument, and manage job tickets and reports. You can also take screenshots of the user interface and review a PDF of this guide on your instrument.

To bring up the Tray menu, swipe downward from the top of the screen.



Setting up your instrument

As mentioned in the previous sections, you can set up your instrument in the System Settings and Tray menus.

Configuring international settings

The **International Settings** menu is used to select the language, local units of measurement, and other international settings. There are two ways to select international settings:

- Select a preset country. This automatically configures the international settings as appropriate for the selected country.
- Configure each setting individually. If you are not in one of the preset countries, or if the settings aren't appropriate for your situation, you can configure each setting individually.

After selecting a country or configuring each individual setting, you must reboot the instrument for the international settings to take effect. The settings will be retained when you turn your instrument off.

1. Go to the **System Settings** menu, then select **International Settings**. The International Settings menu appears.
2. Optional. Select **Country** to select a preset country.

   Selecting a specific country will automatically change the settings as appropriate for that country. For example, selecting France will automatically set the language to Francais, the measurement system to metric (e.g. the unit of distance will be expressed in meters and the cable size will be expressed in millimeters), and the unit of temperature to Celsius.
3. If necessary, change the settings for Language, Keyboard, Measurement System, Temperature Units, Time Zone, and Cable Terminology by doing the following:
   - Press the menu item that corresponds to the setting.
   - Select the value for the setting from the list.
4. Press **Back/Cancel** to exit the menu.
5. Turn off the power, then turn back on to reboot the instrument.

The international settings are configured and the user interface is localized.

Setting the date and time

The OneExpert has an internal clock that you can set to provide accurate time stamps for test results.

Go to the **System Settings** menu, then select **Date and Time**. The Date and Time Settings menu appears.

Set the time

1. Press **Time**.
2. Turn the dials to select the hour, minutes, and AM or PM. Press **OK**.

Set the date

1. Press **Date**.
2. Use the arrows to set the month and year.
3. Select the day on the calendar.
4. Press **Set**.

Specify the date format

1. Press **Date Format**.
2. Select MM/DD/YYYY or DD/MM/YYYY.

Specify the time format

1. Press **Time Format**.
2. Select 12 Hour or 24 Hour.

Change the time zone

1. Press **Time Zone**.
2. Select the time zone.
3. If Daylight Savings Time (DST) is used in your area, press the **DST Used** checkbox to enable DST. A check mark will appear indicating that DST is enabled.

Control Time Synchronization

1. Press **Time Synchronization**. You can also set this up to synchronize through StrataSync.
2. If synchronization is required, select **NTP**. If synchronization is not needed, select **None**.

When enabled, Network Time Protocol (NTP) synchronizes your system clock to a central time server.

3. If you enabled NTP, specify the following:
   - **NTP Server Address type** (IPv4 Address, IPv6 Address, DNS Name)
   - **NTP Server** (the address of the server where the instruments gets the time, e.g., 0.us.pool.ntp.org)

   The instrument indicates whether it is synchronized with the NTP server under Synchronization State.
4. Press the **Back/Cancel** button to exit the menu.

Changing screen and power settings

The **Screen and Power Management** menu allows you to adjust the brightness of the backlight, set the backlight timeout, and set the amount of idle time to wait before the instrument automatically powers itself off when operating on battery power.

Idle time refers to time during which no keys are pressed and no line activity takes place. So, if you set the Power Off Delay to 5 minutes and then begin a 15 minute test, the unit will not power down during the test because there is activity on the line (as a result of the test).

Go to the **System Settings** menu, then select **Screen & Power Management**.

NOTE:

The OneExpert will not automatically power down when connected to the AC adapter.

Set the backlight

1. Press **Backlight**.
2. Either press the + / - buttons on the screen or swipe your finger across the bar to move the line on the bar, adjusting the brightness of the backlight.

Set the backlight timeout

1. Press **Backlight Timeout**.
2. Select the amount of time to wait before the backlight dims.

Set the power off delay

1. Press **Power Off Delay**.
2. Select the amount of idle time to wait before the instrument automatically powers itself off.

Press the **Back/Cancel** button to save and exit.

Setting the volume

You can control the volume of your instrument using the Volume icon on the **Tray** menu.

1. Display the **Tray** menu, and then press **Volume**. The volume scroll bar appears.
2. Either press the + / - buttons on the screen or swipe your finger across the bar to move the line on the bar, adjusting the volume.
3. Press the **Back/Cancel** button to save and exit the menu.

Specifying the location for saved files

You can set up your instrument to automatically save test results, screenshots, or other files to the instrument's file system, a connected USB drive, or both (if applicable).

1. Go to the **System Settings** menu, then select **Save Location**.
2. Press the circle to the left of **File System**, **USB device** (when available), or **Both** (when applicable).
3. Press the **Back/Cancel** button to save and exit the menu. Files will be saved to the location (and/or device) specified.

Specifying user information

The User Information menu allows you to enter specific information related to the technician using the OneExpert. This includes the technician name and ID, and the StrataSync account ID. This information is used when synchronizing with the StrataSync server.

NOTE:

A valid StrataSync Tech ID/User ID and Account ID must be entered in order to synchronize your instrument to the StrataSync server.

1. Go to the **System Settings** menu, then select **User Information**.
2. Specify the user's first and last name, workgroup, company, email address, and other information.
3. Press the **Back/Cancel** button to save and exit the menu.

Restoring factory defaults

The following procedure describes how to reset the OneExpert to factory default settings.

> ***NOTE:***
>
> ***Restoring factory defaults resets test application settings and system settings (such as brightness, contrast, and volume), and powers down the unit.***

1. Go to the **System Settings** menu, then select **Restore Factory Settings**. A prompt appears indicating that all settings will be restored to factory defaults.
2. Press **OK** to acknowledge the prompt and restore the factory default settings.

   Settings are restored to their factory default values. You must reboot your instrument for the factory defaults to take effect.

Establishing network connections

You can establish wired network and intranet connections, and wireless WiFi connections to your instrument to update the firmware, transfer files, synchronize to the StrataSync server, or control the instrument's user interface remotely.

Enabling network connectivity

Before you establish a connection to an Ethernet or WiFi network, you must enable network connectivity on your instrument.

1. Go to the **Tray** menu.
2. Press the **Network** icon. The icon will be green when connectivity is enabled. Network connectivity is enabled.

> ***NOTE:***
>
> ***The Bluetooth and WiFi interfaces cannot be ON at the same time.***

Establishing an Ethernet connection

You must have an Ethernet LAN cable to establish an Ethernet connection to your instrument.

1. Using an Ethernet cable, connect the instrument to the LAN:
    - Connect one end of the Ethernet cable to the OneExpert Ethernet connector located on the bottom of the unit, under the rubber door.
    - Connect the other end of the Ethernet cable to the LAN.
2. Verify that network connectivity is enabled in the previous section.

    Go to the **System** menu, then press **Network**. The System Network menu appears.
3. Select the **Ethernet** button at the bottom of the menu. Items appear that allow you to specify settings that are required to connect to the LAN.
4. Select **Network Mode** and then specify the network mode: **IPv4, IPv6,** or **IPv4/IPv6 Dual Stack**. Depending on the Network Mode, you have one or more additional settings to specify.
5. Configure the instrument's IP settings to match the LAN settings by doing one of the following:
    - If you specified IPv4 as your network mode, specify the following settings:

IPv4 Address Mode

DHCP – No additional settings to specify.

Static

IPv4 Address – Enter the instrument's IP address (which will be used when accessing the provider network).

IPv4 Netmask – Enter the netmask address to indicate whether the packets are to be routed to other networks or sub-networks.

IPv4 Gateway – Enter the address for the gateway that is used to route packets that are not on the same subnet.

IPv4 DNS Server – Enter the address of the DNS server.

- If you specified IPv6 as your network mode, specify the following settings:

IPv6 Address Mode

DHCPv6 – No additional settings to specify.

Stateless

IPv6 DNS Address Mode

- DHCPv6 – No additional settings to specify
- Manual – Enter the IPv6 DNS Server address.

Manual

IPv6 Global Address – Enter the instrument's IPv6 address to access the global network.

IPv6 Subnet Prefix Length – Enter the subnet prefix length.

IPv6 Gateway – Enter the address for the gateway that is used to route packets that are not on the same subnet.

IPv6 DNS Address Mode

- DHCPv6 – No additional settings to specify.
- Manual – Enter the IPv6 DNS Server address.

IPv6 DNS Server – Enter the address of the DNS server.

- If you specified IPv4/IPv6 Dual Stack as your network mode, specify the following settings:

IP Dual Stack Address Modes

DHCP – No additional settings to specify.

Static – See the IPv4 Address Mode in this section.

Stateless – See the IPv6 Address Mode in this section.

Manual – See the IP Dual Stack Address Mode in this section.

6. Display the **Tray** menu, and then press **Network** to establish the connection. The instrument establishes an Ethernet connection to the LAN.

Establishing an RF Connection

You must have an RF coax cable to establish an RF connection to the internet from your instrument.

To sync via the RF Port, please use the “Connection” app in the CATV section at the top of the Home screen to establish a live connection with the CMTS prior to syncing to StataSync.

Establishing a WiFi connection

The WiFi option allows you to establish a WiFi connection to a wireless network to synchronize your instrument to the StrataSync server and export reports, screenshots, or job tickets (using FTP).

Adding a WiFi network profile

If an access point does not broadcast its Service Set Identifier (SSID), you can manually create a profile for a WiFi network. Your instrument will save the profile, then automatically authenticate and establish a connection to the network if 1) network connectivity is enabled, 2) the network’s access point is in range, and 3) the network is determined to provide the best available access point (based on signal strength and/or encryption supported).

The instrument can save up to 32 WiFi network profiles.

NOTE:

Your instrument will automatically save a profile after successfully connecting to a new WiFi network.

1. Verify that network connectivity is enabled (see *"Enabling network connectivity" on page 44*).
2. Go to the **System** menu, then press **Network**. The System Network menu appears.
3. Select the **WiFi** button at the bottom of the menu. Your instrument immediately scans for WiFi networks and lists each network as an item.
4. Press **Add Network**. The Add WiFi Network menu appears.
5. Specify the following settings:

   SSID – The SSID (Service Set Identifier) of the WiFi network.

   Password – The password required to authenticate to the network. A password is not required if Key Management is set to None.

   Key Management – Open, WEP, or WPA/WPA2 Personal.

Network Mode – IPv4, IPv6, or IPv4/IPv6 Dual Stack. Depending on the Network Mode, you have one or more additional settings to specify. For details, see those areas earlier in this section.

6. Return to the **System Network** menu. The network that you created a profile for is listed on the menu.

Connecting to a WiFi network

You can manually connect to any compatible WiFi network that is within range of your instrument, and for which you have authorized access (and a password for authentication).

1. Verify that network connectivity is enabled (see *"Enabling network connectivity" on page 44*).
2. Go to **System**, then press **Network**. The System Network menu appears.
3. Select the **WiFi** button at the bottom of the menu. Your instrument immediately scans for WiFi networks, and lists each network as an item.
    - A lock indicates that authentication is required to connect to a network.
    - **Saved, In Range** – A profile for the network has been saved on your instrument, and a connection can be established to the instrument.
    - **Saved, Out of Range** – A profile for the network has been saved on your instrument, but the network is out of range (and therefore, a connection cannot be established).
    - **Incompatible** – A connection cannot be established to a network.
    - **Connected** – The instrument has already established a connection to the network.

    The instrument automatically connects to the network determined to provide the best available access point (based on signal strength and/or encryption supported).
4. If you want to connect to a different network, press the **SSID** of the WiFi network. A screen appears with items that allow you to specify advanced settings (profile settings), forget a saved network, or connect to the network.
5. Press **Connect**.
    - Messages appear briefly indicating the instrument is performing a four-way handshake, then authenticating to the network.
    - The status of the connection (Network Up), and details concerning the connection (IP address, netmask, gateway, and DNS server) appear at the top right of the menu.

The instrument is connected to the WiFi network.

Establishing a Bluetooth connection

The Bluetooth® option allows communication with a paired mobile device.

Enabling Bluetooth connectivity

Before you establish a connection to Bluetooth device, you must enable Bluetooth connectivity on your instrument.

1. Go to the **Tray** menu.
2. Press the **Bluetooth** icon. The icon will be green when connectivity is enabled.

> ***NOTE:***
>
> ***The Bluetooth and WiFi interfaces cannot be ON at the same time.***

Connecting to a Bluetooth device

You can establish a connection to any Bluetooth device that is within range of your instrument, and for which you have authorized access.

1. Go to the **System Settings** menu, then select **Bluetooth**. The Bluetooth Settings menu appears.
2. Press the box next to **Enabled**. A checkmark appears.
3. Press **Scan for devices**. The instrument scans for Bluetooth devices, then lists the devices on the menu.
4. Select the device to connect to.
    - If the instrument successfully authenticates to the device, a message appears indicating that pairing was successful.
    - If the instrument does not successfully authenticate to the device, a message appears indicating that pairing failed.

If pairing was successful, you can use the instrument with the paired device.

> ***NOTE:***
>
> ***For more detail on using your meter with the VIAVI Mobile Tech app, see*** *"Connecting to StrataSync" on page 196****.***

Updating the instrument's firmware

All ONX units should be upgraded to the latest production software release—available through StrataSync (or your VIAVI representative). Software and firmware releases are the best way to ensure your VIAVI OneExpert ONX is functioning at its best.

The OneExpert CATV firmware can be updated in the field using a wired network or intranet connection, or a USB drive with a copy of the firmware.

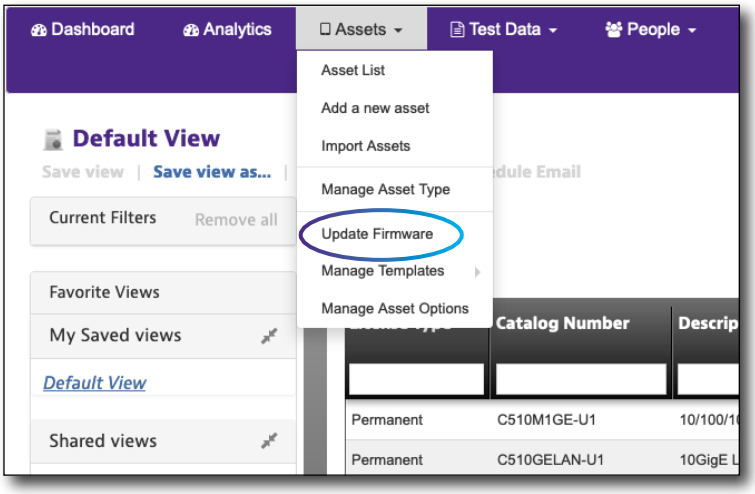
Download the firmware to a USB drive

If you are using a USB drive for updates, you can download the firmware from StrataSync. This is the preferred download method.

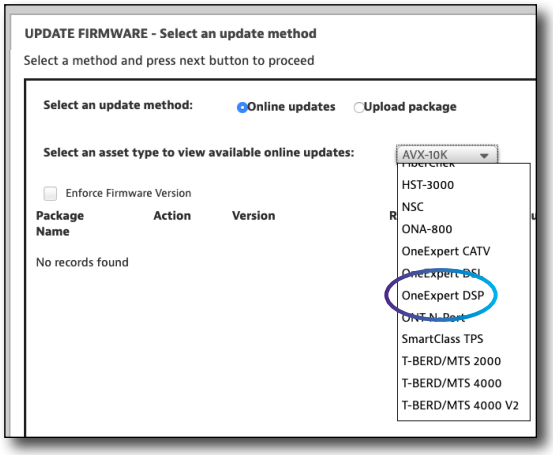
NOTE:

You need to have permissions to update units in order to download software from StrataSync.

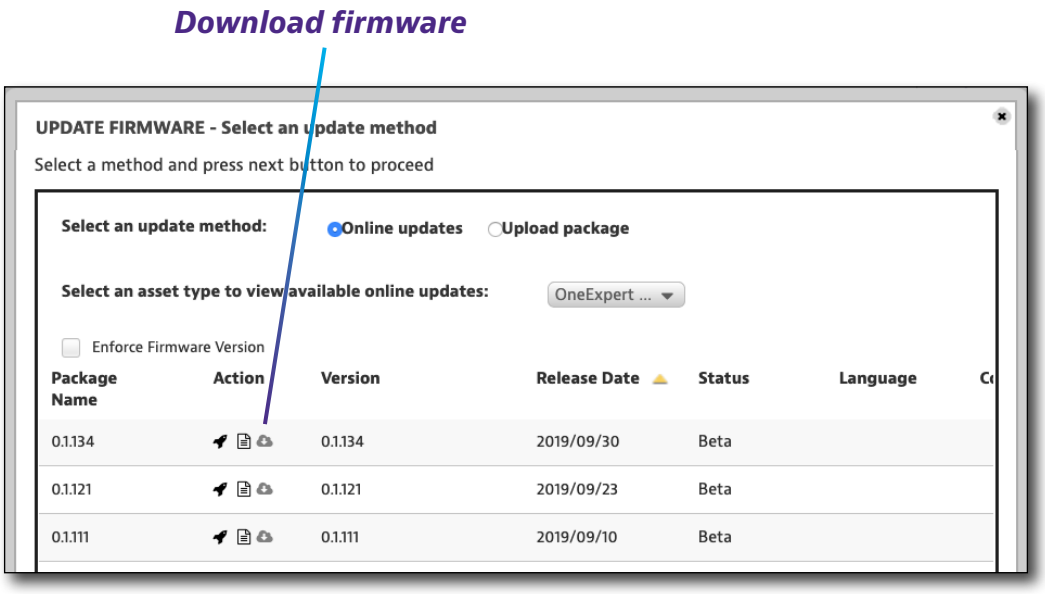
1. From your PC, log in to StrataSync.
2. Go to **Assets** -> **Update Firmware.**



3. Select **Online Updates**.
4. Select **OneExpert DSP** and click **Next**.

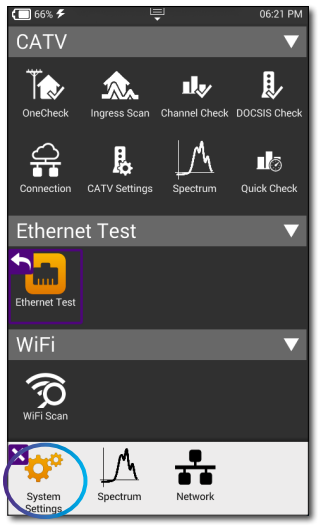


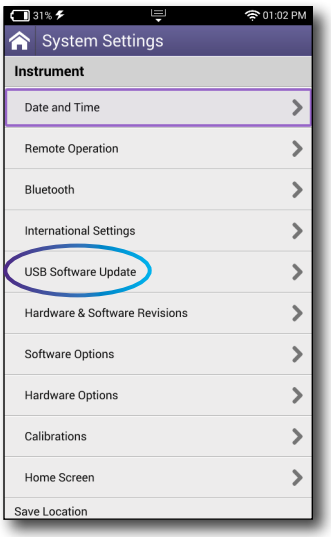
5. In the Update Firmware window, scroll to the right and click the **Download Firmware** link. The file will begin to download.
6. Once file has been downloaded, plug in the USB drive and copy the firmware file to the root directory. The file name will be similar to “ONXCBL.xxx.xxx.xxx.oxu”.

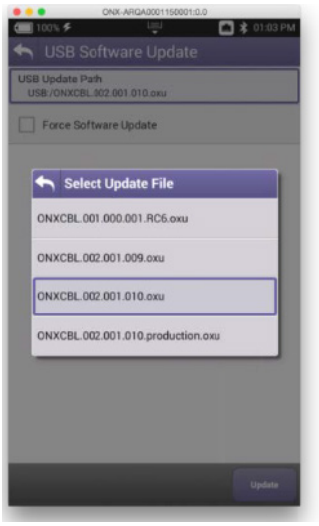


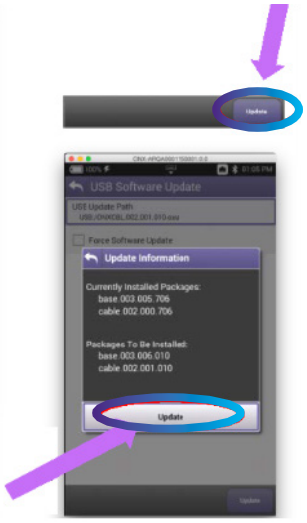
Updating the firmware from a USB drive

1. Connect the OneExpert to the AC charger adapter to ensure an uninterrupted supply of power during the update.
2. Disconnect any Ethernet cables connected to the unit.
3. Plug the USB drive that you downloaded the firmware file to into a USB port on the OneExpert.
4. Go to the **System Settings** menu, then select **USB Software Update**.
5. In the pop-up menu, select the desired firmware file on the USB drive.
6. Press the **Update** button, then press it again to confirm. The update will begin and the meter will power off when finished.







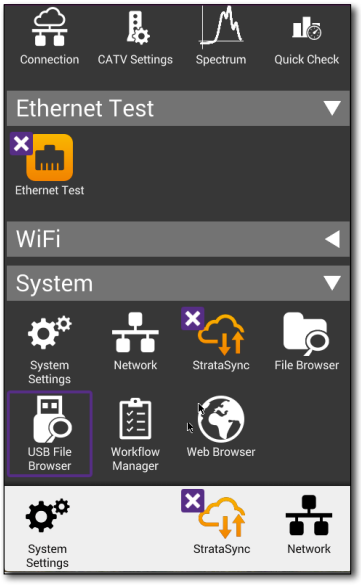


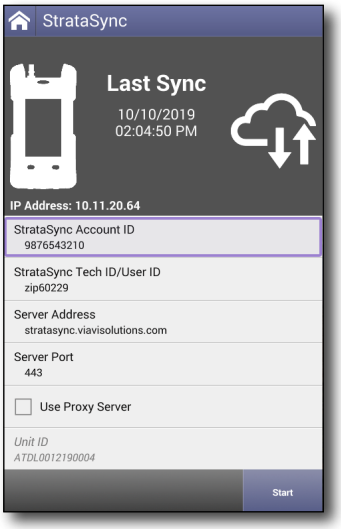
Updating the firmware from StrataSync

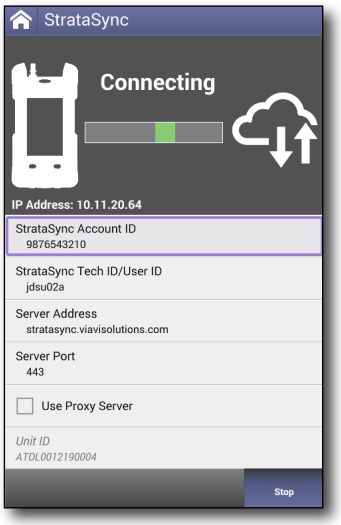
You can also connect to StrataSync via Ethernet to update the firmware of your unit.

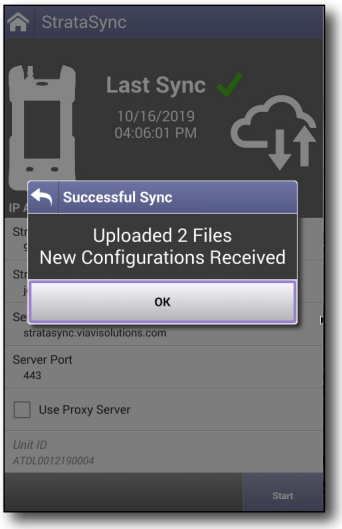
1. Connect the OneExpert to the AC charger adapter to ensure an uninterrupted supply of power during the update.
2. Establish a wired Ethernet connection from your instrument to the intranet or network.
3. Verify the ONX has a valid IP address (it should have been changed from the default address of 192.168.0.*)
4. Go back to the Home screen, scroll down to the bottom, and select **StrataSync**.
5. On the **StrataSync** screen, enter the following:
   - **StrataSync Account ID** – Determined at Setup
   - **Interface** – Ethernet ; DOCSIS. If set to DOCSIS, firmware upgrades will be skipped without warning.

     NOTE: This setting does not select the communication interface – Ethernet or RF/DOCSIS. This setting must be made via the **CATV** screen **Connection** icon.









- **Server Address** – *stratasync.jdsu.com* or *stratasync.viavisolutions.com*
- **Server Port** – 443

6. When finished, select **Start**.

   The ONX will connect to StrataSync and determine if there is a software update available."

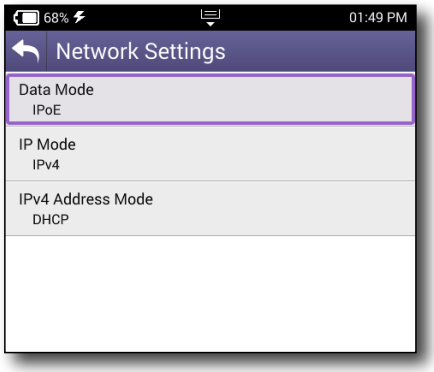
7. If an update is available, select **OK** and **Update**.

The update will begin and the meter will power off when finished. Please wait as this could take 10-15 minutes, based on the size of the update file and connection speed.

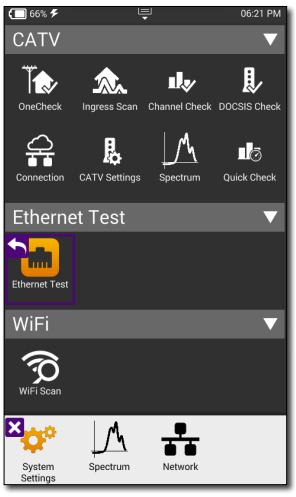
Troubleshooting the Upgrade Process

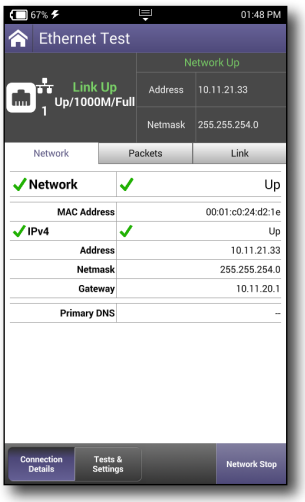
No IP address

1. Navigate to the System Network Profiles screen (**System** menu > **Network** icon).
2. If the **IPV4 State** shows **"In Use By Application"**, via the Home screen, navigate to the **Ethernet** menu and select the **Ethernet** icon.



3. Select the **Network Stop** button at the bottom. This disassociates the Ethernet port to the Ethernet testing function.
4. Press the **Back** button on the unit and cycle power to the meter.
5. When the meter returns to the Home Screen, restart the upgrade process.





IP address of ONX or gateway starts with 192.168.0

Syncing to StrataSync server for an upgrade or running a DOCSIS test with this IP address has a higher chance of failure. The ONX uses this address internally which may cause the data to be delivered to an incorrect device.

There are two recommended solutions to this situation:

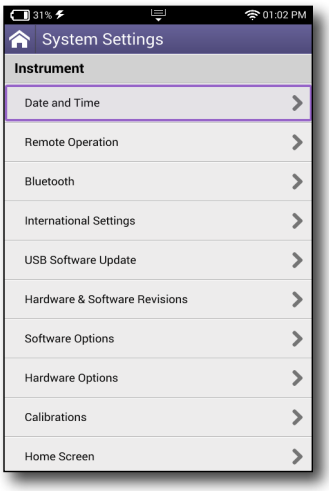
- Reconfigure the router to any other IP address grouping. For example 192.168.1.* or 10.0.0.*.
- Perform the update via USB.

Viewing hardware/software versions and options

The following procedure describes how to view the status of available options and the hardware and software versions for your instrument.

1. Go to the **System Settings** menu.
2. Do one of the following:
   - To review hardware and software versions, select **Hardware/ Software Revisions**.

     The revisions of the internal components and the software versions appear. The instrument's unique unit ID number also appears on this screen. You will need the unit ID if you are adding options.

   - To review the status of available options, select **Software** or **Hardware Options**.

     A list of available options appears with the status for each option (Enabled or Upgradeable).

Installing options

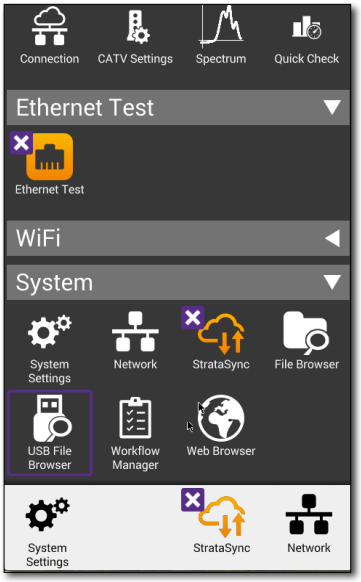
The following procedures describe how to install options on your instrument. Options can be installed from a USB stick onto which the options have been stored.

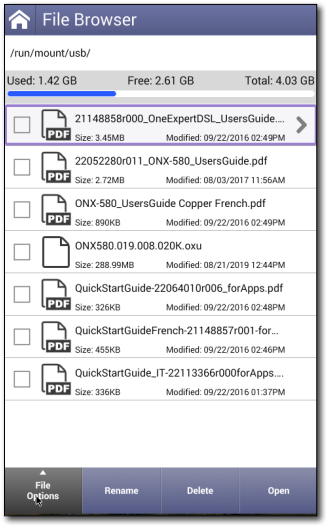
The preferred method of option installation is via StrataSync, as shown in the next section.

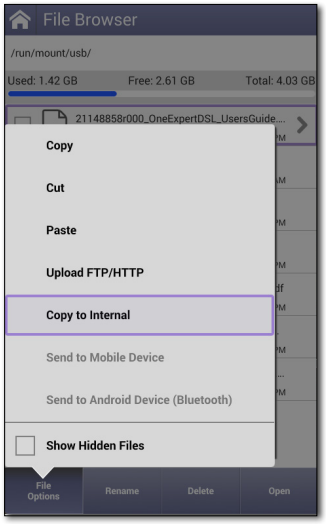
1. Before installing options, upgrade to the latest firmware, as shown in the previous sections.

   If you received the option file by email (instead of a USB drive), save the option file to a USB drive.

2. Insert the USB drive into the OneExpert.
3. From the main menu, press the **System** menu item. The collapsible menu opens.
4. Select **USB File Browser**.
5. Highlight the option file on the USB drive.
6. Select **File Option**, and then **Copy to Internal**. The file is copied to the internal file browser.
7. Press the **Home** button.
8. Optional. Press the **System** menu and then select **File Browser** to verify that the option file was copied to the unit.
9. Reboot the instrument (turn off the power, then turn it back on). The option is installed.

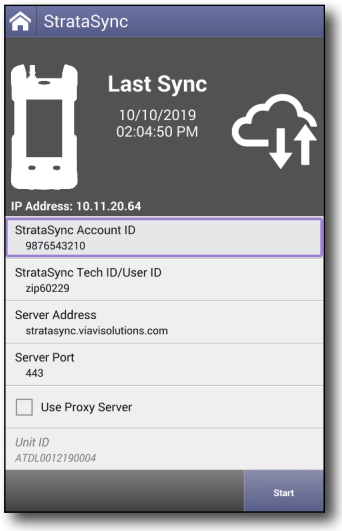






Synchronizing to the StrataSync server

StrataSync® is a hosted, cloud-based software application that provides VIAVI instrument asset, configuration, and test-data management. StrataSync manages inventory, test results, and performance data anywhere with browser-based ease and improves technician and instrument efficiency. This service is provided free of charge for the first year.



Features include the following:

- Tracking ownership of the OneExpert
- Pushing certain configuration settings to the OneExpert
- Pushing work orders to the OneExpert and keeping in sync with the server
- Receiving certain configuration setting from the OneExpert
- Adding and/or removing software options on the OneExpert
- Updating the software on the OneExpert
- Updating the software on the modem
- Cloning a device (create a “golden” unit)
- Uploading and storing of test reports, screenshots, OneCheck profiles, and configurations
- Manage OneExpert homescreen settings via templates

To obtain the latest configuration settings, software options and updates, and ownership registration information, the OneExpert CATV can synchronize with a VIAVI server via the internet. The synchronization also stores any user files saved on the unit to the StrataSync server.

This procedure should be undertaken immediately upon receipt of the unit and on a regular (daily) basis thereafter to ensure that the unit is as up-to- date as possible and to allow all user information to be backed up. Before attempting to synchronize with StrataSync, please confirm your server settings with your manger or your company's IT organization.

To sync with StrataSync

1. If you haven’t already done so, specify the user information on the User Info menu (see *"Specifying user information" on page 43*). A valid account ID must be entered in order to synchronize with the StrataSync server.
2. Connect the ONX to an active internet connection (Ethernet cable from cable modem or router to ONX port 1 RJ-45 connector).
3. Verify the ONX has a valid IP Address.
    - From the System menu, select Network.
    - Check the IP addresses displayed.

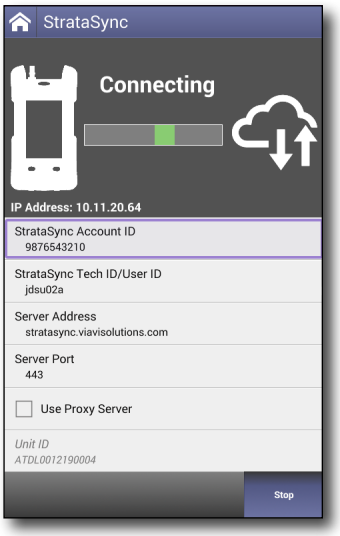
  - The ONX IP address is configured as 192.168.0.*
  - The Gateway should be configured as 192.168.0.1

4. From the **System** menu, press the **StrataSync** icon. The StrataSync settings menu appears.
5. Specify the following settings:
   - **System Settings StrataSync Account ID** – Enter the account identification number. Only change this if necessary.
   - **StrataSync Tech ID/ User ID** – Enter the technician/user identification number.
   - **Interface** – Ethernet

     DOCSIS – When set, firmware update will not occur. There is no on-screen reminder of this fact.

     To sync via RF Port 1 please use the "Connection" app in the CATV section at the top of the Home screen to establish a live connection with the CMTS prior to syncing to StataSync.
   - **Server Address** – Enter the DNS address for the server. The default address is: ***https://stratasync.viavisolutions.com***
   - **Server Port** – Enter the server port number. The default port is: 443
6. Press the **Start** button. As the process runs, the sync state is displayed on the screen.
   - Upon synchronization with the StrataSync server, the unit will send to the server the following information:
     - The unit's serial number.
     - The unit's hardware information (constituent assemblies and their revision levels).
     - The unit's MAC address.
     - The unit's user settings - name (user/ technician) and ID.
     - Software update milestones (includes status and warnings, if applicable)

     If the configuration information contained on the server is newer than that on the unit, the server will be considered to be the most up-to-date.



   - The server will then send any files to the unit being synchronized that it determines are newer than those on the unit.
   - The unit will then send any reports, configuration profiles, XML results, screen shots, etc. that have been saved on the unit since the last configuration.
   - The server then applies any applicable options to the unit.

NOTE:

If an Option Code was entered as a part of synchronization, power must be cycled to the unit to complete the process and initialize the option.

- Copy (“clone”) the configuration settings for the base unit, as well as any company-specific configurations such as custom filters, web bookmarks, and FTP passwords. This can be used to create a “golden” unit.
- Lastly, if any upgrades are available, the user will be informed of their availability and asked to verify their desire to receive the upgrade.

When synchronization is complete, the Status will indicate “Sync Complete”. The unit may be disconnected from the server.

NOTE:

If StrataSync determines your ONX needs a firmware update, it updates the ONX, then reboots, and autosyncs to StrataSync again to ensure your unit has the latest version.

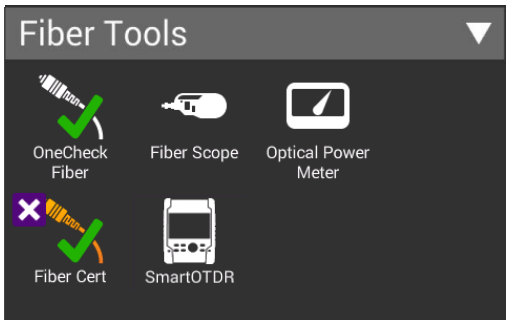
Creating custom OneCheck icons

1. Create an image and place it in the root directory of a USB drive. The image must be in the .PNG format and have no spaces in the name.
2. Load up a OneCheck profile by selecting an icon under Fiber Tools.
3. Insert the USB drive.
4. Press **Icon** to see the available icons.
5. Select an icon, press **Back**, and press **Save** to save your changes and exit.

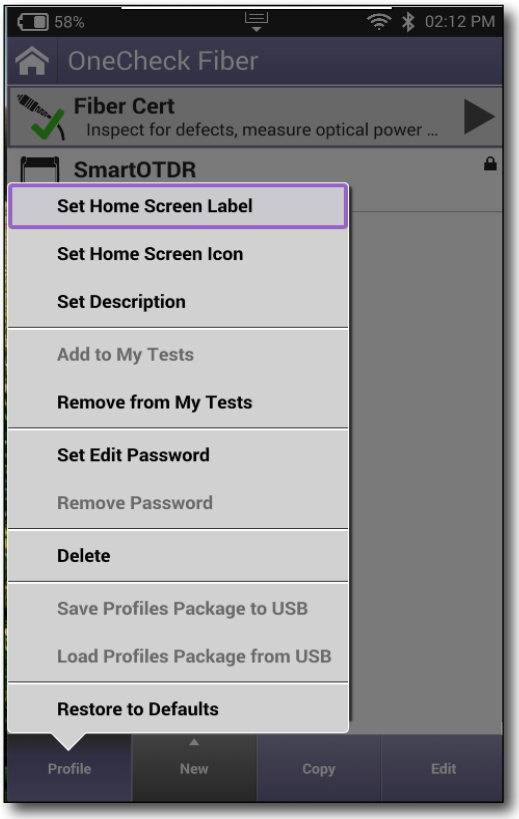
OneCheck Profiles

OneCheck Profiles streamline all configuration requirements for Fiber testing. The home screens for each of these testing areas are slightly different but the workflow is shared.

1. Press the **OneCheck** icon for any of the menus on the Home screen.
2. The OneCheck Profiles screen will open, as shown here (OneCheck Fiber, in this example).
3. To add new profiles, press the **New** button and follow the instructions in each particular case of the Fiber testing. Refer to the OneCheck section for each of these tests for more information.
4. To edit the existing profiles that are listed on the screen (including the new ones you just created), press the **Profile** button.



5. In the opened **Profile** menu, you can set the following configurations:
   - **Set Home Screen Label** – Sets the name of the test.
   - **Set Home Screen Icon** – Sets the image next to the test name. To set it, you need to have the file named screen001.png on the USB root directory.
   - **Set Description** – Places a short description under the test name, shown in the Editor screen.
   - **Set Edit Password** – Prevents technicians from inadvertently changing or deleting the profiles. You can either assign individual passwords to tests or, to avoid confusion, use one password for all of them. Once you set one or several passwords, you will see little images of a lock next to the affected tests. If you need to edit test profiles and passwords, you will have to use the associated password(s).



- **Save Profiles Packages to USB** – Saves all OneCheck Fiber profiles in one package to a USB drive. This package can be added to StrataSync using the Add Firmware button.
- **Load Profiles Package from USB** – Loads the selected packages from the USB drive. The profiles will be preserved on the ONX unless there is a naming collision and they are overwritten.
- **Restore to Defaults** – Restores default profiles for the selected category, removing non-default profiles. This feature is not the same as Restore Factory Defaults. It does not globally affect other configurations.

Generating reports

The **Save Report** icon (provided on the Tray menu) allows you to create reports based on the configuration settings and test results for the currently active test. This only works for Ethernet tests.

NOTE:

You must be running an active test or the Save Reports icon will be disabled (gray).

Saving a report

If you are currently running a test, you can save test results, configuration settings, and graphs as a report.

1. If you haven't already done so, access the Tray menu and then press **Save Report**. A Save Report screen appears.
2. Enter a new custom name for the report or use the default.

   The default file name for any report uses the following format:

   <app name> <date with dashes>T<time with periods>

   For example: ***tdr 2020-05-02T12.00.00***

   Each time a test is run, the file name increments by 1, 2, 3, etc.

   If you reboot the unit, the default file name will be used again until you change it. You can also select **Use Default Name** to reset it.

3. Specify the format (PDF, XML, or HTML).
4. If you want to include custom fields in the report, enable, then specify values for the fields.
5. Do one of the following:
    - To view the report immediately, press **Save and View**.
    - To save the report without viewing it, press **Save**.

The current test results, configuration settings, and, if applicable, graphs and custom report fields are saved as a report. If you indicated that you want to view the report immediately, the report output also appears on your instrument's LCD.

Technician report values will be saved until you change them. Custom report fields need to be completed for every test report saved, but you can apply the values specified the last time you saved the report.

Viewing a report

You can view saved reports on the LCD of your instrument.

1. Access the Tray menu and then press **View Report**. A View Report screen appears, showing all of the saved reports.
2. Select a report to view. The report appears on the screen.

NOTE:

If the View Report icon is disabled (gray), there are no reports saved on your instrument.

Capturing a screen shot

In addition to or instead of a report, you can capture an image of the current screen.

To capture a screen shot

1. Access the Tray menu and then press **Screen Shot**.
2. Enter a name for the screen shot. The PNG file is saved to the internal file manager.

To capture the tray menu or a popup menu

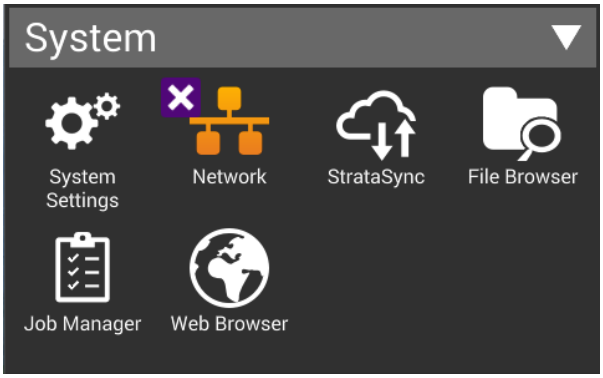
If you wish to capture the tray menu itself, or if you wish to capture a popup menu, press and hold the **Tray** button for 5 seconds.

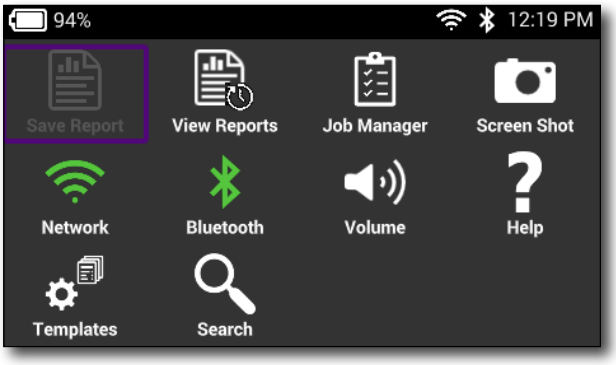
Viewing your jobs

The **Job Manager** allows you to see all your current work jobs.

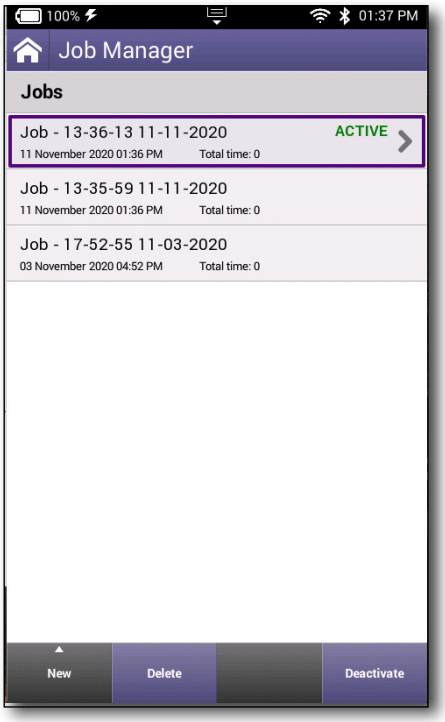
Tests specified within the jobs can be launched from here. Select a job to view it, and then choose the test to run it.

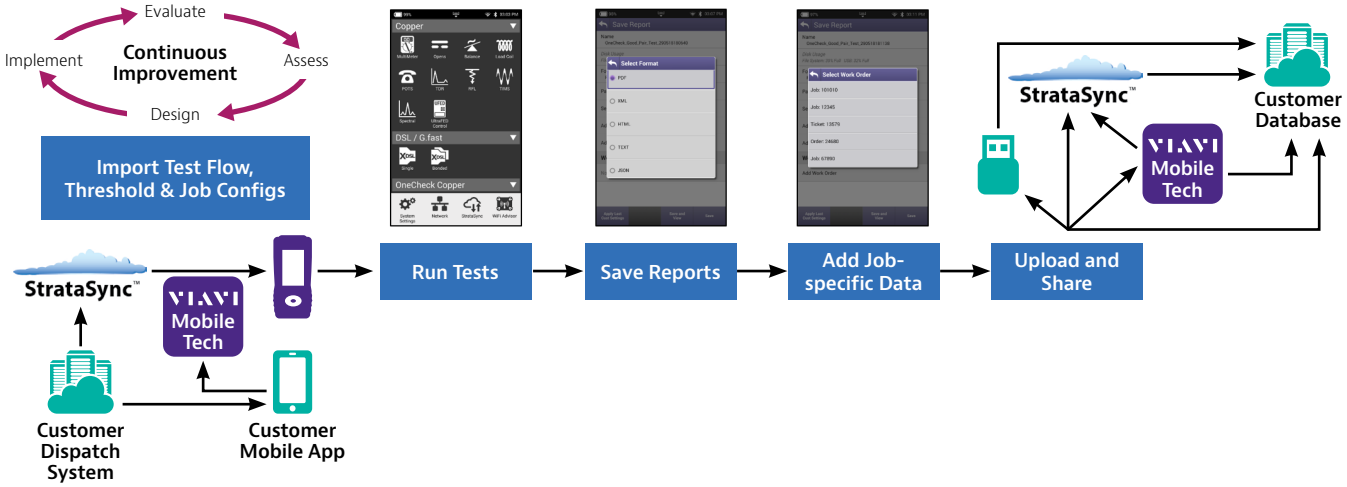
From the System main menu, select **Job Manager**. You can also bring up Job Manager from the Tray menu.





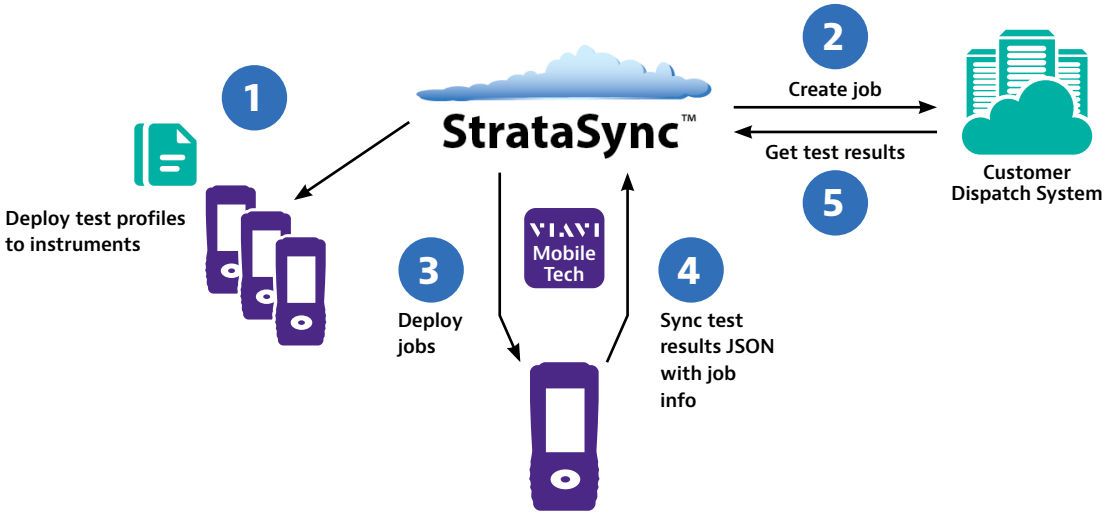
With the workflow option in StrataSync, each tech's meter can be updated with a day's jobs, enabling a tech to choose the job that matches the current task, perform the prescribed tests, and close it out with data uploaded for management—with a smooth, simple process. Get confirmation that techs and contractors have performed the work with geo-tagged test reports uploaded via the Mobile Tech App.



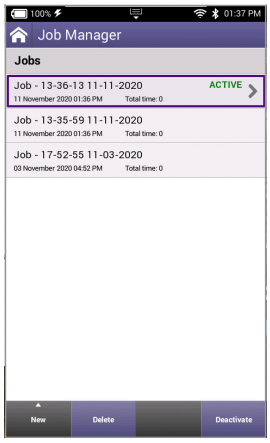


The test process is smoother and easier for techs with workflow enhanced with smooth job integration and closeout. The StrataSync workflow option enables simpler compatibility with service operator and contractor job management systems. This means that test flow, pass/fail thresholds, and jobs can be relayed to the ONX, enabling the tech to select an assigned job and perform tests to prescribed thresholds as guided through the flow. The job-related test data can then be included in a report and uploaded for management.

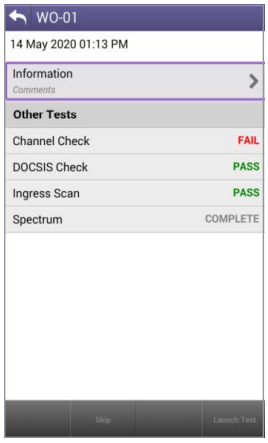
An example workflow is as follows:



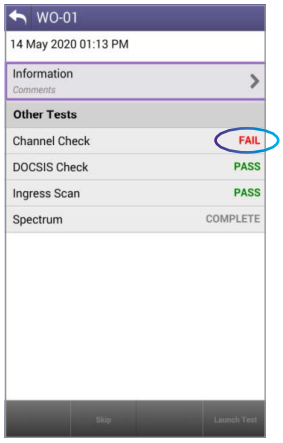
1. Deploy profiles/configuration files to instruments via sync (as part of standard procedure)
2. Create jobs and reference techId and test profile.
3. Deploy jobs to instrument (with test profile reference).
4. Sync to StrataSync with job info after testing and saving CDM reports (JSON).
5. View test results & associated job on StrataSync and/or (contractor) transfer to customer.



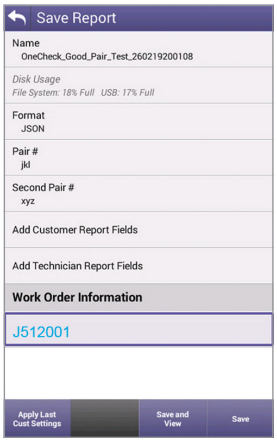
List of assigned jobs



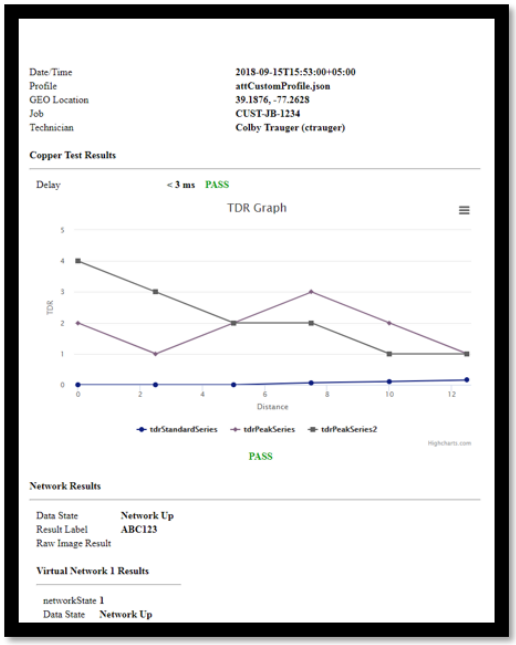
List of required tests for selected job



Test status indicated



Job data report saved



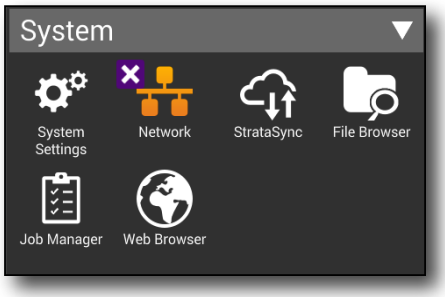
Report example

The OneExpert has a variety of testing and reporting features that are enhanced through StrataSync. This helps to ensure complete test processes for performance to standards and to minimize return service calls.

Editing jobs

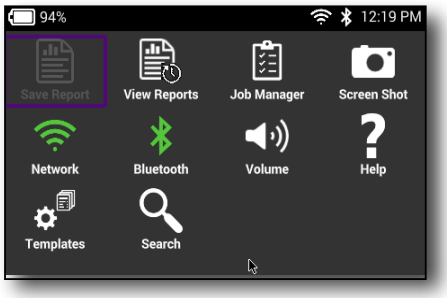
You can easily edit and create new jobs.

1. From the System main menu, select **Job Manager**. You can also bring up Job Manager from the Tray menu.



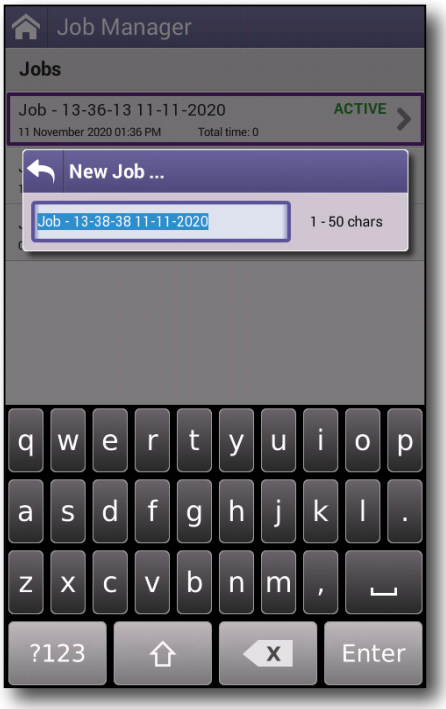
2. From the Job Manager menu, select the job you want to edit.

   The job opens and displays information as well as tests to be run that may have been deployed from StrataSync. Some of the information and tests will be grayed out, depending if they are required or how how they were set up in StrataSync.



3. To edit information for the job, select **Information** to add comments, location ID, or circuit number, etc.

4. To create a new job, select the **New** button and name the job. Creating a new job automatically activates it.



5. To activate a job, use the arrows to select it, then select **Activate.** Similarly, to deactivate one, select **Deactivate.**
6. To close a job, use the arrows to select it, then select **Close.**

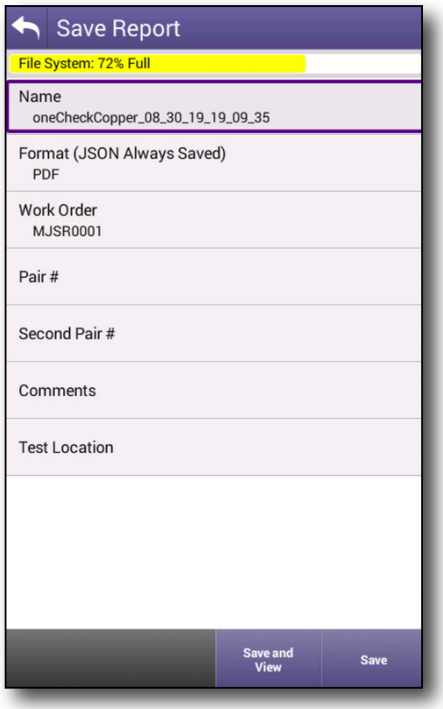
   Closing jobs is designed to help you organize them and does not affect those that StrataSync considers complete or incomplete.
7. To delete a job, use the arrows to select the job, then select **Delete**. If the job is active, it will be deactivated first.

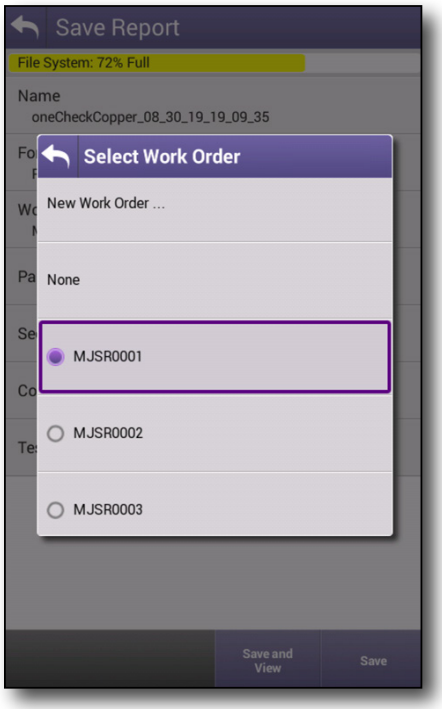
You can also run a test from any configuration screen by pressing the **Launch Test** button. This also automatically activates the job.

Saving a report to a job

Any reports you create will be saved to the active job, unless you choose otherwise. You can also create a new job or choose to deactivate the current job by choosing **None** when you save it.

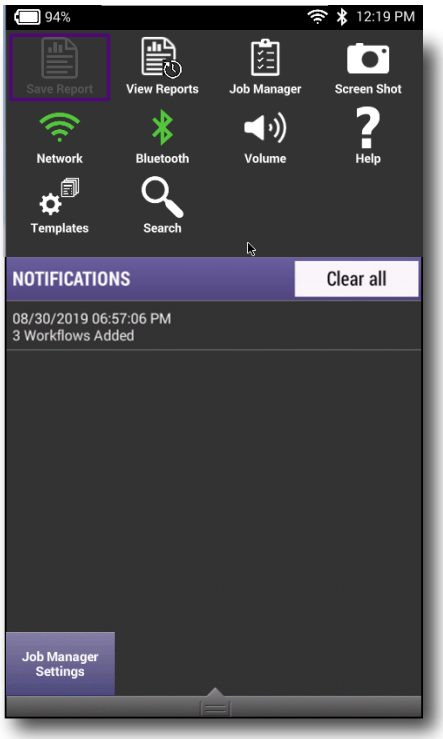
See *"Saving a report" on page 61* for more information.





Job notifications

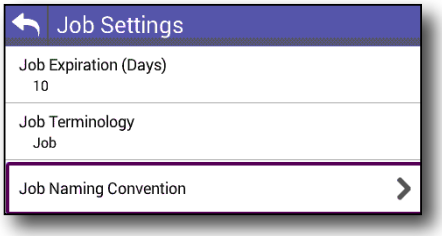
When jobs are added from StrataSync, the Mobile Tech app, or via USB, you'll see a notification in the Tray menu with the details.

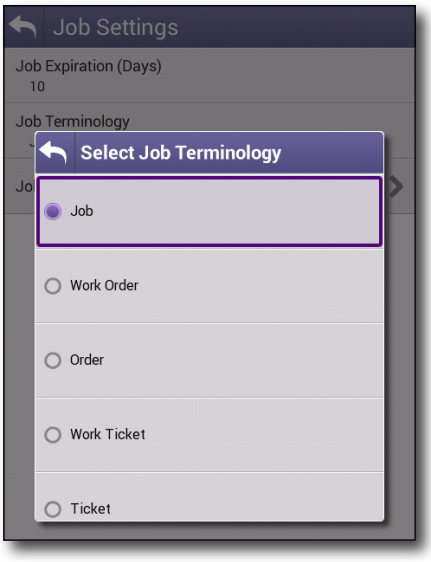


Job settings

You can customize the expiration time for jobs as well as job terminology, depending what your company uses.

1. From the Tray menu, select **Job Manager Settings** at the bottom. (Job Manager needs to be running to see this).
2. From the Job Settings screen, select the setting you want to edit and adjust as necessary.



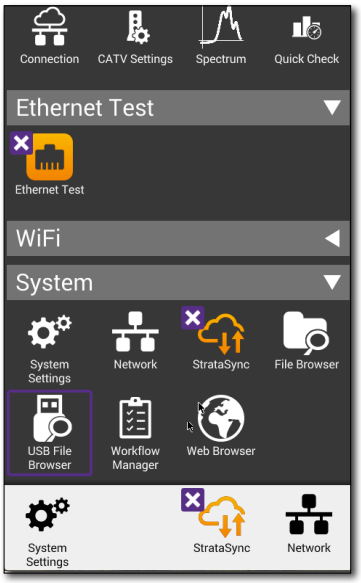


Managing files

The OneExpert file browser is used to open, rename, copy, or delete saved result files, screen shots, or other files stored on your instrument or on a USB flash drive that is connected to your instrument. Both browsers function in the same manner.

Accessing the file browser

The File Browser and USB File Browser menus are both accessed from the System menu.



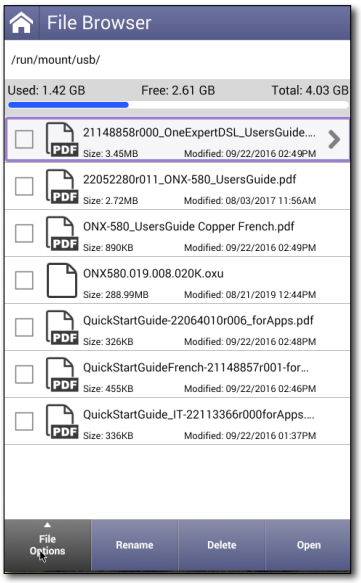
Do one of the following:

- To view and manage files on your instrument, press the **File Browser** button.
- To view and manage files on a connected USB flash drive, press the **USB File Browser** button.

The File Browser menu appears listing all folders (or files).

Selecting files or folders

1. Go to the file browser.
2. Use the up and down arrow buttons to move among folders or files. to see the contents of a folder, press the folder.
3. Do one of the following:
   - To select a single file or folder, press the checkbox to the left of the file or folder.
   - To select multiple files or folders (for example, if you want to copy multiple files to USB, or upload multiple files using FTP/ HTTP), press the checkbox to the left of each folder.

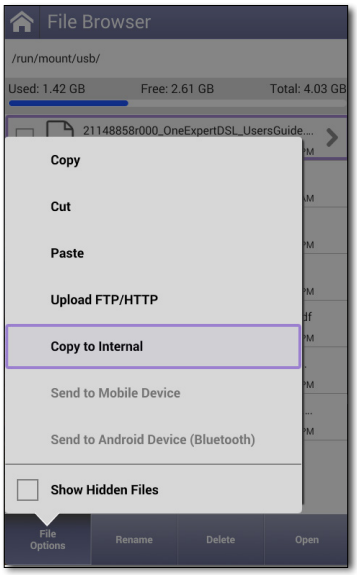


The files or folders are selected.

Opening files or folders

1. Go to the file browser and select the file or folder.
2. Press **Open**. The contents of the folder appear or the file is displayed on the screen.

Copying and pasting files or folders



1. Go to the file browser.
2. Select the file or folder.
3. Press the **File Options** system key, and then do one of the following:
    - Select **Copy**, navigate to another folder or drive, press the **File Options** system key, and then select **Paste**.
    - Select either **Copy to USB** if you are using File Browser or **Copy to Internal** if you are using the USB File Browser.

The file is copied and the File Browser menu appears.

Uploading files using FTP/HTTP

1. Go to the file browser.
2. Select the file or folder.
3. Press the **File Options** system key, and then select **Upload FTP/HTTP**. The upload settings appear.
4. Specify the upload URL, username, and password.
5. Press **Apply**. The upload starts.

When the upload finishes, a message appears stating that the selected files were uploaded. Press **OK** to close the message.

Managing files with StrataSync

When the OneExpert syncs with StrataSync, various files are uploaded and stored in the StrataSync cloud, such as test reports, screenshots, work orders, and configurations. You can access these files via the StrataSync website. For more information see *"Synchronizing to the StrataSync server" on page 57.*

Viewing the User's Guide on your instrument

Using the instrument's PDF viewer, you can view the User's Guide on the instrument. The file must be on a USB stick or copied to the OneExpert.

1. Under the **System** menu, select **File Browser**.
2. Navigate to find the xxxxxxxxr00x_OneExpert_Users- Guide.pdf file.
3. Press the file name to open it. The PDF reader application launches with the User's Guide open.

Remotely operating the instrument

The optional Remote Operation features allows you to access the OneExpert user interface from the VIAVI Mobile Tech app, your computer, or mobile device through a virtual network connection (VNC), connecting over an Ethernet interface or WiFi network. The is a great way to capture screens shots for additional troubleshooting, etc.

To use this feature, 1) you must have a VNC viewer program on the PC or mobile device, 2) the OneExpert must be connected to the same network as the PC or device, and 3) you must know the IP address of the OneExpert.

Establishing a VNC connection involves the following tasks:

- Establishing a connection between the instrument and a PC or laptop
  - See *"Establishing an Ethernet connection" on page 45*
  - See *"Establishing a WiFi connection" on page 47*
- Enabling remote operation using VNC
- Control the instrument using a PC keyboard or mobile device

Each of these operations is described in the following sections.

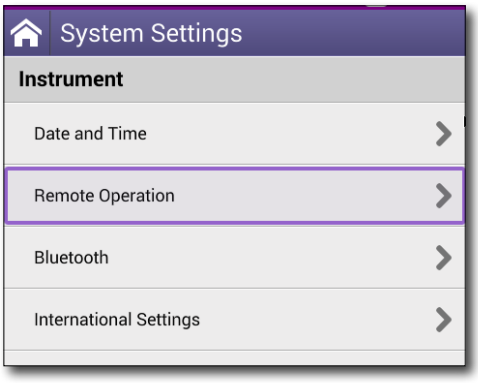
NOTE:

You need to enable Remote Operation to remote control the meter through the VIAVI Mobile Tech app, as well.

Setting up the ONX for VNC

In order to use VNC Viewer with your ONX and connect to it remotely, you need to enable VNC in System Settings.

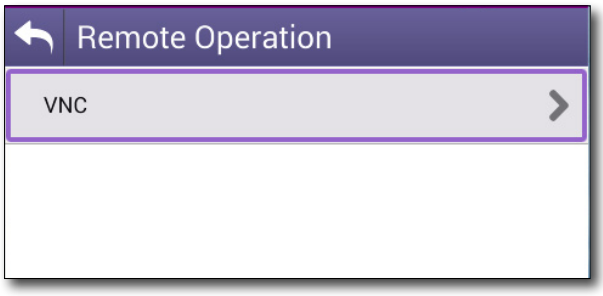
1. Go to the **System Settings** menu, then select **Remote Operation.** The Remote Operation menu appears.



2. Select **VNC**. The VNC menu appears.

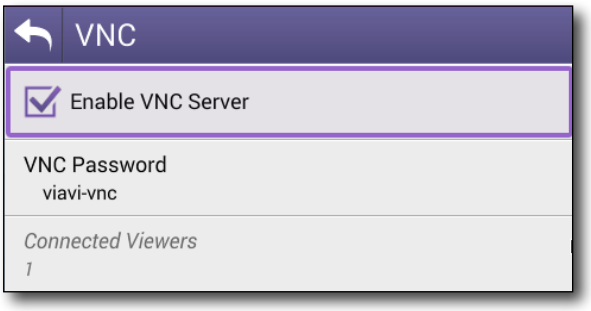
   If you have the Smart Access Anywhere option enabled, this will show as **Smart Access Anywhere and VNC**.

   See *"SmartAccess Anywhere – Remote Coaching" on page 74.*



3. Select **Enable VNC Server** and note the VNC password underneath: *viavi-vnc*.

   You will need it to connect via VNC Viewer.



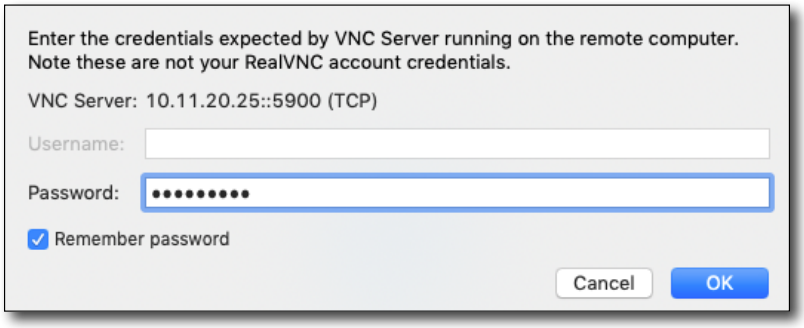
Connecting to your ONX via VNC on your PC or Mobile Device

After you have established an Ethernet or WiFi connection and set up the ONX for remote operation, you can launch the VNC viewer program to operate the ONX on your computer, smart phone, or tablet.

1. Download a VNC viewer application from your App Store or available from your VIAVI representative. VNS apps are available for PC and mobile devices.

1. Launch the app.

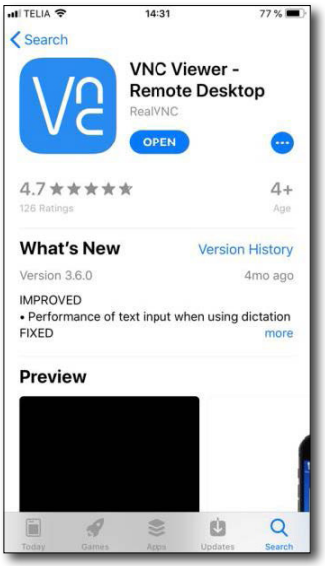
2. In the viewer's server address field, enter the OneExpert's IP address, and click **OK**. A password entry box appears.

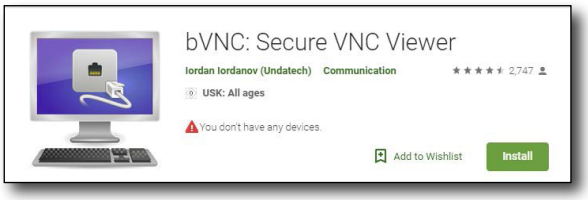


3. Enter the VNC password you noted before, ***viavi-vnc*** (found in the Remote Operation menu) and then click **OK**. The OneExpert user interface appears in the VNC viewer, and works similarly to using the unit itself. See the next section for details.

4. If the message, "Failed to connect to server" appears, the VNC viewer was not able to communicate with the OneExpert. If this happens, try the following solutions:

    - Make sure you are using the correct IP address for the OneExpert
    - From the PC or mobile device, ping the OneExpert IP address to verify the network link is working. If the link is not working, restart the OneExpert and try again..





Using a PC keyboard

After you have connected to the OneExpert from a PC using the VNC viewer, you can use the computer's mouse or keyboard to control the OneExpert.

The following table shows how the PC keys map to the OneExpert keypad.

PC key	OneExpert key
F1–F4	Correspond to the OneExpert system keys
F5	Home
F6	Tray menu
F7	AutoTest
Escape	Cancel
Enter	OK

VNC availability

In Ethernet, you can do a ping, trace route, and similar data tests, but *you cannot change* any data settings.

Ending a remote operation session

To end a remote operation session, either exit the VNC session on the PC or app, or turn the OneExpert off and then on again (power cycle).

SmartAccess Anywhere – Remote Coaching

SmartAccess Anywhere offers remote access and operation of the OneExpert in the field. This capability gives the workforce direct onsite support and coaching by a specialist, fixing issues immediately without additional truck rolls.

The SmartAccess Anywhere client (PC, Android, or Apple) can connect to your device via local area connection or Internet connection.

For client downloads and more information, see:

https://www.viavisolutions.com/en-us/products/smart-access-anywhere-saa

https://www.viavisolutions.com/en-us/software-download/smart-access-anywhere-saa-software

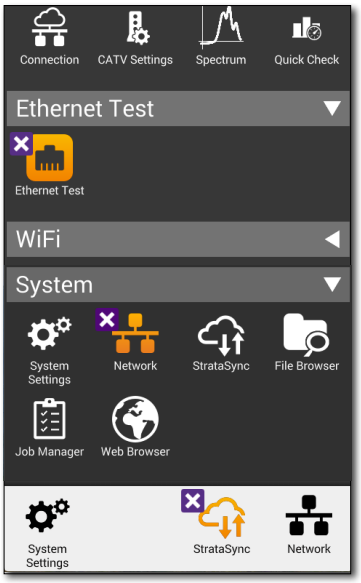
VIAVI provides links to Android and PC only. You can find the iOS version in the Apple App store.

SmartAccess is now provided in the Mobile Tech app. See *"SmartAccess Anywhere" on page 218*

Browsing the web

With the web browser feature, you can provide visual proof to customers that a circuit is correctly provisioned all the way to the Internet. The browser works over Ethernet, allowing you to surf the web from the customer's NID or demarcation point using only the OneExpert.

For testing applications, the browser is a separate mode that allows you to connect to any public web site on the Internet through an internet service provider.



Because the browser's primary purpose is to demonstrate connectivity, it does not have all the capabilities of typical web browsers, such as Internet Explorer. The web browser has the following limitations:

- The browser does not cache web pages. The OneExpert does not have sufficient memory to cache web pages. Each time a page is selected, the OneExpert re-loads the page.
- The browser does not currently support data entry through the browser. For example, you cannot log into a web mail account. The browser does not currently support Java applets, and will not display web pages written in Java. Sites optimized for quick downloads, such as DSLReports.com, are not supported because they are based on Java.

The following sections in this chapter describe how to access and use the web browser.

Accessing the web browser

Like IP ping, you must have an established underlying network connection, such as PPP over Ethernet, before you can use the browser. After you have a successful network connection, the OneExpert's Network LED illuminates green. If the LED is red, the underlying connection is not ready, and the web browser (and IP ping) will not work.

In the **System** menu, press the **Web Browser** button. The web browser display appears.

Navigating the browser

You can navigate the browser as you would with a mobile device, with tapping in text boxes to display the keypad and enter the data, swiping your fingers to scroll, pressing links to select them, and so on. In addition, you can connect a USB mouse or a USB keyboard/mouse combination to the OneExpert to navigate the web browser as you would with a desktop computer. Going back or forward one page

Opening a web page

There are two ways to open a web page:

- **Enter the address** – Tap the address box, and then use the keypad on the screen to enter the address.
- **Use a bookmark** – Press the **Bookmarks** button and then select a bookmark.

Adding bookmarks

If there is a specific page that you would like to view or if you visit a site frequently, you can bookmark it. There are six bookmark slots available: one for your Home URL and five others.

1. On the main Web Browser page, press the **Bookmarks** button.
2. Select a bookmark and then enter the URL.

Exiting the browser

When you are finished demonstrating internet access to the user, you should exit the browser.

Press the **Home** function key or tap the home icon on the browser menu. The browser closes.

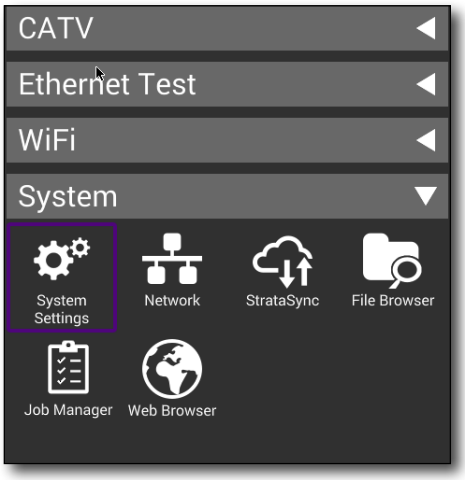
3

Menus and Workflow

This chapter describes the layout of the Main screen of the OneExpert, the selection options on the main screen and the workflow that is common to most operations performed on the OneExpert, including the following:

Main screen selections

The menu selections shown on the Home screen that are covered in this manual are:

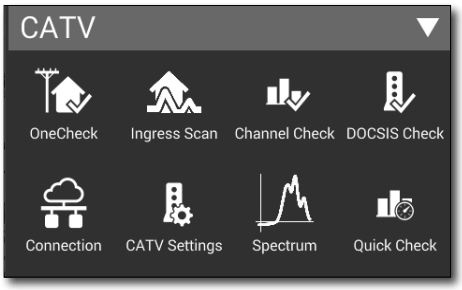


- **CATV** – For detailed information, see *Chapter 4: "CATV Testing" on page 83*.
- **Ethernet Test** – For detailed information, see *Chapter 5: "Ethernet Testing" on page 99*.
- **WiFi** – For detailed information, see *Chapter 5: "WiFi Testing" on page 131*.
- **System** – For detailed information, see *"Displaying the System Settings menu" on page 38*.

Testing workflow

Choose test

Choose the test you want to run by selecting the icon on the CATV screen.



Choose test location

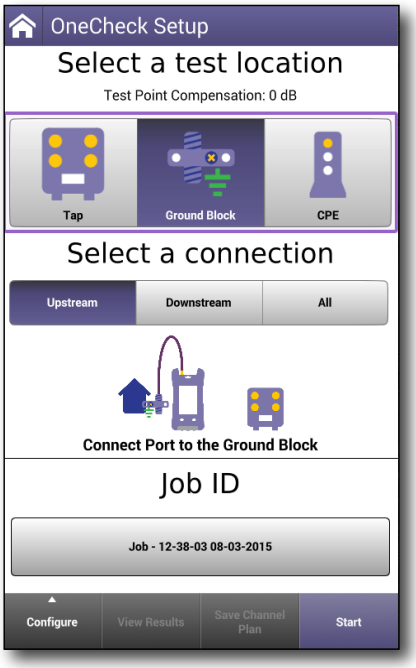
Select what part of the circuit is being tested. Many tests are optimized for different parts of the installation:

- Tap
- Ground Block
- CPE

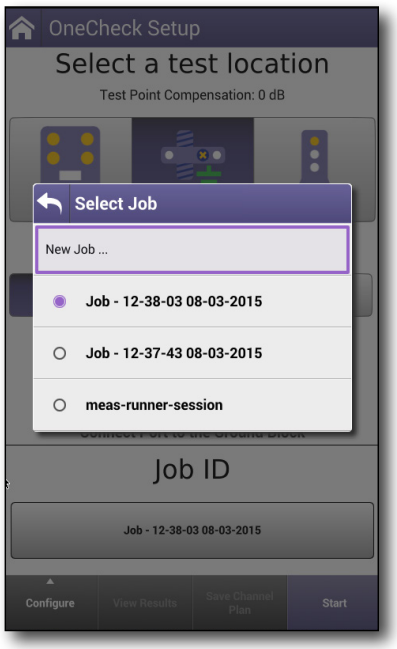
Connect the meter

For every test, the Setup screen includes a graphic showing the proper or a suggested connection arrangement.

Often notes on where a port is to be connected are supplied.



Enter job



All test setups have the option to assign the test to a Job Number.

This is highly recommended because the data analysis performed by the OneExpert compares to previous data from the current location as defined by the job number. Activated job ID also allows faster Auto Channel plan build functionality.

On each Setup screen, the button below the heading Job ID will show the currently loaded job

To run a test assigned to a previously loaded job

1. On the setup screen for the test you are running, select the **Job ID** button. The currently loaded job is the default.
2. Select any listed job from the list of loaded jobs, then press **Enter**.

To run a test at location and create a new job

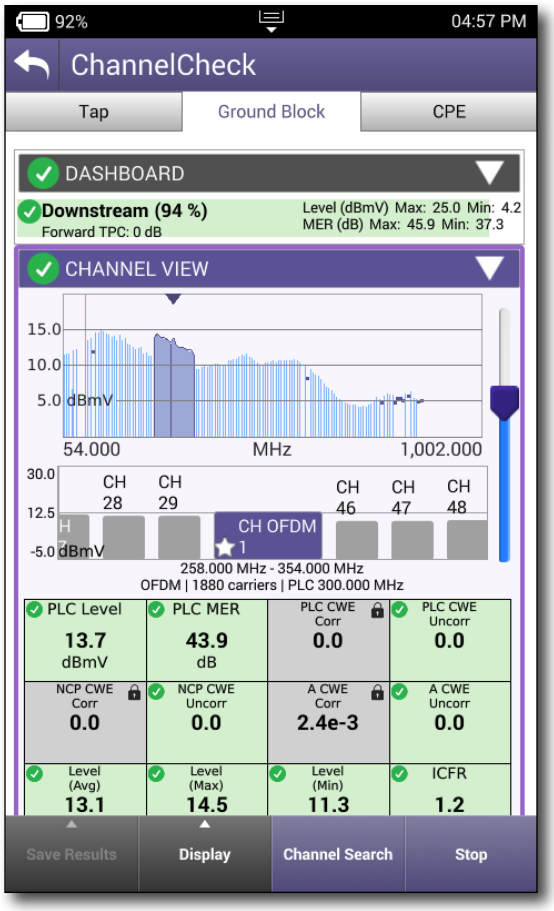
1. On the setup screen for the test you are running, select the **Job ID** button.
2. Add new job.
3. Enter the name of the new job (up to 50 characters), then press **Enter**.

Review test results

The results of the tests appear in one of two formats, Dashboard and Channel View.

Dashboard

Every dashboard will have multiple screen areas displaying results for different circuit sections tested or different types of test performed on the circuit. The dashboard display usually provides a graph of the results of the test and more detailed data about the test available on additional screens.



Drill down

Many dashboard areas will have additional detailed information available. This additional information is accessed by double tapping the desired screen area.

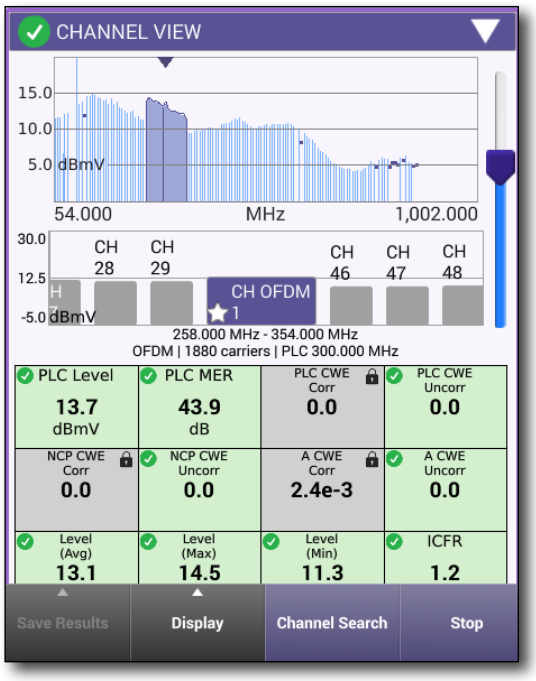
Pass/Fail indication

Pass – When results are within the parameters expected for a test, the background on the screen will change to light green and a pass icon will appear in the upper left corner.

Fail – When results are not within the parameters expected for a test, the background on the screen will change to light red and a fail icon will appear in the upper left corner.

Channel view

Channel View displays the status of various parameters of the signal being monitored in real-time.



Measurement Pass/Fail indication

Similar to the Dashboard indicators, the Live Analysis has pass/fail icons to show status.

Pass – When a specific data point being measured is within the parameters expected for a test, the background on that measurement display area will change to light green and a pass icon will appear in the upper left corner.

Fail – When a specific data point being measured is not within the parameters expected for a test, the background on that measurement display area will change to light red and a fail icon will appear in the upper left corner.

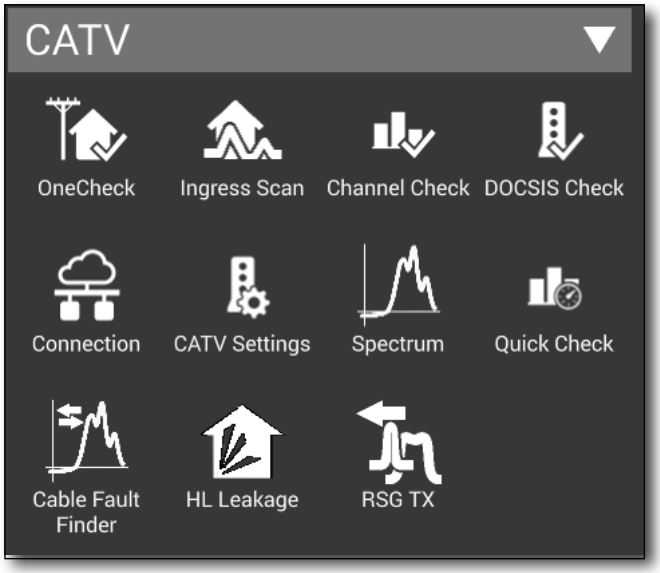
4

CATV Testing

This chapter describes the available CATV tests, including the following:

CATV test options

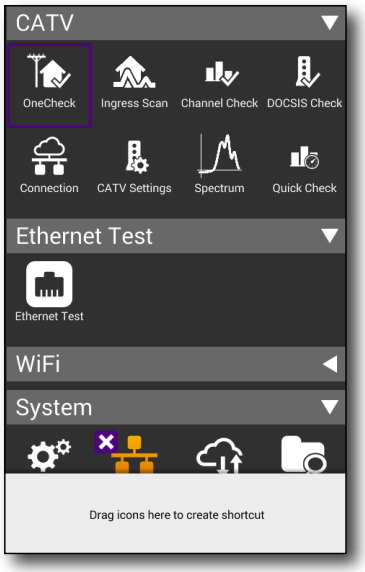
The expanded CATV menu is shown here and includes the following testing features.

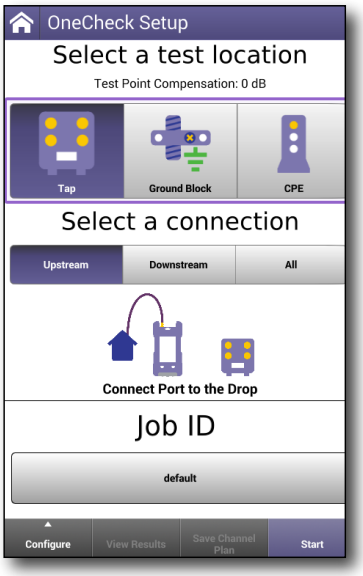


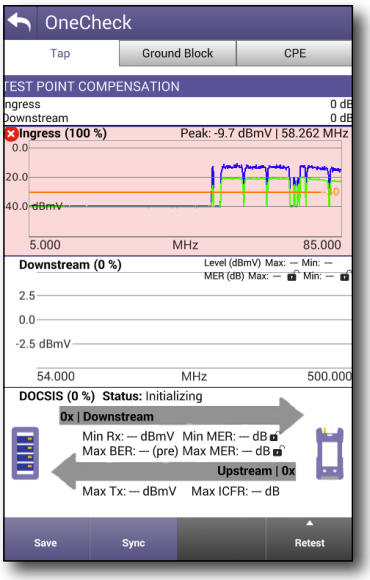
- OneCheck
- Ingress Scan
- Channel Check
- DOCSIS Check
- Connection
- CATV Settings
- Spectrum
- Quick Check
- Cable Fault Finder (optional)
- HL Leakage (optional)
- Return Signal Generator Transmit (optional)

OneCheck

OneCheck conducts comprehensive and automated testing of Ingress, Downstream & DOCSIS from a chosen demarcation point utilizing the RF port.



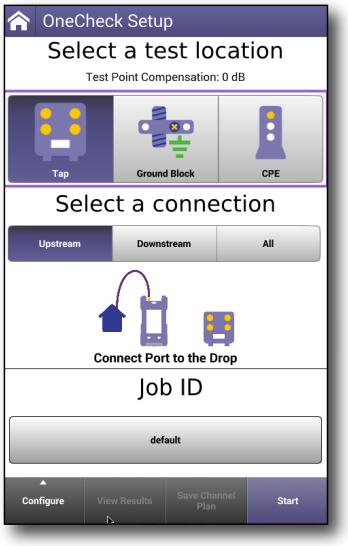


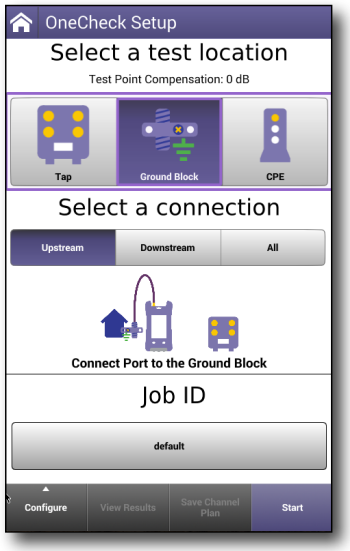


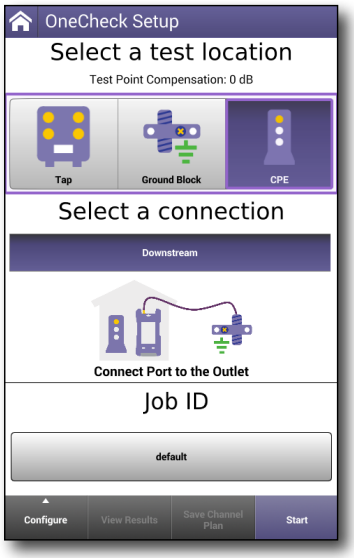
To run a OneCheck Test

1. Select **OneCheck** under the CATV menu header. The Select a test location screen appears.
2. Select the icon for the demarcation point (Tap, Ground Point or CPE) being tested. A graphic showing the appropriate connection schematic for this test will appear.
3. Assign this test to a saved work order (optional but recommended).

   Select the **Work Order ID** button and the list of available work orders will appear. Select one.
4. Start the test by selecting the **Start** button at the bottom of the screen.





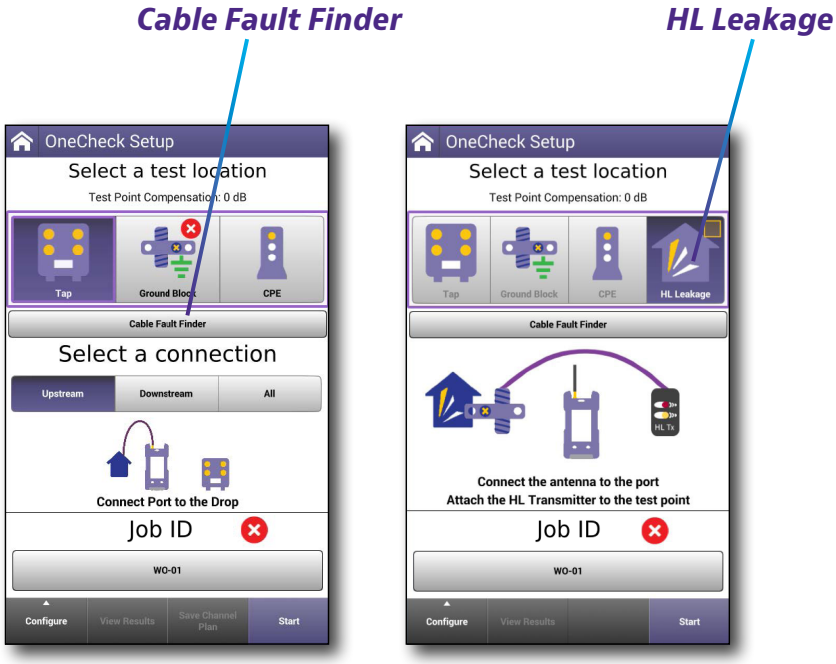


Cable Fault Finder and HL Leakage (optional)

If the Cable Fault Finder option is installed in the ONX, the OneCheck mode will include a **Cable Fault Finder** button. Selecting it at any time takes you directly to the Cable Fault Finder mode.

Similarly, if you have the Home Leakage option installed, an HL Leakage icon can be added in OneCheck. The configuration is done via StrataSync.

See *"Cable Fault Finder (optional)" on page 93* and *"HL Leakage (optional)" on page 95* for more details.



Results

The results screen dashboard is comprised of 3 areas for each of the demarcation points:

- Upstream Ingress
- Downstream Full Scan
- DOCSIS Test

Each area has an associated detailed results view accessible by double tapping within the dashboard area.

Navigate the results screen using the touchscreen.

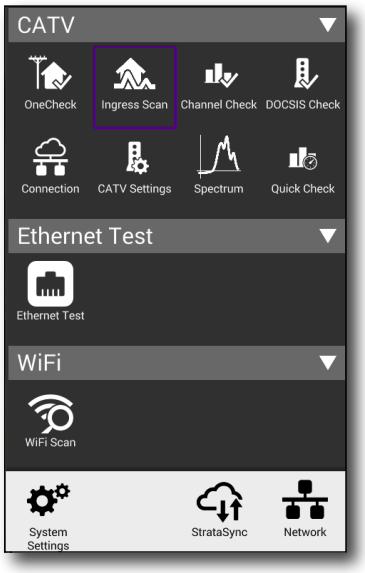
For a more detailed discussion of the results produced by this test, see *"OneCheck results" on page 221.*

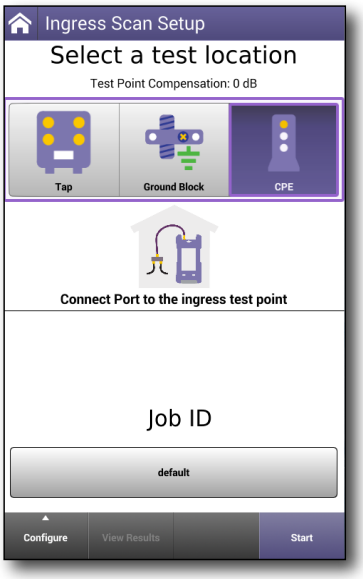
Saving Results

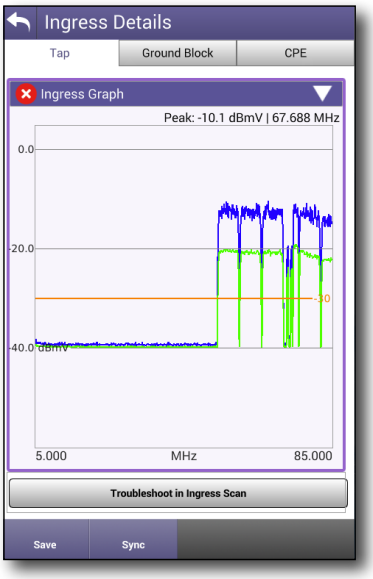
OneCheck will automatically save the results of the last test run. To capture these specific results prior to retesting, hit the **Save** button and then name the file.

Ingress Scan

Ingress Scan conducts the same test done by OneCheck, checking upstream for interference into the signal.







To run an Ingress Scan

1. Select **Ingress Test** under the CATV menu header. The Ingress Scan Setup screen appears.

   The graphic displayed shows that the RF port should be connected to the upstream test point.

2. Assign this test to a saved work order (optional but recommended).

   Select the **Work Order ID** button and the list of available work orders will appear. Select one.

3. Start the test by selecting the **Start** button at the bottom of the screen.

Results

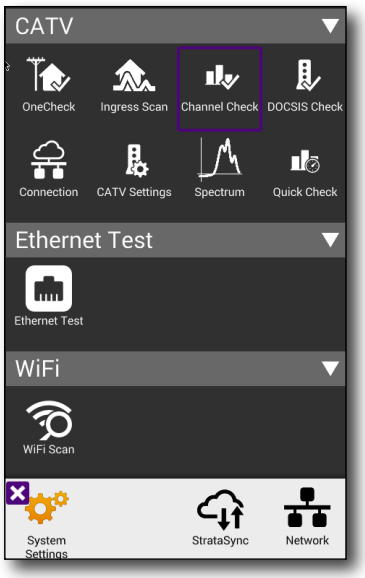
For a detailed discussion of the results produced by this test, see *"Ingress Scan results" on page 238*.

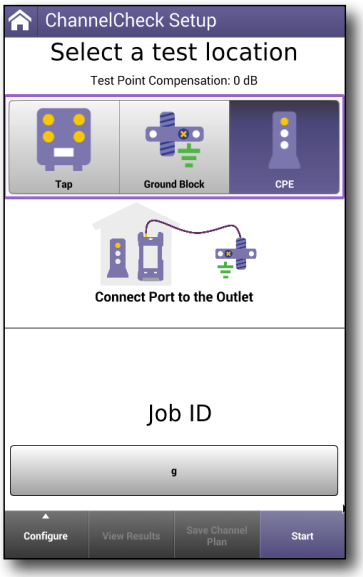
ChannelCheck

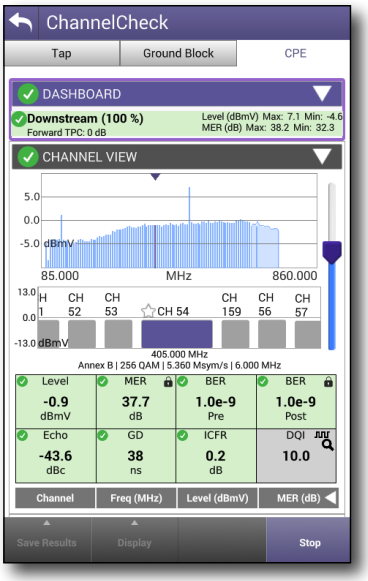
The Channel Check test provides real-time analysis of Downstream QAM and Analog Carriers.

The ChannelCheck test conducts the same test done by OneCheck Upstream checking for interference into the signal. It analyzes OFDM carriers including multiple DS profiles.

Channel check can also be used to quickly check levels and signal performance.







To run a ChannelCheck

1. Select **ChannelCheck** under the CATV menu header. The ChannelCheck Setup screen appears.
2. Select the desired demarcation point to be tested: Tap, Ground Block or CPE. A graphic showing the appropriate connection schematic for this test will appear along with appropriate instructions for the port to be used.
3. Assign this test to a saved work order (optional but recommended).

   Select the **Work Order ID** button and the list of available work orders will appear. Select one.
4. Start the test by selecting the **Start** button at the bottom of the screen.

Results

For a detailed discussion of the results produced by this test, see *"ChannelCheck results" on page 225*.

Saving results

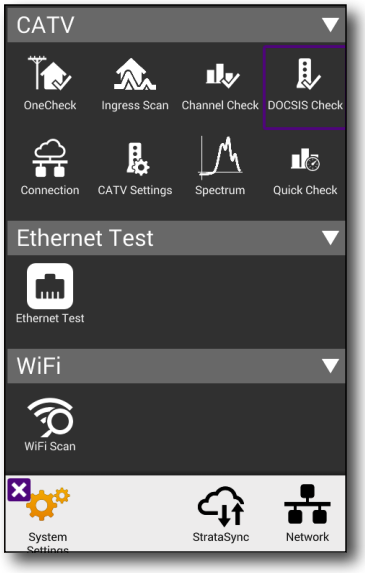
To capture a snapshot of the results for review, press the **Stop** button.

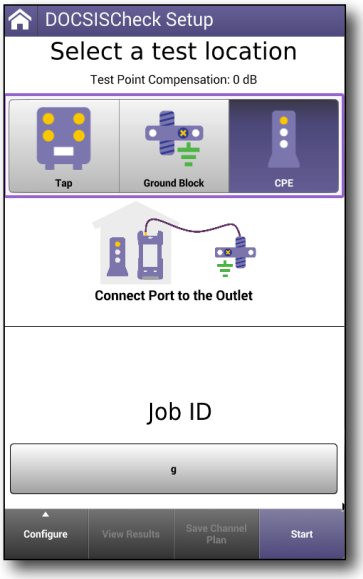
To save for later review, press the **Save** button and then give them a name.

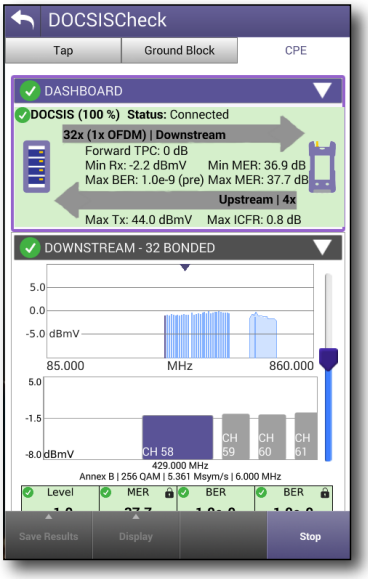
DOCSIS Check

The DOCSIS Check test provides real-time analysis of DOCSIS services and shows only the DOCSIS carriers to allow you to focus on HSD services.

It allows you to troubleshoot and analyze Downstream and Upstream DOCSIS carriers, including OFDM and channel bonding.







To run a DOCSIS Check

1. Select **DOCSIS Check** under the CATV menu header. The DOCSISCheck setup screen appears.
2. Select the desired demarcation point to be tested: Tap, Ground Block or CPE. A graphic showing the appropriate connection schematic for this test will appear along with appropriate instructions for the port to be used.
3. Assign this test to a saved work order (optional but recommended).

   Select the **Work Order ID** button and the list of available work orders will appear. Select one.
4. Start the test by selecting the **Start** button at the bottom of the screen.

Results

For a detailed discussion of the results produced by this test, see *"DOCSISCheck results" on page 232*.

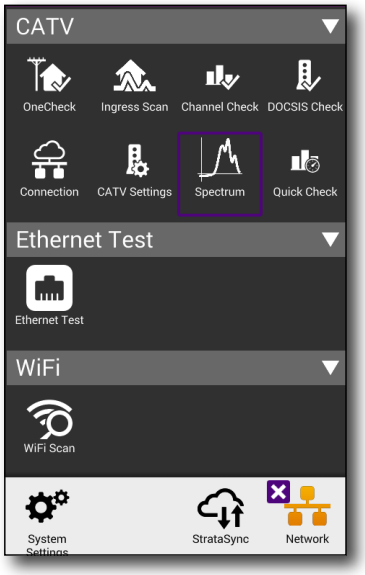
Saving results

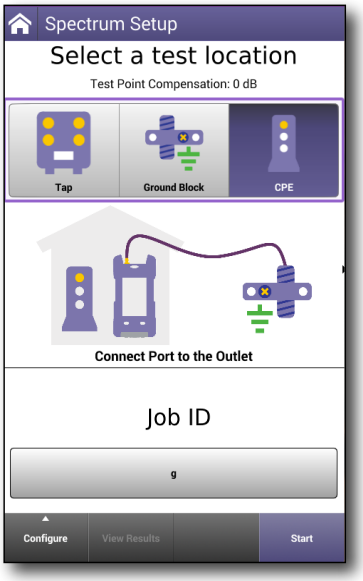
To capture a snapshot of the results for review, press the **Stop** button.

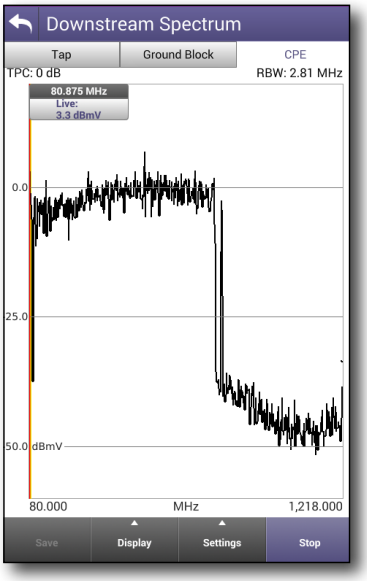
To save for later review, press the **Save** button and then give them a name.

Spectrum

The Spectrum test provides a real-time spectral display of the incoming signal.







To run a Spectrum test

1. Select **Spectrum** under the CATV menu header. The Spectrum Setup screen appears.
2. Select the desired demarcation point to be tested: Tap, Ground Block or CPE. A graphic showing the appropriate connection schematic for this test will appear along with appropriate instructions for the port to be used.
3. Assign this test to a saved work order (optional).

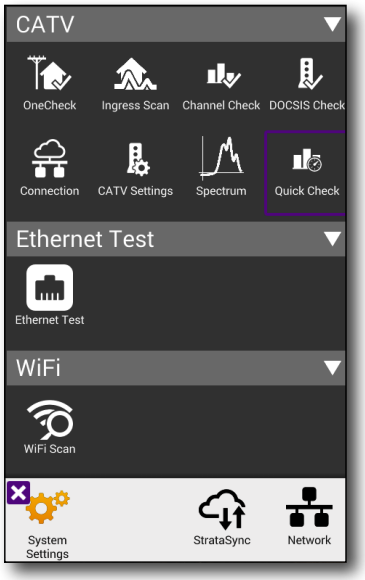
   Select the **Work Order ID** button and the list of available work orders will appear. Select one.
4. Start the test by selecting the **Start** button at the bottom of the screen. The live spectrum analysis graph will appear for your inspection.

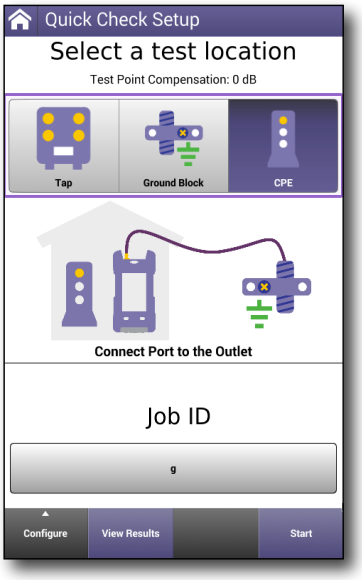
Results

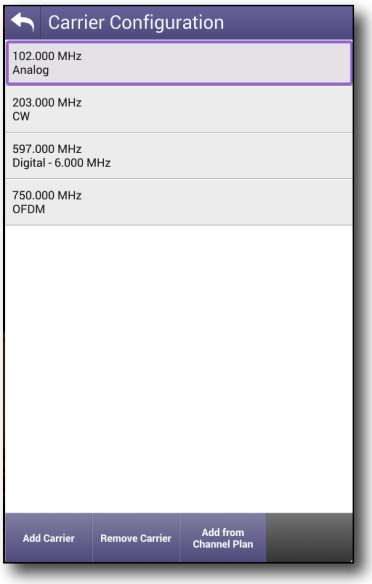
For a detailed discussion of the results produced by this test, see *"Ingress Scan results" on page 238*.

Quick Check

The Quick Check test provides the ability to quickly check for signal presence on a small number of manually added channels.







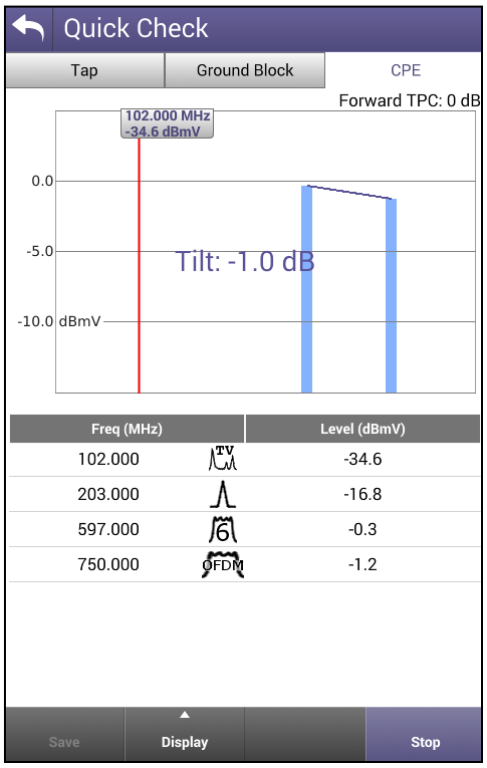
To run a Quick Check

1. Select **Quick Check** under the CATV menu header. The Quick Check Setup screen appears.
2. Select the desired demarcation point to be tested: Tap, Ground Block or CPE. A graphic showing the appropriate connection schematic for this test will appear along with appropriate instructions for the port to be used.
3. Assign this test to a saved work order (optional but recommended).

   Select the **Work Order ID** button and the list of available work orders will appear. Select one.
4. Configure the carrier to be checked by adding or removing the carrier frequency and type.
5. Start the test by selecting the **Start** button at the bottom of the screen.

Results

Quick Check results screen displays a graph of the specified channel's signal strength along with its type.



Cable Fault Finder (optional)

The Cable Fault Finder feature provides the ability to determine cable lengths up to ~135 m and better understand in-home coax topologies. This is an optional feature.

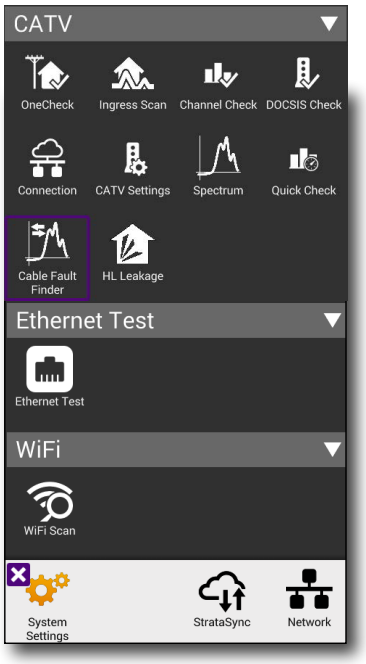
The feature determines the distance and return loss of multiple events in a coax network by transmitting a short pulse and then measuring the signals returned to the ONX.

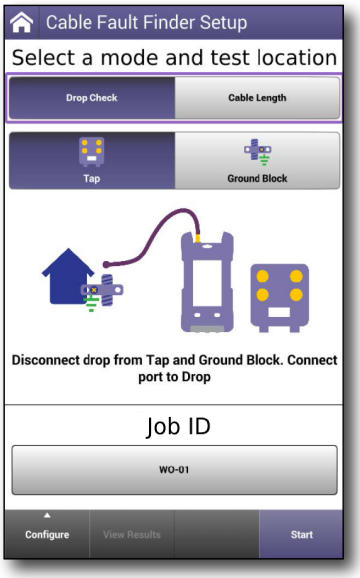
Saving and syncing the cable fault results to StrataSync allows operators to better validate subscriber drops and provides accountability into the work performed by techs and/or contractors.

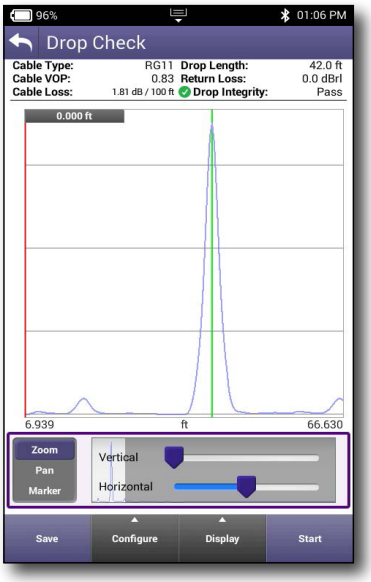
You can also run Cable Fault Finder tests in OneCheck, if enabled.

Drop Check

The Drop Check mode is intended to validate the quality of a disconnected drop cable and distance to the end of the coax drop, looking for a single reflection to indicate it is good.

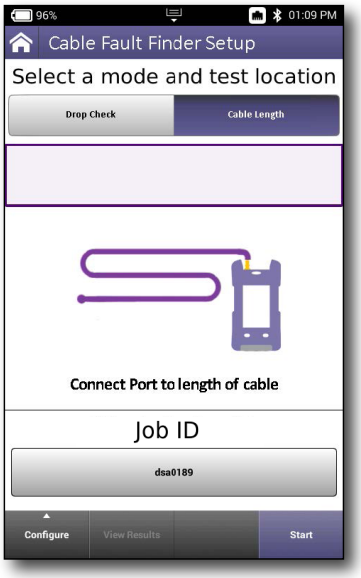


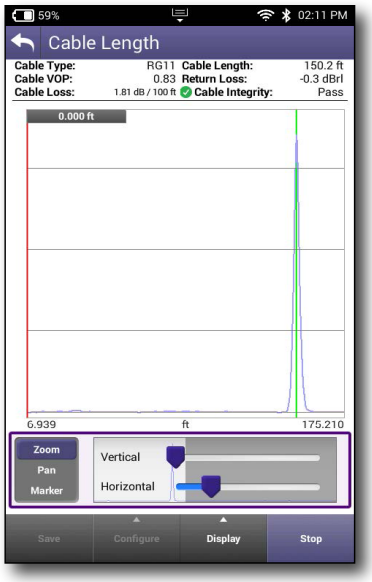




Cable Length

Similarly, the Cable Length mode is intended to measure any coax cable's length, looking for a single reflection. This is helpful if you need to order a replacement drop and need to determine the length and verify after the replacement is complete.





To run Cable Fault Finder

1. Select **Cable Fault Finder** under the CATV menu header. The Cable Fault Finder Setup screen appears.
2. Select the mode: **Drop Check** or **Cable Length.**
3. For Drop Check, select the desired demarcation point to be tested: **Tap** or **Ground Block**. A graphic showing the appropriate connection schematic for this test will appear along with appropriate instructions for the port to be used.
4. Assign this test to a saved work order (optional but recommended).

   Select the **Work Order ID** button and the list of available work orders will appear. Select one.
5. Configure the cable type or create a new one.
6. Start the test by selecting the **Start** button at the bottom of the screen.

Results

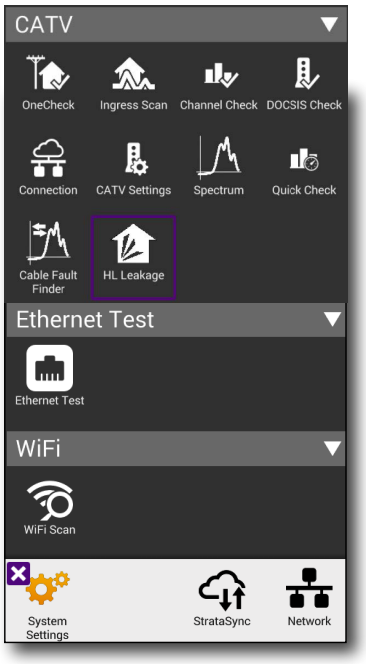
For a detailed discussion of the results produced by this test, see *"Cable Fault Finder results" on page 239*.

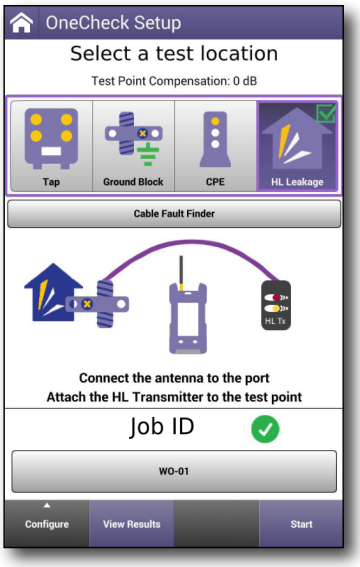
HL Leakage (optional)

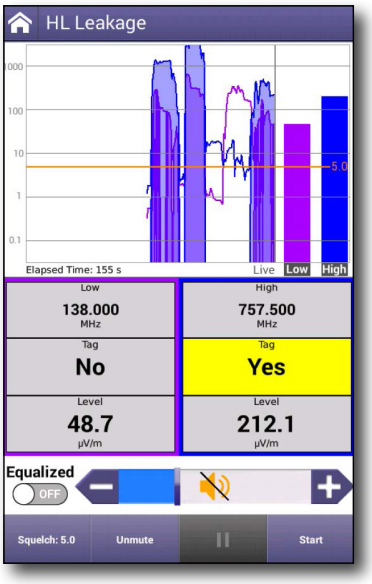
The HL Leakage (Home Leakage) test provides the ability to quickly find and fix hard to locate ingress sources in the home, breaks in coax, loose connections, etc.

It allows a tech to localize leakage at subscriber premises using the ONX paired with the Seeker HL Leakage Transmitter. This is an optional feature and requires the HL transmitter kit.

You can also run HL Leakage tests in OneCheck, if enabled.







To run HL Leakage

1. Select **HL Leakage** under the CATV menu header. The HL Leakage screen appears.
2. Attach the HL Transmitter to premises coax and turn it on to high output (+60dBmV/120dBµV).
3. Attach HL Leakage rubber duck dual-band antenna to ONX RF port 1.
4. Start the test by selecting the **Start** button at the bottom of the screen.
5. Walk around noting where leak level, tag, and audible tone indicate a higher than desired leak.
6. When HL Leakage is complete press **Stop**.

Results

For a detailed discussion of the results produced by this test, see *"HL Leakage results" on page 242*.

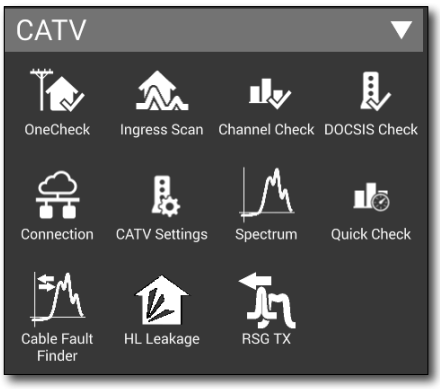
Additional notes for leakage monitoring in the home

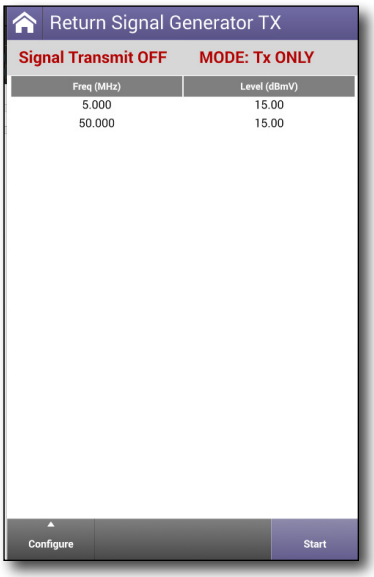
- Enter home and walk through each room with RF cabling. Include basements, crawl spaces, attics and rooms with CPE devices.
- If leak above squelch setting is detected, meter emits audible tone relative to detected leak size and displays leak level.
- Once leak is detected, move meter side-to-side through room to determine direction of highest leak level. When maximum leak level is determined, the leak source has been located:
    - If leak level is too high, remove dual band antenna and attach near field probe.
    - If leak is too high with near field probe, change transmitter to low level mode (+40 dBmV/+100 dBµV) and re-check.
- Repair, tighten or replace leaking component.
- Recheck room to ensure all leak sources have been addressed and repaired.
- Move to remaining rooms to continue locating leaks.

Return Signal Generator Transmit (RSG TX) (optional)

The RSG TX feature allows you to create a signal generator for transmit testing.

From the CATV menu, select **RSG TX**.

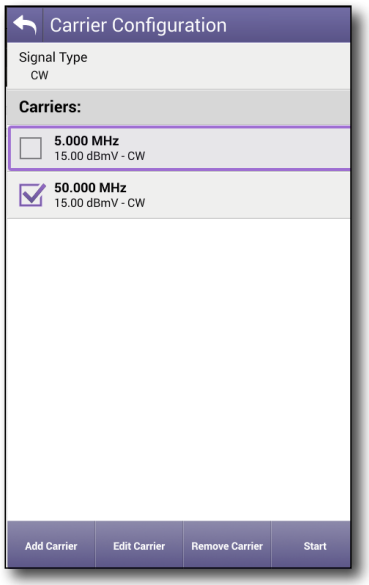


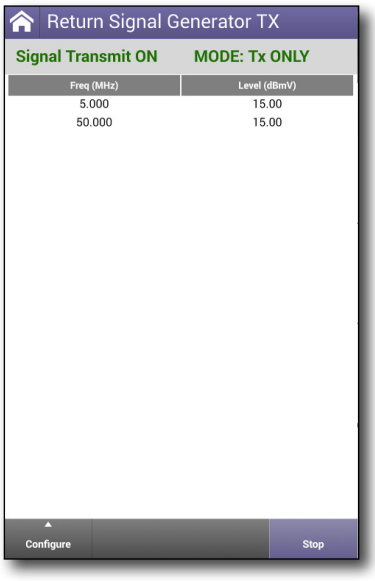


Configuring RSG

Select **Configure** and **Add Carrier** to change the carrier information, including the signal type (CW or QAM), frequency, and level.

When ready to start the signal generator, select **Start**.





5

Ethernet Testing

This chapter provides steps for using the Ethernet testing features of the OneExpert, include the following:

About Ethernet testing

With the Ethernet test application, you can use the OneExpert CATV to connect to a port on the customer's modem. After connecting to the circuit, you can then test for connectivity and throughput.

You can also ping through the modem to a network switch or web address to test for connectivity and run Traceroute to record and observe the route of traffic through the network.

The Ethernet tests involve the following steps:

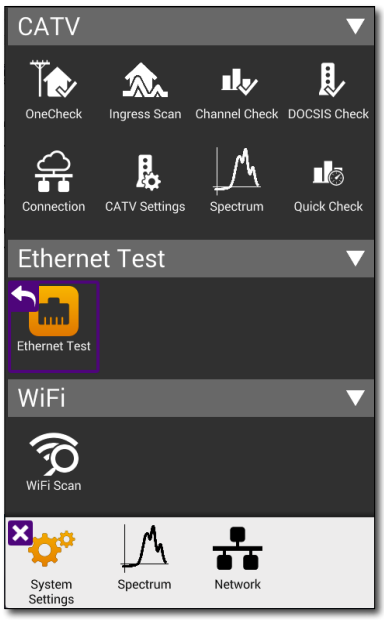
- Specifying test settings
- Performing tests
- Viewing results

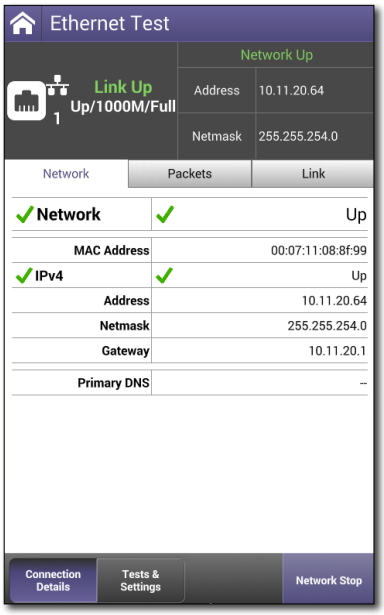
Selecting Ethernet mode

To select Ethernet mode

1. From the **Home** screen, expand the **Ethernet Test** menu.
2. Select the **Ethernet Test**.

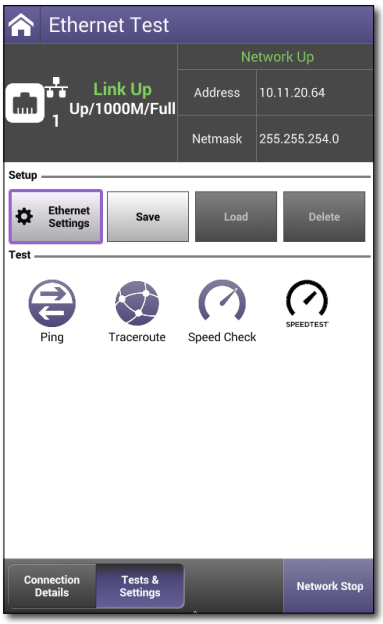
When the Network Up heading turns green, tests can be run or settings changed.





Specifying Ethernet settings

Before you begin testing, make sure the test settings on the OneExpert match the settings of the line that you are testing.



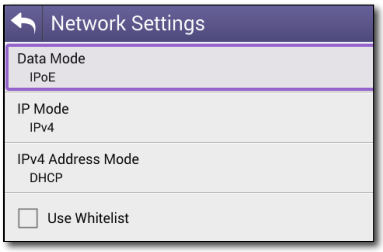
- To access the setup screen, select the **Tests & Settings** button or use the Tray menu (swipe down from the top).

Loading a test profile

If you have previously specified the settings and saved a test profile for Ethernet testing, you can load that profile so you don't have to specify all of the settings again.

1. Press the **Load** button. (If no profiles have been saved, the button is grayed out.) A list of setting profiles appears.
2. Select the profile to load. The settings are loaded.

Configuring a new Ethernet profile



1. From the **Tests & Settings** menu, press the **Ethernet Settings** button.
2. Select **Data Mode** and then specify IPoE, PPPoE, or MultiVLAN. None turns the data layer off.
3. Select whether to do Automatic Login.
4. Select MAC Address Mode and specify factory default or user defined.
5. Specify whether VLANs are used (a checkmark indicates they are used).
6. If VLANS are used, specify the following:
   - Enter the **VLAN ID** and **Priority**.
   - Select **IP mode** and then specify the network mode: IPv4, IPv6, or IPv4/IPv6 Dual Stack.
7. Specify the LAN network settings as described in step 5 of *"Establishing an Ethernet connection" on page 45*.

CAUTION: FAULTY RESULTS

Any time the Network settings are changed, the network layer resets. If you change these settings during a test, you may cause errors in the test. Only change them before you begin a test.

Saving test profiles

After specifying the test settings, you can save them as a test profile.

1. Press the **Save** button.
2. Enter a name for the profile.
3. Specify whether the profile will be shown on the Home screen.
4. Press **Save**. The profile is saved.

Connecting to the line

After specifying the test settings, you can connect to the line.

1. Connect one end of an Ethernet cable to the Ethernet jack on the right side of the unit.
2. Connect the other end of the cable to an Ethernet jack.

Viewing results

After specifying test settings and connecting to the line, you can view results.

1. Press the **Connection Details** button. Do one of the following:
   - Press **Cancel** to return to the Network menu, and then select **Network Status** or **LAN Stats**.
   - From the Network Setup menu, press the left arrow to go to the LAN Results menu, and then the left arrow again to go to the Network Status menu.
2. To save a test report, press the **Tray** button, and select **Save Report.** Specify the report settings such as report name, report format, technician ID, location, and other settings as needed.
3. To clear the results, use the asterisk (*) key.

See *Chapter 10: Test Results* to learn what your results mean.

Testing the data layer

Using the data layer tests, you can test for connectivity and throughput. See ***Chapter 6: Data Testing***.

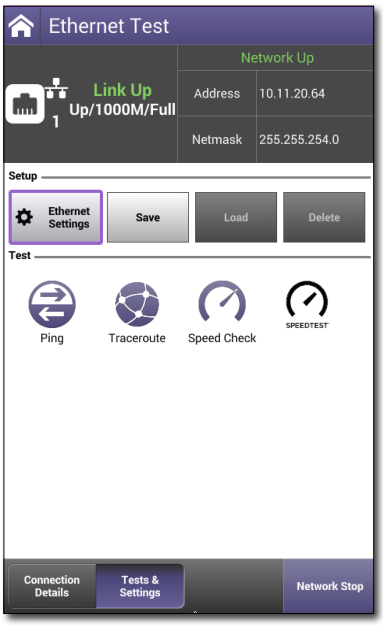
6

Data Testing

This chapter provides steps for using the Data testing features of the OneExpert. The data layer tests allow you to test for connectivity and throughput, including the following:

About data tests

The data tests are available using the **Tests & Settings** button when testing Ethernet circuits.



Ping and Traceroute testing (optional)

The Ping test sends a ping packet through the modem to an IP address or DNS name (could be a network switch or web address) to test for connectivity. This is an optional feature.

The Traceroute test sends a packet through the modem to an IP address or DNS name (could be a network switch or web address), then traces each hop from the source (your instrument) to its destination. When running the application, the response time and hops traversed by the packet appear on the Traceroute screen.

1. If you haven't done so, specify the settings for the Ethernet interface and then connect to the line.
2. Select the **Tests & Settings** button. The Data Tests menu appears.
3. Do one of the following:
    - Press **Ping**.
    - Press **Traceroute**.
4. Press the **Settings** button and then specify the Ping or Traceroute settings.
    - Select **Destination Type** and then select IPv4 Address, IPv6 Address, or DNS Name.
    - Enter the **Destination** IP address or DNS name.
    - If you are specifying settings for a Ping test, specify the **Transmit Count** (how many total ping packets to send), **Transmit Interval** (amount of time between packet transmittals), and **Transmit Size** (how many ping messages are in each packet).
5. Press the **Results** button.
6. Use the Tray menu to save the results. See *"Saving a report" on page 61*.

Speed Check testing (optional)

The Speed Check test is used to check downstream and upstream throughput via Ethernet test interfaces. Its Download/ Upload rate is up to 1 Gbps for Ethernet. SpeedCheck uses any IP interface, including IPv4 and IPv6, that you established for testing. Once there is data over WiFi, it will also work over WiFi. This is an optional feature.

The ONX uses HTTP to perform a Speed Check test and requires access to an HTTP server. This server is a generic HTTP server with minor configuration changes to support high speed throughput. The server needs to be placed in the network in a way that will allow it to deliver very high data rate traffic to the ONX for downstream and upstream throughput testing. VIAVI recommends the Apache HTTP server (v 2.4) that is readily available from Apache and supports multiple operating systems.

Apache server setup

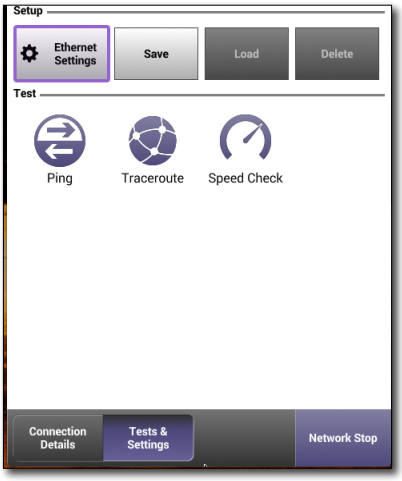
Follow the Apache server installation instructions. To enhance the server's ability to support high bandwidth SpeedCheck tests, the following changes should be made to the server configuration file.

- **File** – C:\Apache24\conf\httpd.conf
- **Modification**
- **EnableSendfile off {default}** – Change the EnableSendfile setting to OFF
- **SendBufferSize 1000000 buffer** – Add a line creating a 1000000 byte send

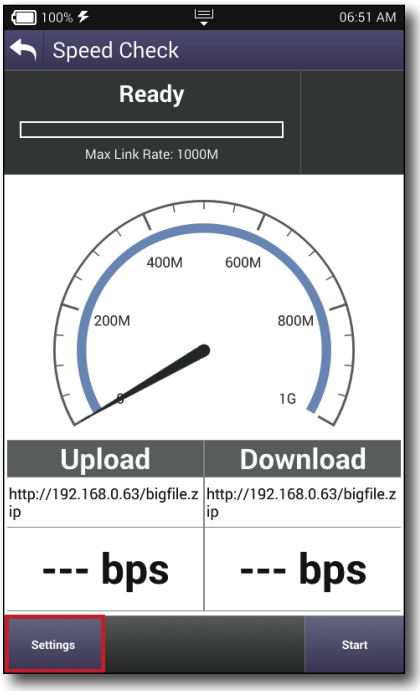
These changes to the configuration file are similar regardless of the operating system that Apache is being run on, but the location of the file may change.

Once the server is configured, a very large file needs to be placed on the server that the ONX will download during the Speed Check test. VIAVI Solutions recommends a throughput file of at least 2 GB. The name of this file is configurable in the ONX instrument. This file is typically located in the Apache htdocs directory.

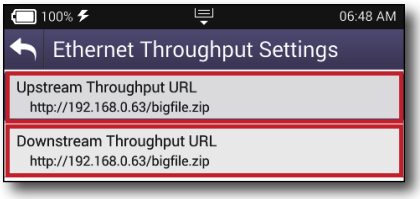
1. Once the server configuration is complete, the IP address of the server and filename of the throughput file must be configured in the ONX meter. Speed Check configuration is accessible from within the Speed Check screen. Press the **Speed Check** icon to enter Speed Check.



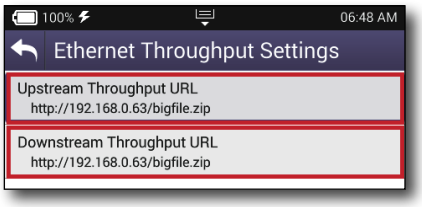
2. The download and upload URLs functions are configurable in the settings. Press the **Settings** button or press the softkey to edit these configuration items, as shown here.



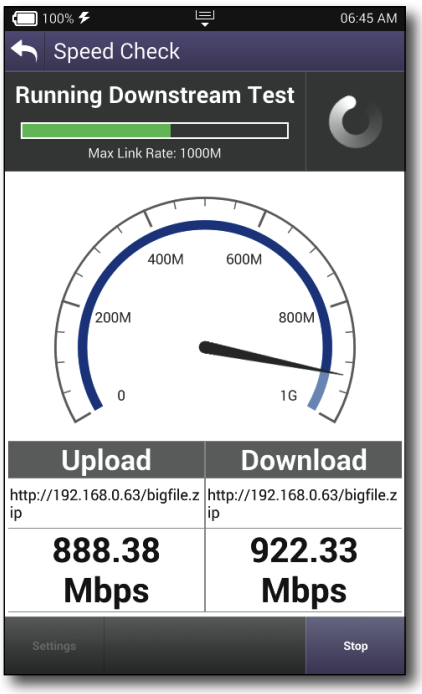
3. Press the configuration to edit or use the arrows to highlight and press **Enter**. The upstream and downstream URL settings are configurable from this screen.



1. When finished editing the configuration, press the **Back** icon or **Back** button to return to the main Speed Check screen.



2. The test can now be performed with the desired configuration, as shown here.



Server scaling

When configured as recommended above, one server can support multiple simultaneous ONX Speed Check tests. The scaling of this server should be based on two aspects:

1. First, the network connection to the server must be capable of supplying data rates necessary to support the number of concurrent tests. For example, if the server is connected to a 1 Gb/s network link, it could theoretically support up to 10 simultaneous tests of 100 Mb/s. Likewise, if the server is connected to a 10 Gb/s network connection, the server could theoretically support up to 100 simultaneous tests of 100 Mb/s.
2. The second aspect of the scaling algorithm is the processing power and network efficiency of the server. It is difficult for the server to utilize 100% of the theoretical network bandwidth. There are inefficiencies in the HW drivers, network stacks, and protocols, as well as the processing power, that will generally prohibit a server from supporting theoretical network performance.

   It is recommended that modern server class machines be used and that the overall expectation of this server is to provide 75%-80% of the theoretical maximum. For instance, assume that a modern-day server connected to a 10 Gb/s link could provide 7.5 Gb/s - 8 Gb/s combined test capacity.

Server over-provisioning

In most cases the ONX meters will not be performing Speed Check testing at the same time. The Speed Check test runs ~30 seconds and then stops. The probability that a fleet of technicians will be running a large number of tests simultaneously (in the same 30 seconds window) is typically low. Therefore, depending on the workflow of the technicians, we can estimate the number of ONX instruments that can be supported by a single server.

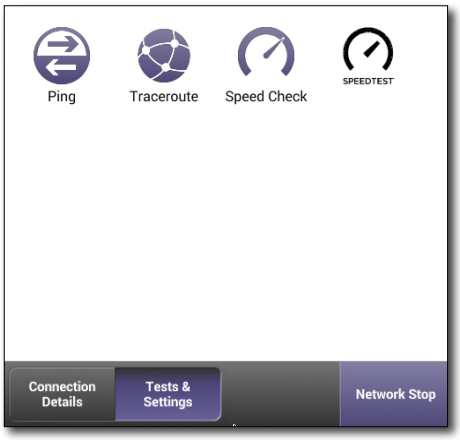
For instance, if the test workflow requires a technician to run the Speed Check test and the overall workflow time (time between tests) is only a few minutes, then the over-provisioning should be relatively low as the workflow time is a small multiple of the Speed Check test time. However, if the workflow time is longer, then the probability of simultaneous tests becomes much lower and the server over-provisioning could be higher.

Speedtest by Ookla data testing (optional)

Speedtest is used to test servers all over the world. It determines the server name and checks downstream and upstream throughput via Ethernet test interfaces. Its download/upload rate is up to 1 Gbps for Ethernet TE. Speedtest uses any IP interface, including IPv4, that you established for testing. It does not require any additional configuring.

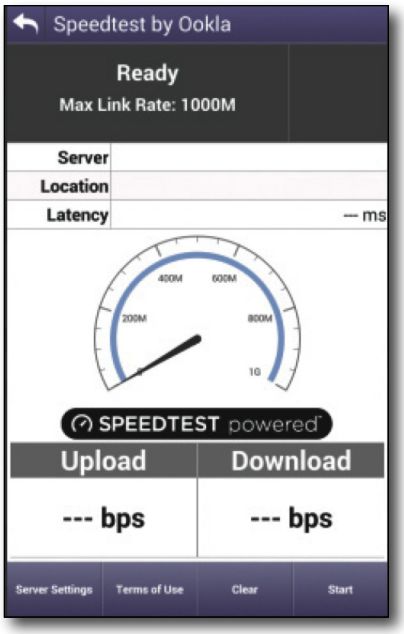
Before you begin

1. The Speedtest application will require you to accept the Terms of Use before allowing to proceed. The Terms of Use must be accepted every thirty to ninety days.
2. The **Speedtest** data test is launched from the **Test & Settings** tab of the Ethernet application. The feature is available when the Speedtest option is enabled. Press the **Speedtest** icon to enter Speedtest or use the arrows to highlight and select it, as shown here.



3. The Speedtest screen is the main display of the Speedtest application. This screen provides the following functions:
   - Access to server settings configurations
   - Access to the Terms of Use page
   - Start and stop controls
   - Display of results
   - Ability to clear results

   The screen displays the server name, server location, latency (ping delay), upload rate, and download rate results. The active rate is displayed on a dial. The **Clear** button clears the test results. The **Terms of Use** button displays a scrollable popup window.The **Start** or **Stop** button starts or stops the test.

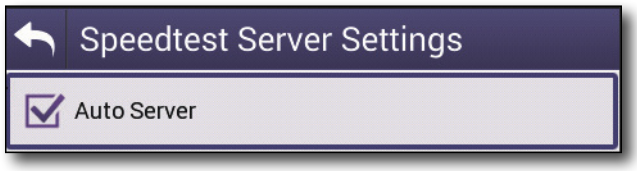


   The **Server Settings** button is used to configure the download and upload URLs in the settings. This button remains active only while the test is stopped. Press the **Server Settings** button or press the soft key to edit these configurations.

Server Settings

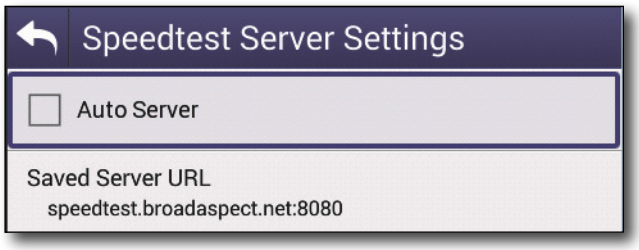
The Server Settings screen for Speedtest provides the selection of either automatic or user-specified server for the test.

- Select the **Auto Server** checkbox for the automatic server.



The ONX will connect to a default Ookla server in the network, which will select the nearest Speedtest server, and use it for the remainder of the test.

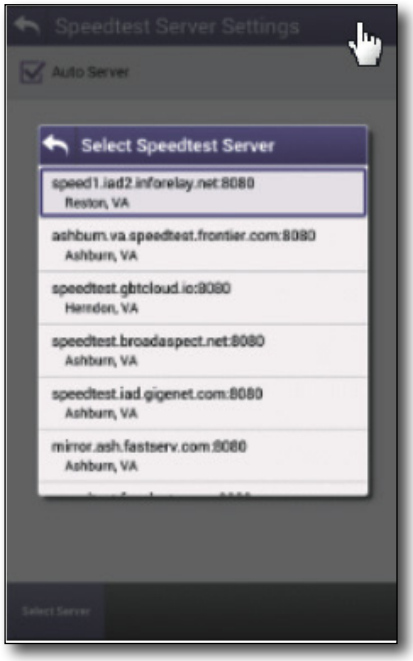
- Leave this box unchecked if you want to connect to a different server and enter a specific **Server URL**, including the address and the port.



NOTE:

This server needs to be present in the list of Speedtest servers known by the local default Speedtest server (speedtest.net). Only servers from that list can be contacted.

- The **Server Scan** softkey is available to automate the process of changing to a different server. Press the **Server Scan** softkey. Once the scan is completed, a scrollable Select Speedtest Server dialog is displayed showing the list of up to 20 Ookla servers available.

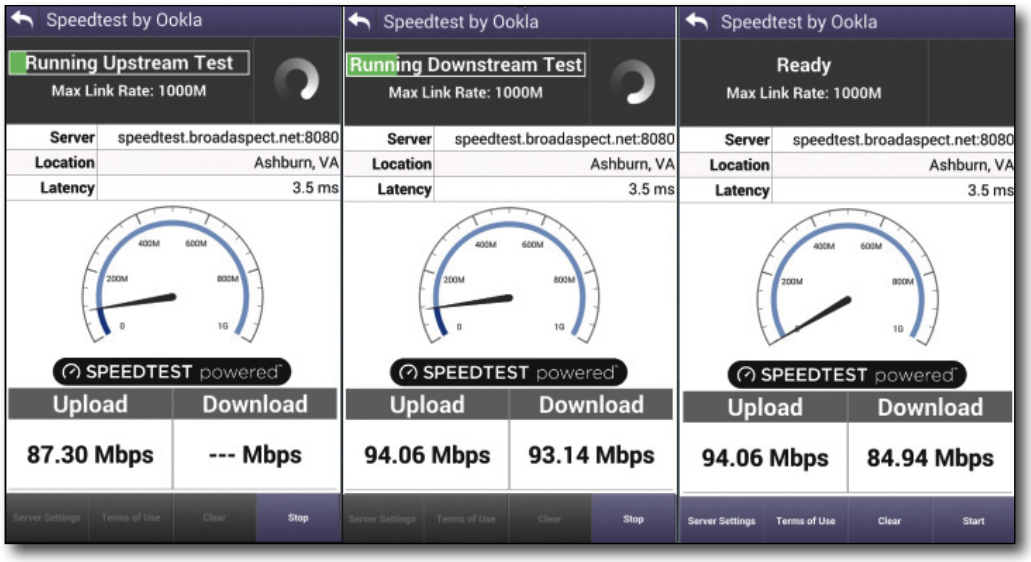


The softkey has changed to **Select Server**. If you select one of the servers from the list, the dialog closes, the Auto Server checkbox is deselected, and the server's information is stored in the **Saved Server URL**, and **Saved Server Location** settings. If the network is not active, then the softkey is not active.

When done, press the **Back** arrow or the **Back** sofkey at the top to return to the main Speedtest screen.

Running Speedtest

Press the **Start** button on the Speedtest screen. As the test progresses, its current state is displayed. A green progress bar is presented when the state takes more than four seconds. An activity spinner indicates that the test is still running.



Latency measurement

The ONX will ping the Speedtest server the number of times specified in the Speedtest configuration. The pings occur at whole millisecond intervals slightly greater than the server connection phase's latency measurement. For example, if the server connection phase's latency measurement for the server was 3.2 milliseconds, then the ping intervals will occur at 4 milliseconds. An average ping delay value and a ping delay jitter value (both in milliseconds) are provided for each ping. The final ping average result (in milliseconds) is then derived.

Upload measurement

The unit opens multiple connections to the Speedtest server. The upload transfer begins, followed by updates of percentage complete and average upload rate (in bytes/sec). Once the upload transfer has completed, the final upload rate measurement is then provided.

Download measurement

The unit opens multiple connections to the Speedtest server. The download transfer then begins followed by updates of percentage complete and average download rate (in bytes/sec). Once the download transfer has completed, the final download rate measurement is provided.

Measurements upload

The following final result values are again provided:

- Latency, upload, and download rates
- Total bytes uploaded
- Upload stage duration
- Total bytes downloaded
- Download stage duration

An HTTP connection then opens to the URL: http://www.speedtest.net/api/embed/api.php, and the measurements are uploaded.

The Speedtest results are also available in all Save Report formats (XML, HTML, and PDF).

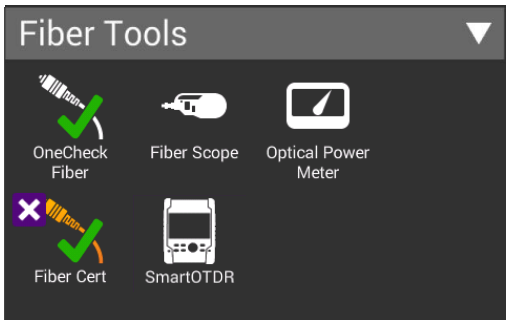
7

Fiber Testing

This chapter provides steps for using the optional fibert testing accessories, including the following:

About the optical tools

The following USB optical accessories can be used with the OneExpert from the **Fiber Tools** menu.



- Fiber Microscope
  - Inspect both the bulkhead (female) and patch cord (male) sides of fiber interconnect.
  - Inspect both simplex connectors.
  - Use with a comprehensive selection of precision FBPT tips.
- Optical Power Meter
  - Takes power measurements for all single-mode and multimode connectors via USB 2.0 connection.
  - Measures optical power with multiple pre-calibrated wavelengths (850, 980, 1300, 1310, 1490, 1550 and 1625 nm).
  - Integrates digital power measurements, fiber inspection, and analysis into a single, unified work sequence.

NOTE:

The Fiber Tools menu is not viewable until a supported tool is connected to the OneExpert USB Connector.

Inspecting fiber

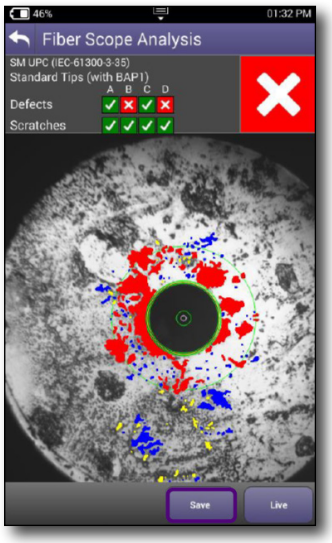
The optional VIAVI P5000i Probe microscope accessory is used to view a live video of a simplex fiber to determine if the fiber is clean. It can also capture a snap-shot and provide pass/fail analysis.

1. Connect the fiber microscope to the USB connector on the side of the instrument.
2. Connect the microscope to the optical patch cord or bulkhead.
3. Press **Fiber Scope**. The Fiber Microscope screen appears, as shown here, showing live video of the fiber.

NOTE:

Although some microscopes can inspect multi-fiber or ribbon fiber (depending on the microscope and the tip used), the OneExpert's microscope application supports simplex fiber only.

Adjust the focus or centering using the controls on the P5000i.



4. To change the magnification level, press **Low Magnify/High Magnify**. The current selection is a larger text size.
5. To select the inspection profile, press **Profiles**.

   If you have a custom profile, you can use it on the OneExpert by putting the file into the *configs/Microscope* folder. For more information on copying or transferring files using the file manager, see *"Managing files" on page 69*.
6. Press **Options** and then select any of the following:
   - **About Scope** – Provides view details about the microscope, such as model number, firmware version and serial number.
   - **Run Analysis** – Specify whether to perform an analysis on the fiber or simply take a snapshot without an analysis (Freeze).
   - **Auto-center live** – When checked, the live picture automatically centers on the fiber center. If not checked, the picture will center at the last location of a fiber center following an analysis. High magnification is always automatically centered.
   - **Show Focus Meter** – Specify whether to show the focus meter (the blue and white bar that appears on the right side of the screen).
   - **Tip** – Specify which tip is being used on the microscope: Standard Tips (with BAP1) or Simplex Long Reach (-L) Tips.
7. Do one of the following:
   - Manually inspect the fiber.
     - On the **Options** pop-up, verify that the **Run Analysis** checkbox is *not* checked. The **Analyze** button changes to Freeze.
     - Press **Freeze.** This captures a still image of the fiber.
   - Analyze the fiber.
     - On the **Options** pop-up, verify that the **Run Analysis** checkbox is checked. The **Freeze** button changes to Analyze.
     - Press **Analyze**.

   The test automatically centers the view (if specified to do so), captures an image, and then analyzes it. The test result shows defects and scratches.
8. To save the results, press **Save** and then specify the file name for the still image. The filename can be up to 50 characters, so if desired, details such as the company name, technician, and location could be included.

NOTE:

If you have not yet moved the report file, you can view the screen capture portion of the result file using the File Manager. If the file has been moved — even if it was put back in the original spot on the OneExpert — you can no longer view the file because there is a temporary capture file included with the save that goes away when the file is moved.

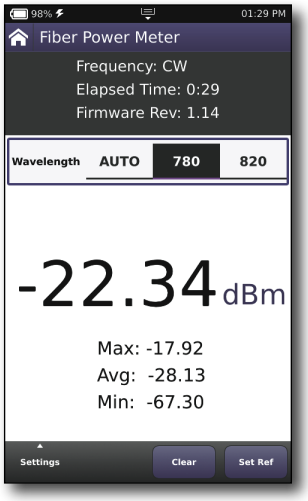
Measuring optical power

The Optical Power Meter is a VIAVI accessory used to measure optical power.

- The MP-60 meter measures 850, 1300, 1310,1490, and 1550 nm wavelengths
- The MP-80 meter measures 980, 1310,1480, and 1550 nm wavelengths

1. Connect the Optical Power Meter to the USB connector on the side of the instrument.
2. Connect the optical patch cord to the power meter.
3. Press **Optical Power Meter**.The Fiber Power Meter screen appears.

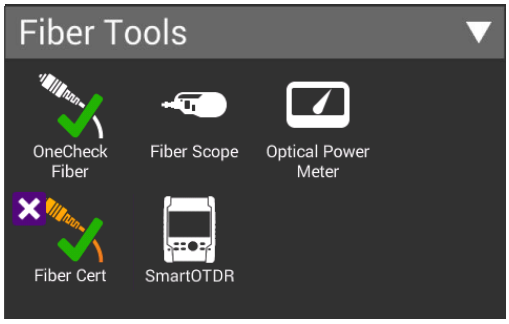
   The measurement begins as soon as the test is launched.



4. To measure a specific wavelength, choose the wavelength (in the Wavelength bar, swipe left or right). AUTO automatically detects the wavelength.
5. Press **Settings** and then navigation key to display the Power Meter Settings, and then specify the settings.
   - **LED Threshold** – Specify the LED threshold (in dBm). This specifies the threshold for the power LED on the Optical Power Meter.

     Solid indicates the power is below the threshold (low power), flashing indicates the power is above the threshold.
   - **Pass/Fail Thresh.** – Specify the pass/fail threshold (in dBm) for the test. If the measured power is below the threshold, it fails.
   - **Pass/Fail Enable** – Specify whether to run the pass/fail test.
   - **dBm** – Absolute mode, displayed as dBm.The default setting.
   - **mW** – Absolute mode, displayed as mW.
6. Press **Set Ref** to use the current power level as the reference value.
7. To save results, press the **Save Report** button or use the Tray menu **Save Report** icon.

About fiber testing



The fiber optic features provided by the ONX-580 tester allow technicians to quickly turn up and perform basic troubleshooting of the fiber local loop. To access the fiber tests, select **Fiber** from the Main menu. The dropdown menu appears.

If your OneExpert is configured and optioned to do so, you can perform specific measurements for the following tests:

- Fiber Cert
- SmartOTDR

Each of these tests is described in the following sections.

OneCheck Fiber

These tests check whether the fiber connectors are clean, monitor the power of the fiber connection, and can run tests on your VIAVI Smart OTDR E126A or SL. The tests require these accessories:

- VIAVI fiberscope P5000i (USB)
- VIAVI FiberChek

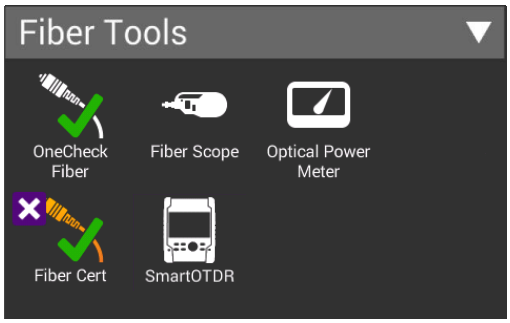
- VIAVI optical power meter MP60 (USB)

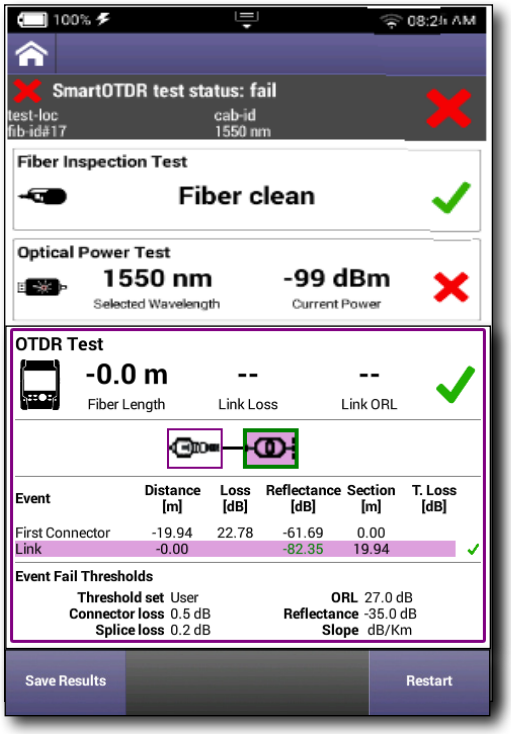
- VIAVI SmartOTDR meter

Running a OneCheck Fiber test

The OneCheck Fiber tests automatically perform a series of fiber measurements, and compare results to user-defined threshold values and provides a pass, marginal, or fail indication.

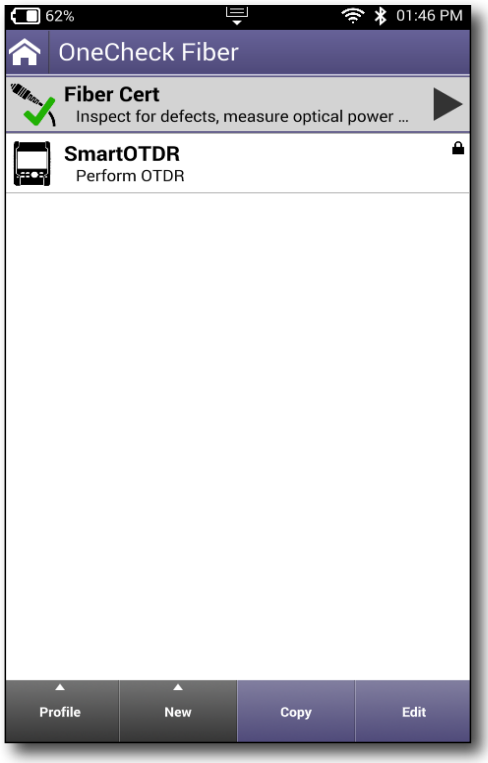
1. Connect your instrument to the fiber line under test using a VIAVI optical power meter MP60. Attach the MP60 and fiber scope to the USB jacks on the right side of the unit.
2. From the Fiber Tools main menu, select **Fiber Cert** or **SmartOTDR**. You can customize these profiles or use the defaults.
3. The OneCheck Fiber screen will open and start testing. The tests you have configured will run for and display the results with pass or fail marks.
4. To save the results, press the **Save Results** button. A screen comes up where you can specify the format of the saved file. Regardless of the format you chose, there will be also a JSON file saved with the same name. It is accessible on the unit and on StrataSync after syncing.





Editing profiles

You can easily edit and create new OneCheck Fiber profiles.



1. From the Fiber Tools menu, select **OneCheck Fiber**.
2. From the OneCheck Fiber menu, use the arrow buttons to highlight the profile you want to edit (if you select it, the test will run, instead).
3. To edit a profile, select the **Edit** button to change thresholds and the enabled tests.
   - The pass/fail thresholds can be customized or disabled on the thresholds pages. If a threshold is disabled, that measurement will still be displayed, but will not affect the pass/fail outcome.
4. To customize the profile's name, label, description, icon and other values, select the **Profile** button. For more information, see *"OneCheck Profiles" on page 60*.
   - Any customizations you make will save on the unit, unless you select **Profile** and **Restore to Defaults**, even after a software upgrade.
5. To create a new profile, select the **New** button and choose the type of profile you want to add.
6. To copy a profile and then edit from there, use the arrows to select the profile you want to copy, then select **Copy**.

   The following sections detail how to configure and run each test.

You can also run a test from any configuration screen by pressing the **Start Test** button.

NOTE:

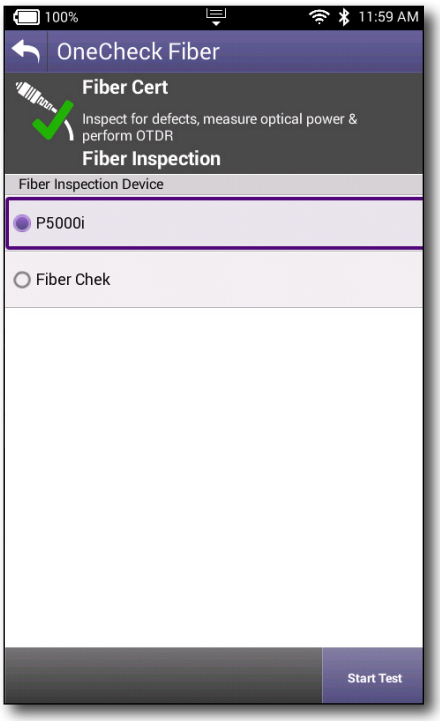
To save the profile to a USB, have it inserted in the unit and then save the profile. The application will save it both to the unit and to the USB.

Fiber Inspection

Select **Fiber Inspection** on the configuration screen to enable this test. It's enabled by default.

Here you can choose the inspection device, **P5000i** or **FiberChek**.

When finished, press the Back arrow to go back to the configuration screen.



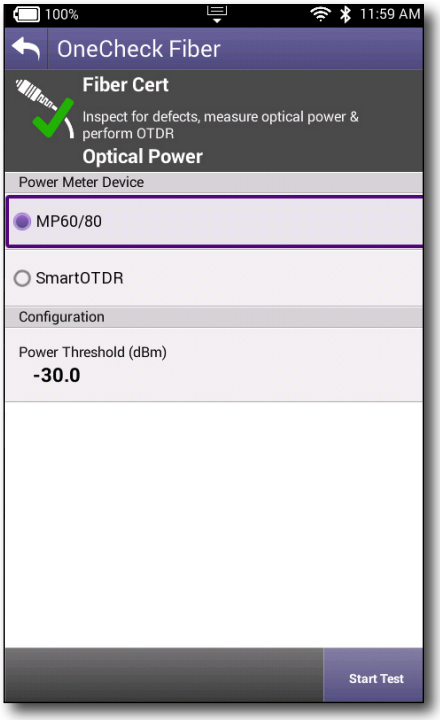
Optical Power

Select **Optical Power** on the configuration screen to enable this test. It's enabled by default.

Here you can choose the power meter device, **MP60/80** or **SmartOTDR**.

To change the power threshold, select it and adjust using the keyboard.

When finished, press the Back arrow to go back to the configuration screen.



OTDR Test

Select **OTDR Test** on the configuration screen to enable this test. It's enabled by default.

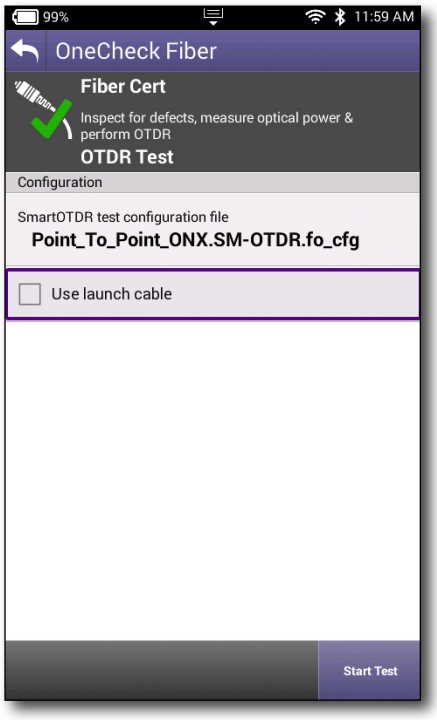
Here you can configure the following:

SmartOTDR configuration file – Point_To_Point or Short_Link_1km

Launch Cable – Launch fiber patch is being used

Launch Cable Length – Cable length, if launch fiber patch is being used (20m min)

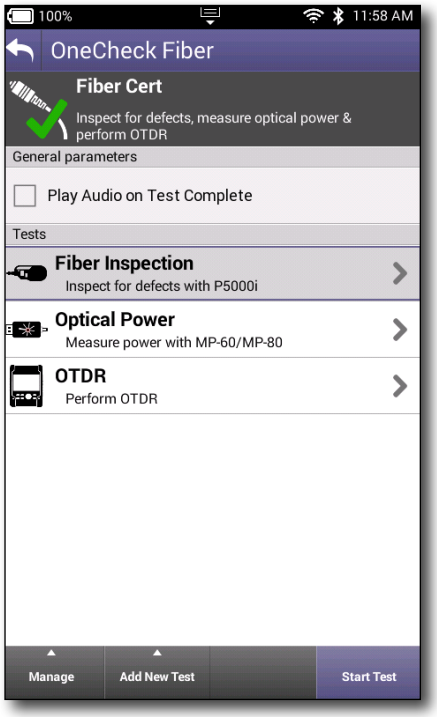
When finished, press the Back arrow to go back to the configuration screen.



Saving the profile and launching the test

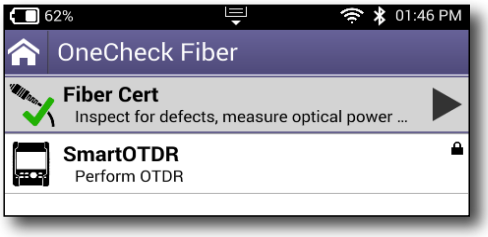
Once you are done editing the profile, press the Back arrow to return to the configuration screen for that profile. Here you have a choice of the **Manage, Add New Test**, or **Start Test** buttons.

The **Start Test** button will save the profile and launch the test. Once the test is launched, you can go back to the configuration screen by pressing the **Thresholds and Settings** button.



Fiber Certification

These tests check whether the fiber connectors are clean and monitor the power of the fiber connection.



1. From the Fiber Tools menu, select **OneCheck Fiber**.
2. From the OneCheck Fiber menu, select **Fiber Cert**.
3. Next, set the fiber parameters. These settings will be saved for your next test.

   Cable ID – Name for the cable, required (42 characters max)

   Test Location A – Name for the test location, required (29 characters max)

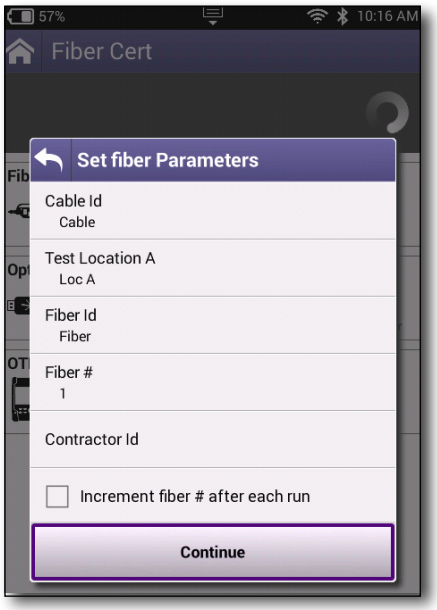
   Fiber ID – Name for the fiber, required (42 characters max)

   Fiber Number – Number for the fiber (4 digits max)

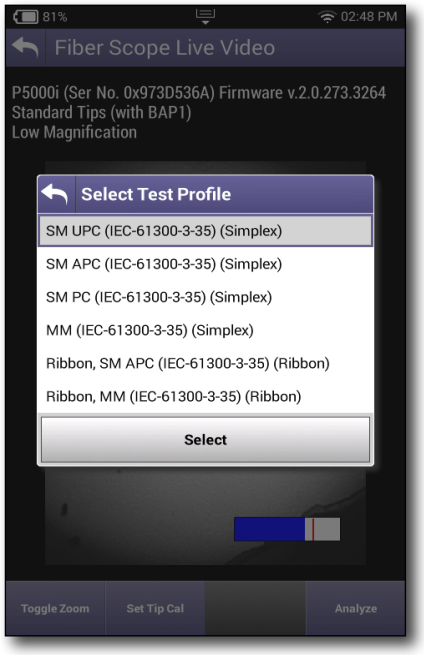
   Contractor ID – Contractor ID (27 characters max)

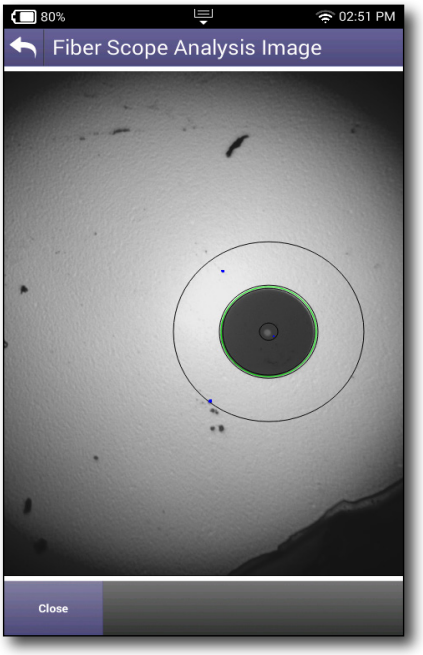
   Increment fiber # after each run – Automatically increments the fiber # for you

4. Make sure your SmartOTDR is turned on. It will create a WiFi network that you can connect your ONX shortly.
5. The OneExpert will need to connect to the SmartOTDR via WiFi. Follow the prompts to connect.
6. You will be prompted to enter the password for your SmartOTDR. See your SmartOTDR's user's guide for more information.



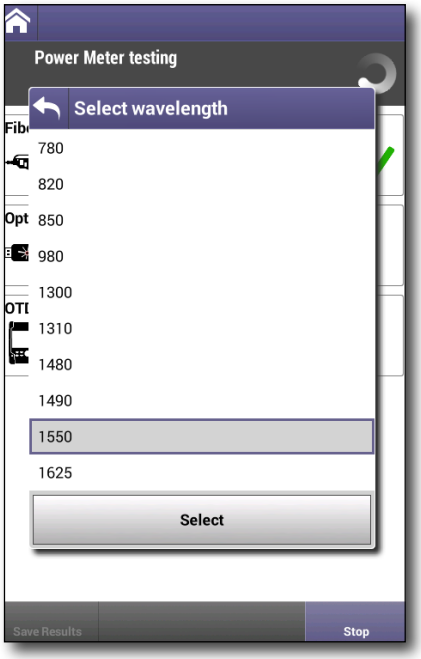
7. You will be prompted to attach the fiber scope to the USB port and select **OK**.
8. Next, select the test profile you want to use, and select **Analyze**.
9. The Fiber Scope Live video will open on the next screen, showing the connectors under microscope and the status of the test.
10. During the test, you can use the little wheel on the microscope to focus on the image. You can also press the **Toggle Zoom** button to zoom in on the image.
11. If the test detected a dirty fiber connection, you will need to clean it and retry the test before proceeding to the next step.

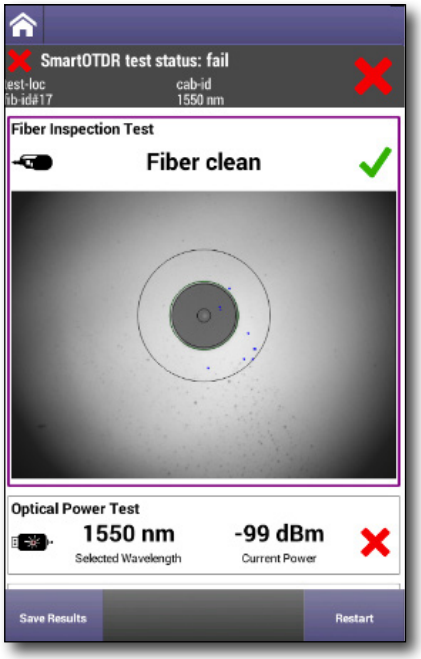




12. Once the fiber is clean, the next step will prompt you to attach the fiber power meter to monitor the power over the fiber connection.
13. Select the wavelength you want to use.

    When finished, the tests for both the fiber certification and power meter will show if they passed or failed.
14. The test results can be saved in PDF, SOR, JSON, or XML formats.

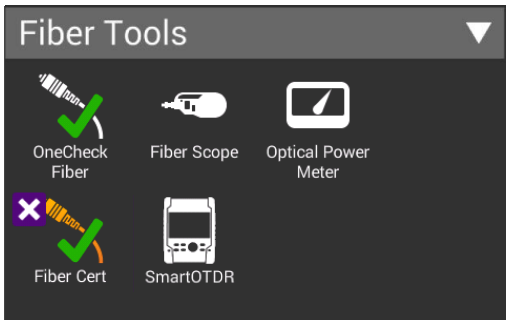




SmartOTDR

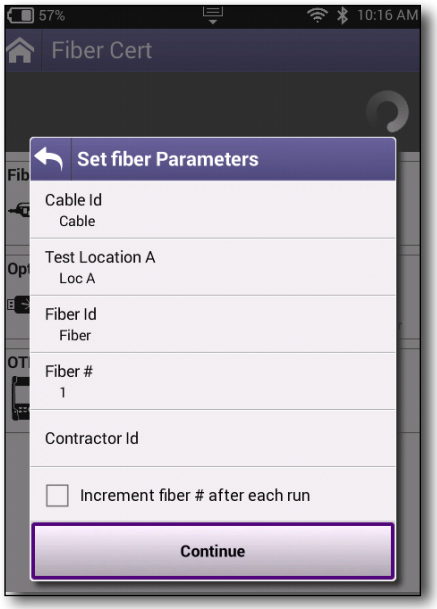
These tests can run fiber measurements on your VIAVI Smart OTDR E126A or SL.

1. Make sure your SmartOTDR is turned on. It will create a WiFi network that you can connect your ONX shortly.
2. From the Fiber Tools menu, select **SmartOTDR**.
3. You will be prompted to enter the password for your SmartOTDR. See your SmartOTDR's user's guide for more information.



4. Next, the OneExpert will need to connect to the SmartOTDR via WiFi. Follow the prompts to connect.

5. Once connected, set the fiber parameters. These settings will be saved for your next test.



   Cable ID – Name for the cable, required (42 characters max)

   Test Location A – Name for the test location, required (29 characters max)

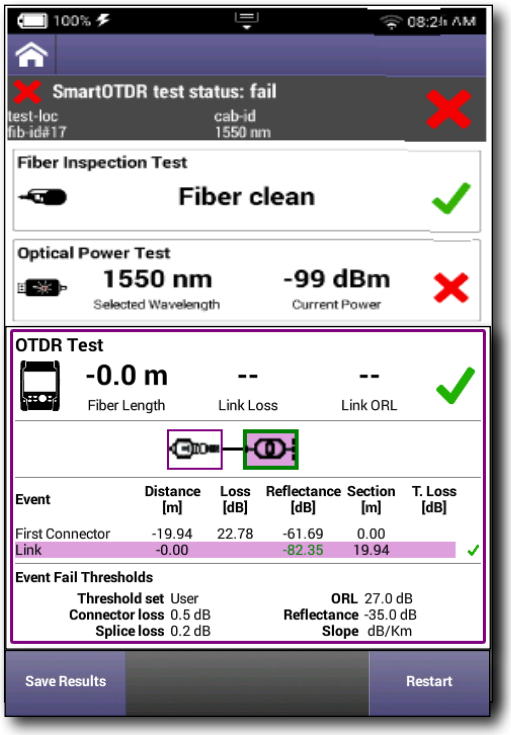
   Fiber ID – Name for the fiber, required (42 characters max)

   Fiber Number – Number for the fiber (4 digits max)

   Contractor ID – Contractor ID (27 characters max)

   Increment fiber # after each run – Automatically increments the fiber # for you

6. When the test is complete, you can use the arrow buttons to navigate through the test and show more detail.
7. The test results can be saved in PDF, SOR, JSON, or XML formats.



8

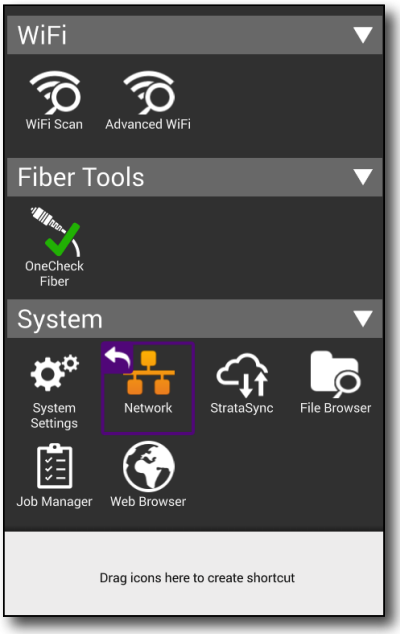
WiFi Testing

This chapter provides task-based instructions for using the optional WiFi testing features. Topics discussed in this chapter include the following

About the WiFi tests (Plus and Pro models)

The WiFi testing features of the OneExpert allow you to quickly determine the available SSIDs, level, and channel of WiFi networks visible from any location. These are available for the Plus and Pro models only.

- **WiFi Scan** –Quickly determine the available SSIDs, level and channel of WiFi networks visible from any location. The test set can attach to a customer's network and provide assessment of the signal strength throughout the premises.
- **Advanced WiFi** (**OneCheck WiFi and WiFi Expert)** – Evaluate the health and speed of your WiFi network at multiple locations. See *"Advanced WiFi testing" on page 135*.



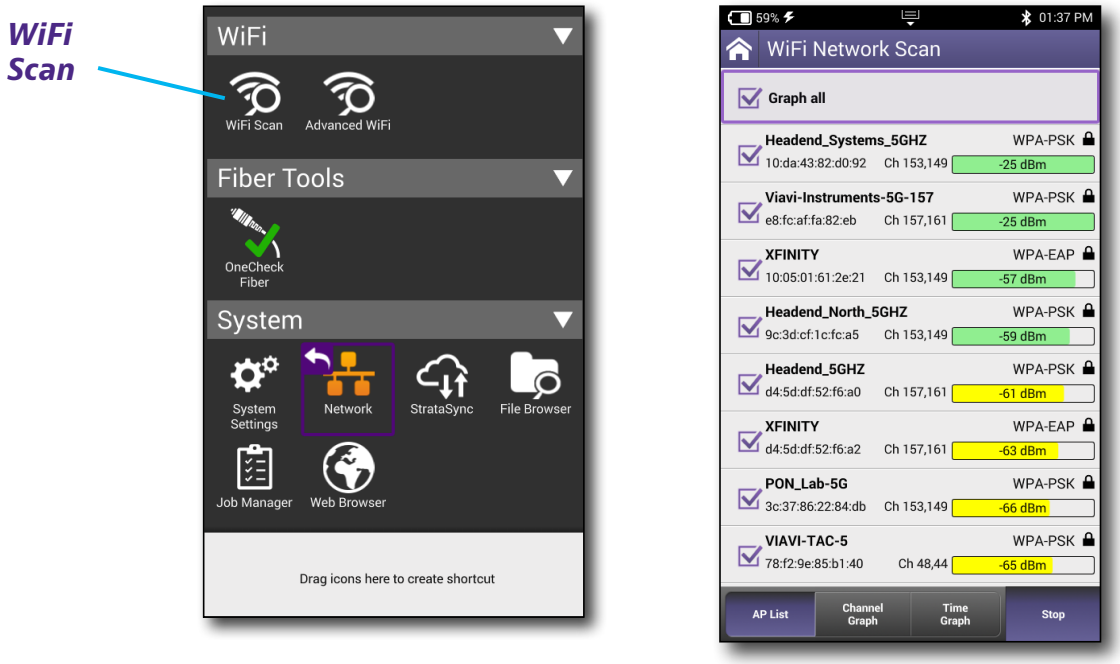
On the Main menu, select **WiFi.** The WiFi menu appears.

NOTE:

The Bluetooth and WiFi interfaces cannot be ON at the same time.

Scanning for WiFi networks

The WiFi Scan is used to determine whether any WiFi networks are available, and provides the SSIDs, level and channel of any networks detected.



1. From the WiFi menu, select **WiFi Scan**. The test searches for active WiFi networks. The WiFi search process may take a few minutes. After WiFi search is finalized, results are gathered and displayed.

   The WiFi access points (AP) are listed, along with the following:

   – The MAC address of the access point.

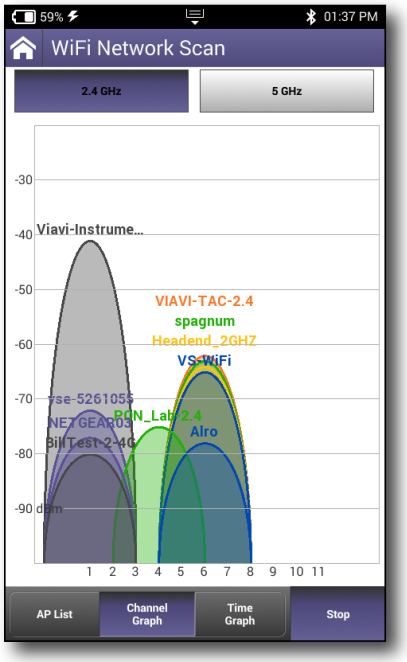
   – The type of encryption used (WPA-EAP, WPA-PSK, Open).

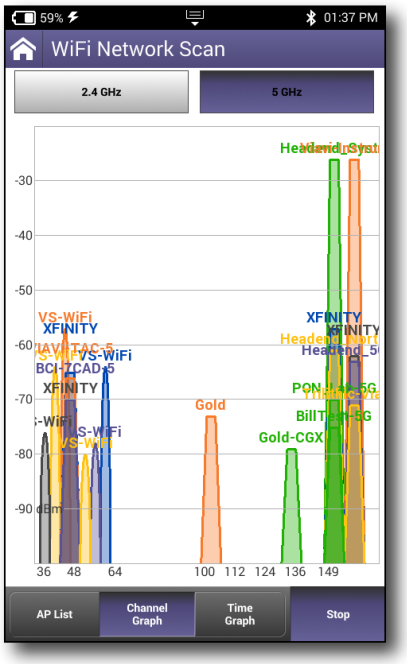
   – Security status of the WiFi network, indicated by an open or closed padlock.

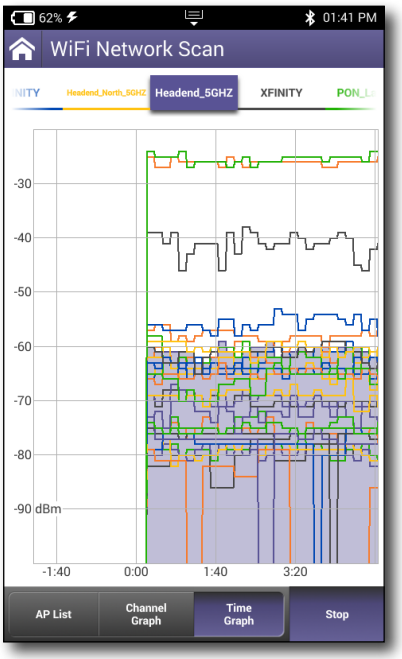
   – WiFi channel being used by the specific network

   – The power level of the selected WiFi Network. Indicated by the signal strength (in dBm) and a colored bar graph.

2. Select the APs you are interested in by clicking on their checkbox or Graph All at the top of the screen.
    - To see a graph of the channels on the selected APs, press the **Channel Graph** button.
    - To see a graph of signal strength over time on the selected APs, press the **Time Graph** button.





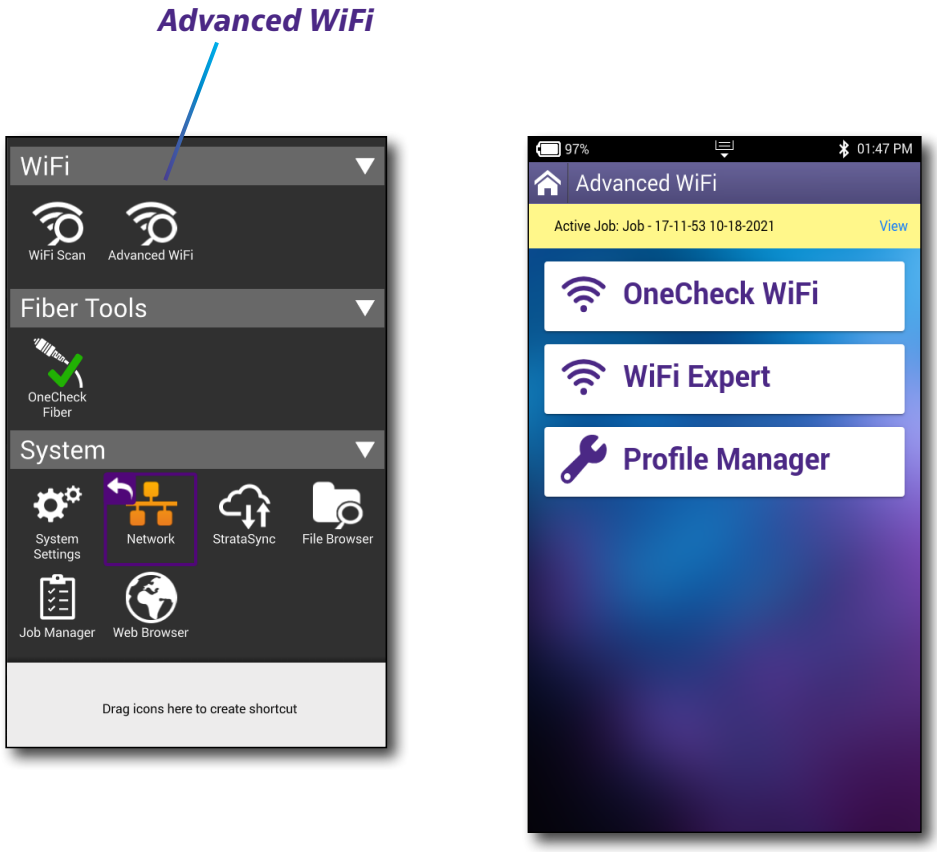


Advanced WiFi testing

The Advacned WiFi feature includes **OneCheck WiFi**, **WiFi Expert**, and **Profile Manager.**

These tests evaluate the health and speed of your WiFi network at multiple locations, and include advanced measurements for access points, airtime, channel view, and help information for increased troubleshooting.

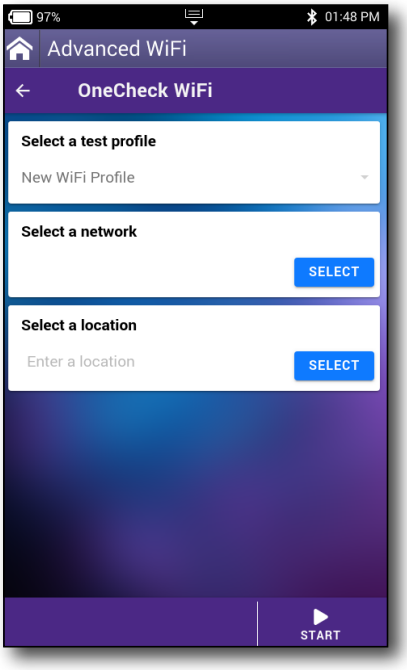
From the WiFi menu, select **Advanced WiFi**. The Advanced WiFi menu appears.

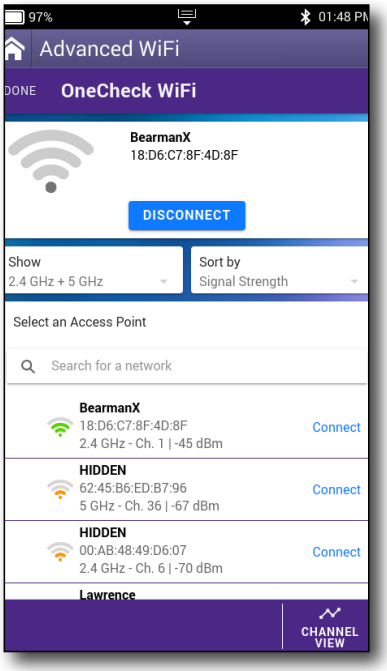


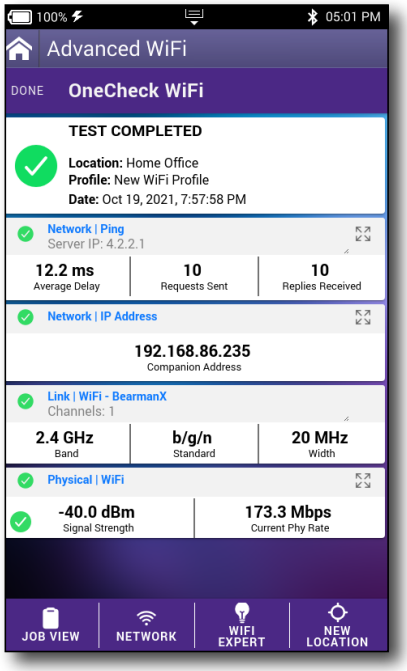
OneCheck WiFi

The OneCheck WiFi test automatically performs a series of WiFi measurements, and compares results to user-defined threshold values and provides a pass, marginal, or fail indication.

1. From the WiFi menu, select **Advanced WiFi**, and then **OneCheck WiFi**. The OneCheck WiFi screen appears.
2. Select a profile for the test, or create a new one. See *"Profile Manager" on page 144* for more information.
3. Select the WiFi network you want to test, and press **Connect**. Enter your password, as necessary. When connected, select **Done** at the top (or press the **Back** button). The network will show on the OneCheck WiFi screen. See *"Establishing a WiFi connection" on page 47*.
4. Select a pre-defined location for the test or create your own.
5. Start the test by selecting the **Start** button at the bottom of the screen. After a few minutes, the results are displayed.
    - For more details, select a section of the test.
    - When finished, you can run another test by selecting **Network** or **New Location**.
    - To run WiFi Expert, select **WiFi Expert.** See *"WiFi Expert" on page 139.*
    - To see all tests or save the reports, select **Job View**. See *"Creating a report" on page 148.*



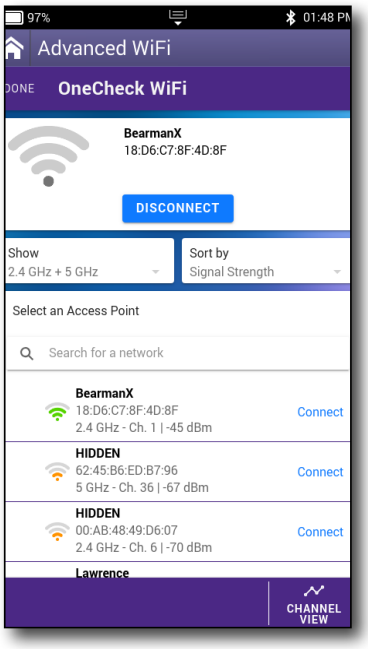


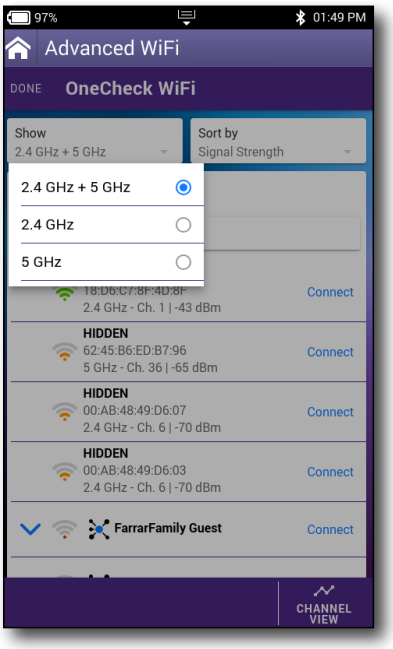


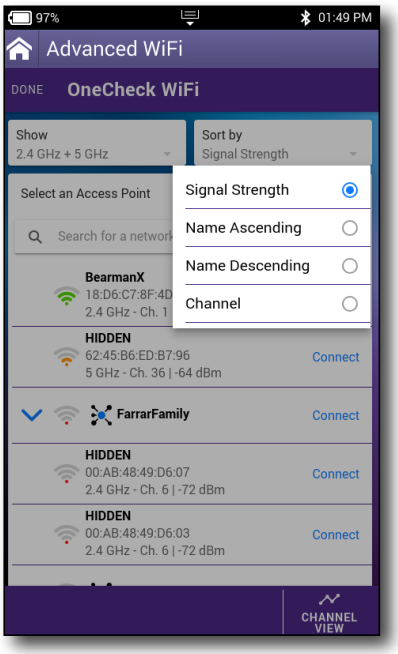
Access points

From the Access Points screen, you can sort and view the APs in a few ways.

- **Show** – Show by bands, 2.4 GHz + 5 GHz, 2.4 GHz, or 5 GHz.
- **Sort by** – Press to sort by signal strength, ascending and descending names, or channel.



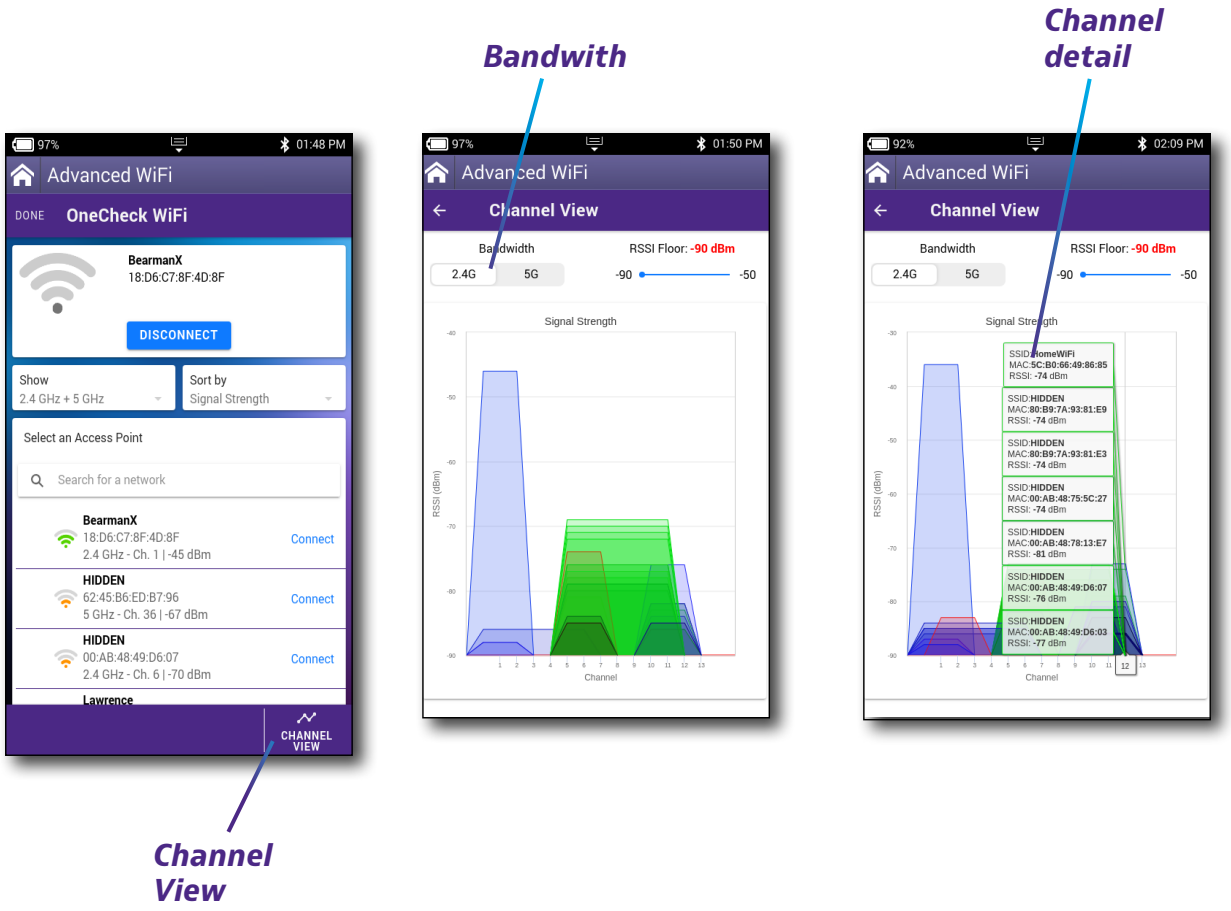




Channel View

From the Select a Network screen, you can select the **Channel View** button at the bottom of the screen for more channel detail.

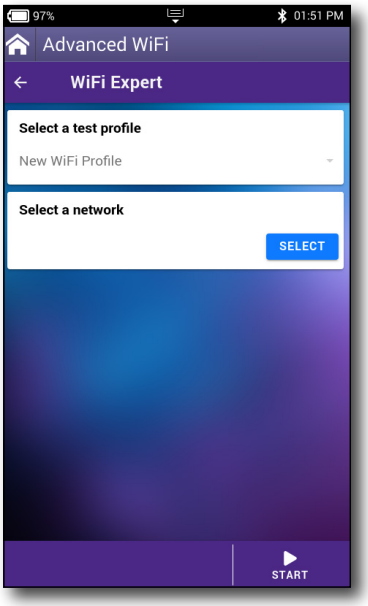
You can choose from 2.4 GHz or 5 GHz, and select a channel to bring up a pop-up with more detail, incuding MAC address and SSID.

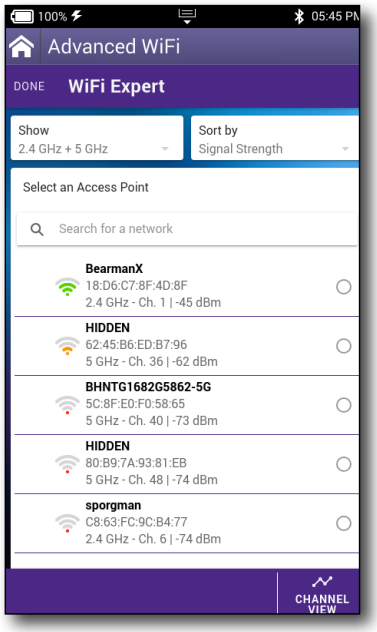


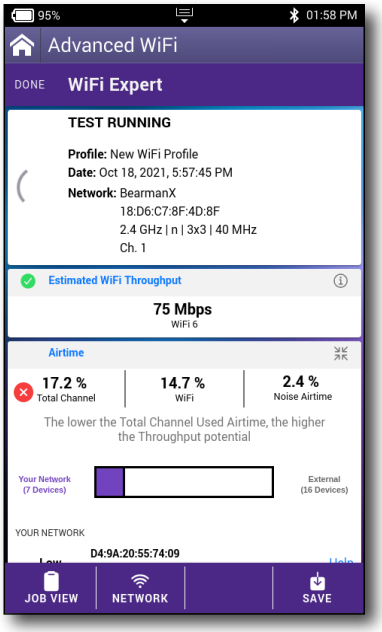
WiFi Expert

You can run WiFi Expert tests up to WiFI 6 from here.

1. From the WiFi menu, select **Advanced WiFi**, and then **OneCheck WiFi**. The WiFi Expert screen appears.
2. Select a profile for the test, or create a new one. See *"Profile Manager" on page 144* for more information.
3. Select the WiFi network you want to test, and press **Connect**. Enter your password, as necessary. When connected, select **Done** at the top (or press the **Back** button). The network will show on the OneCheck WiFi screen. See *"Establishing a WiFi connection" on page 47*.
4. Start the test by selecting the **Start** button at the bottom of the screen. The meter will then start to monitor that network. After a few minutes, the results are displayed.
    - For more details, select a section of the test.
    - When finished, you can run another test by selecting **Network**.
    - To save the report to the location, select **Save**.
    - To see all tests or save the reports, select **Job View**. See *"Creating a report" on page 148.*



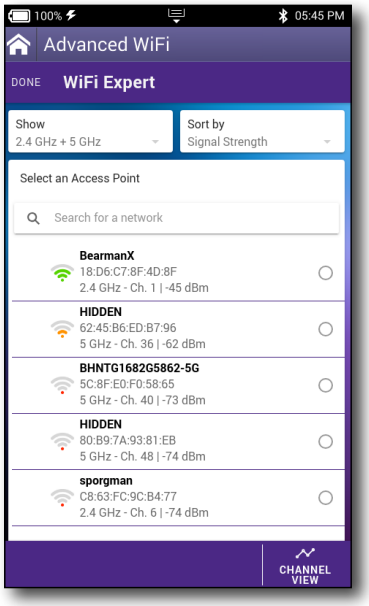


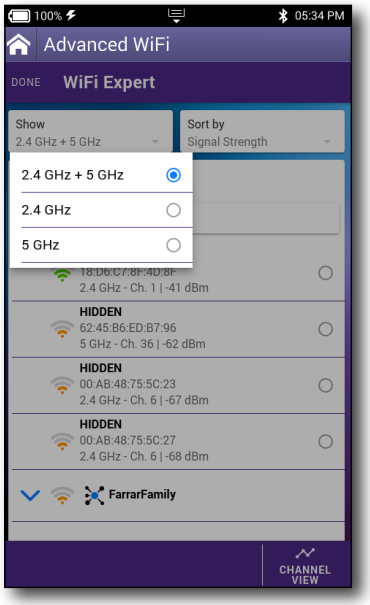


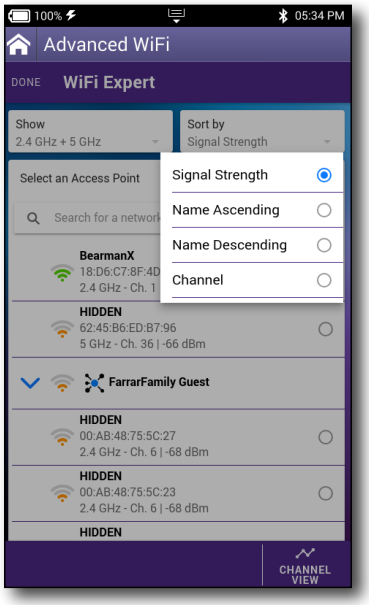
Access points

From the Access Points screen, you can sort and view the APs in a few ways.

- **Show** – Show by bands, 2.4 GHz + 5 GHz, 2.4 GHz, or 5 GHz.
- **Sort by** –Press to sort by signal strength, ascending and descending names, or channel.



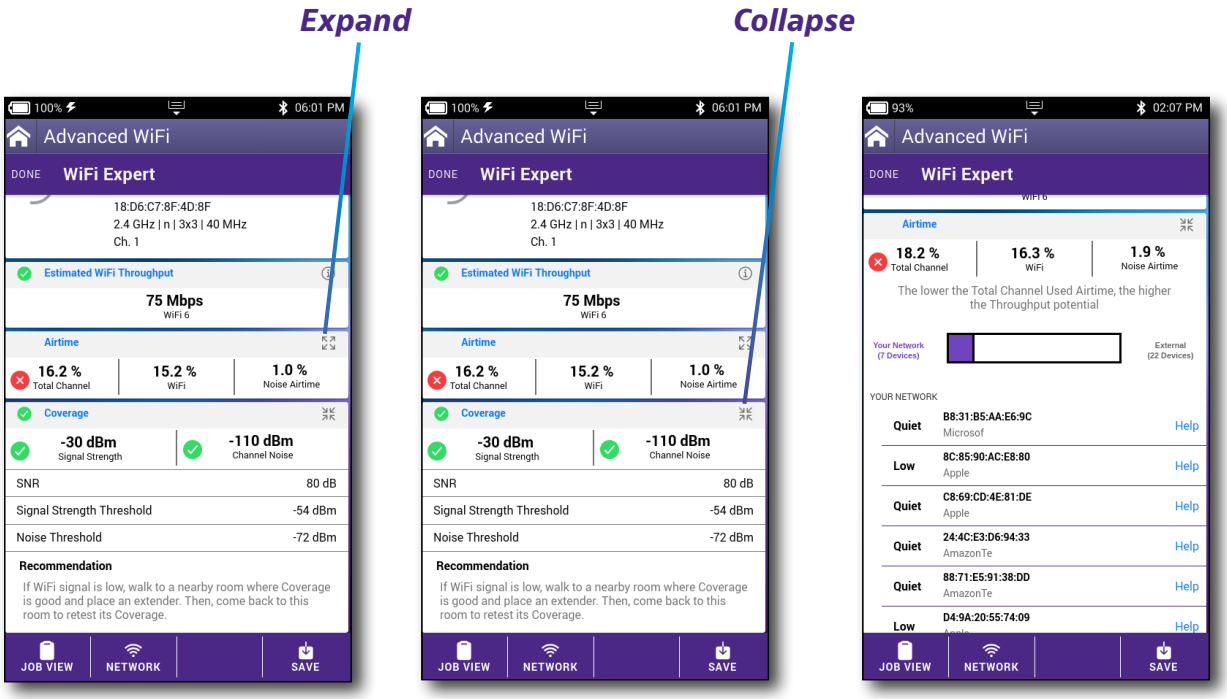




Details

When running a test, select a specific section to expand for more details. An expand icon will appear when there are more details.

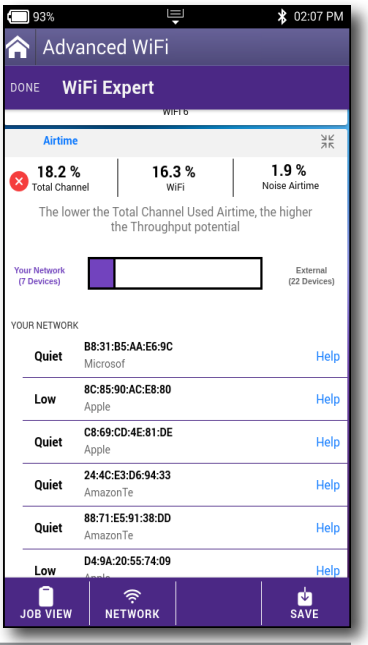
When finished, select the section again to collapse it.



Airtime

Select **Airtime** to get even more details on usage.

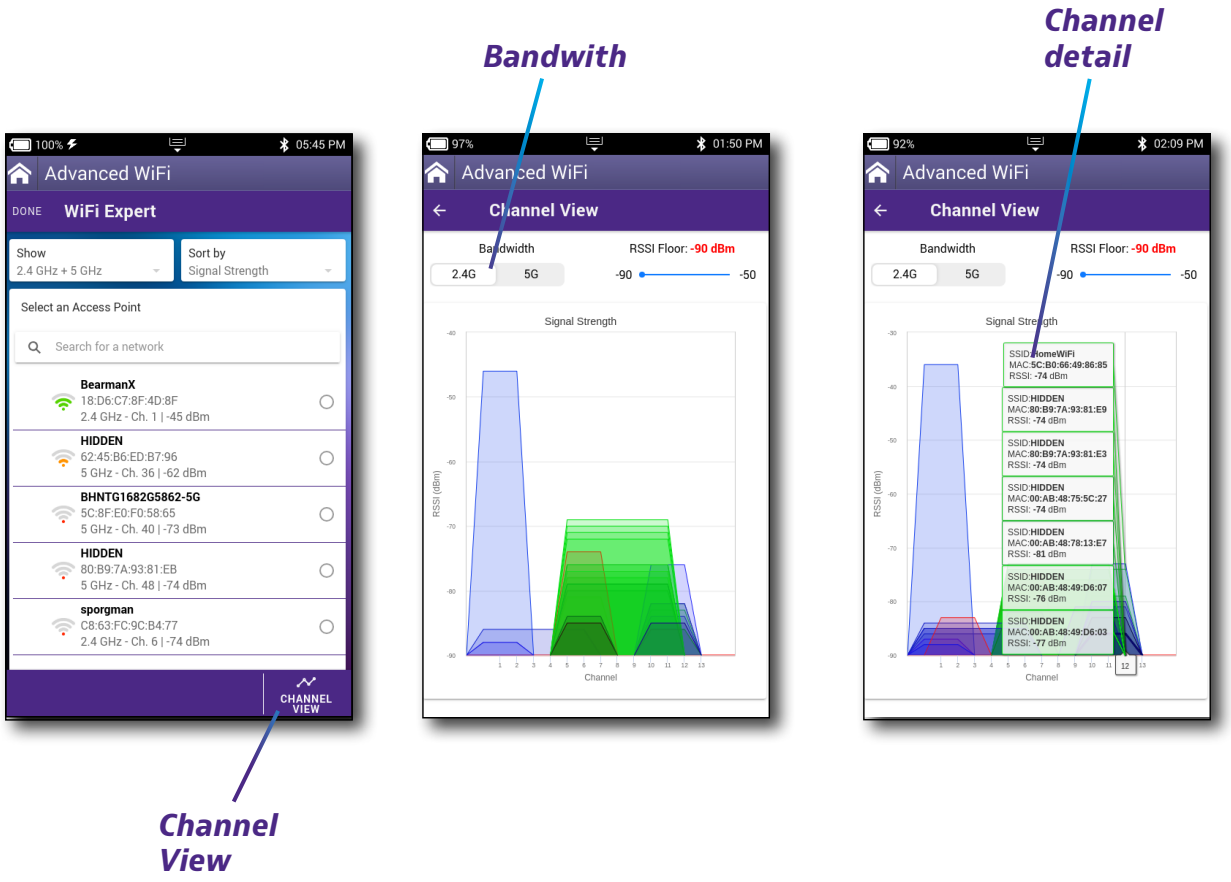
- Airtime numbers show the WiFi airtime (all WiFi devices working in the channel) and the noise airtime
- Airtime bar segments the your network-device airtime vs external-device airtime
- Your network lists all active devices on your network under test
- Estimated throughput now for typical WiFi 4/5/6 devices



Channel View

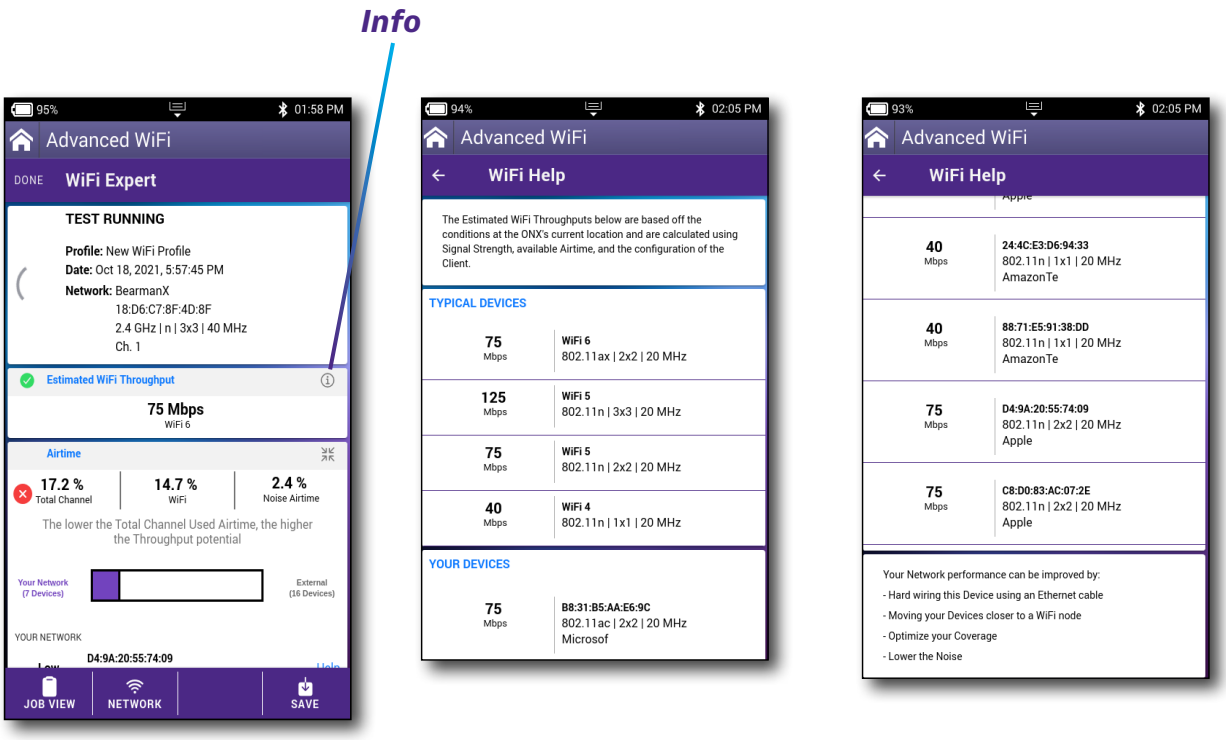
From the Select a Network screen, you can select the Channel View button at the bottom of the screen for more channel detail.

You can choose from 2.4 GHz or 5 GHz, and select a channel to bring up a pop-up with more detail, incuding MAC address and SSID.



WiFi Help

When running the test, you can select the Info icon for more detailed help.



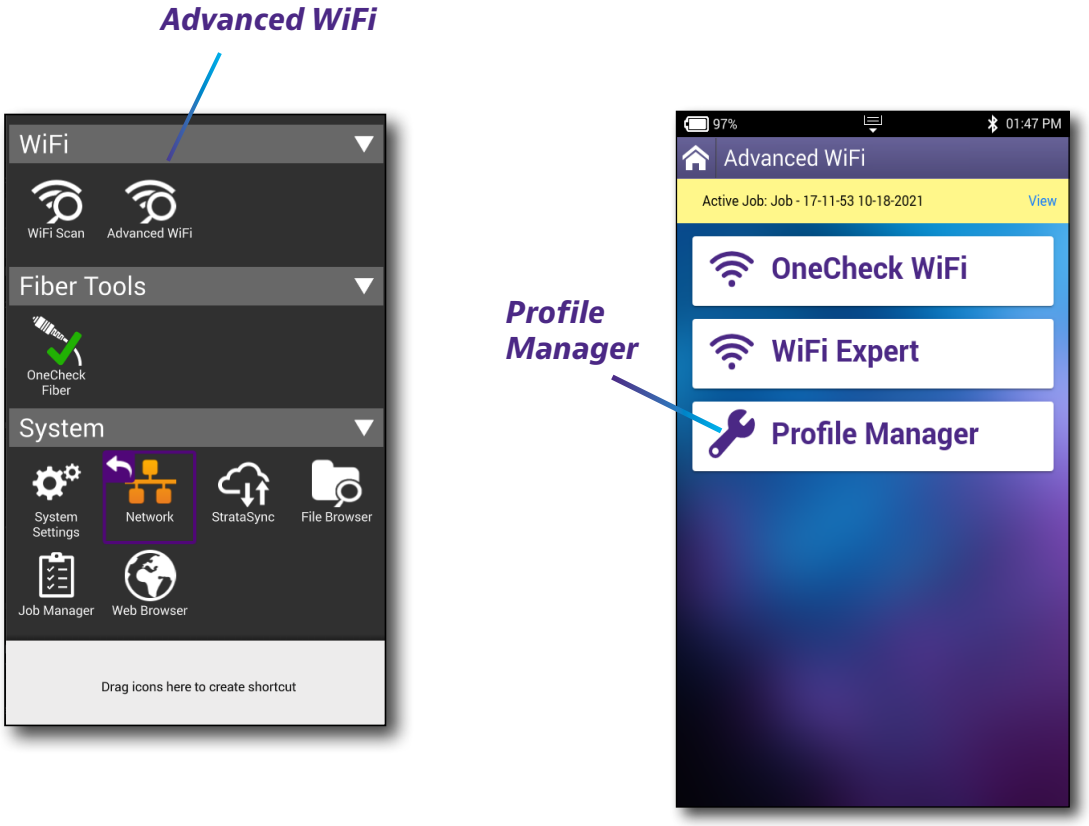
Profile Manager

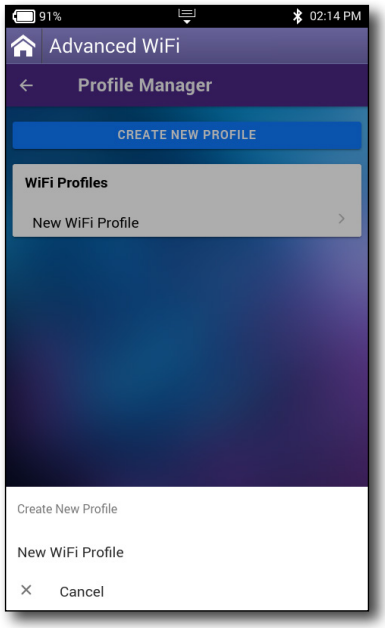
You can use the **Profile Manager** to set up and manage testing profiles for your meter. Default profiles are included, but you can also customize your own.

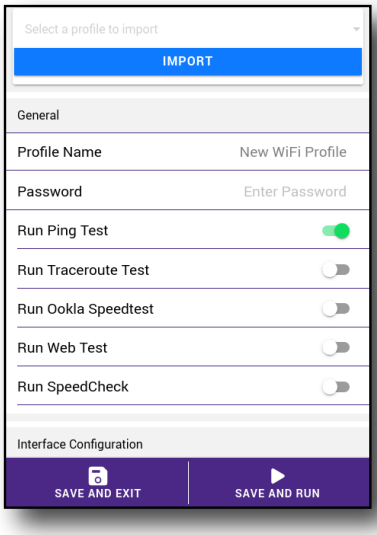
See the following sections that detail the setup for the testing profiles.

Creating a profile

1. From the WiFi menu, select **Advanced WiFi**, and then **Profile Manager**. The Profile Manager screen appears.
2. Select **Create New Profile** at the top.
3. From the pop-up at the bottom, select **New WiFi Profile**. The Profile Editor screen appears.
4. From there, you can import an existing profile to edit or enter the connection details for the new one.
5. When finished, select **Save and Exit** at the bottom, or **Save and Run** to run the test immediately.







Profile setup

Use these settings to enable what test you want to run for each profile and customize for your network.

General

- Profile Name
- Password
- Run Ping Test
- Run Traceroute Test
- Run Ookla Speedtest
- Run Web Test
- Run SpeedCheck

Interface Configuration

- Interface Type
- RSSI Threshold

Data Interface

- Interface Protocol
- Address Type – DHCP or Static

WiFi Expert Configuration

- Estimated Throughput (Mbps)
- Airtime Percent (%)
- Noise Floor (dBm)

Ping Configuration

- Run Ping Test
- Server
- Tx Count (1-100000000)
- Tx Size (24-2000)
- Tx Packet Interval (ms)
- Max Loss Threshold (%)

Traceroute Configuration

- Run Traceroute Test
- Destination IP / DNS Name
- DNS Lookup
- Packet Type
- Max Hops
- Max Delay Threshold (ms)

Ookla Configuration

- Run Ookla Speedtest
- Auto Server
- Server URL
- Server Location
- Number of Connections
- Upload Threshold (Mbps)
- Download Threshold (Mbps)

SpeedCheck Configuration

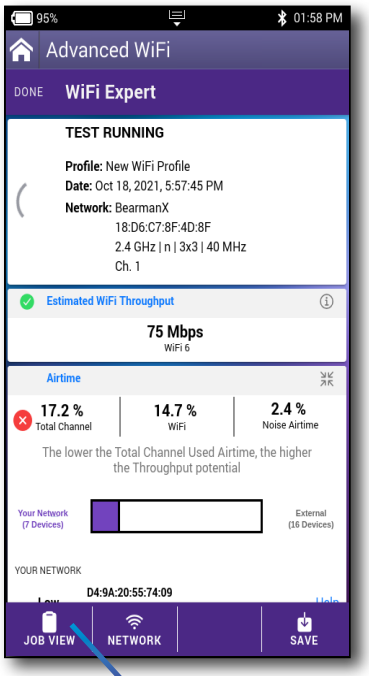
- Run SpeedCheck
- Upload Duration (s)
- Upload URL
- Download Duration (s)
- Download URL
- Upload Threshold (Mbps)
- Download Threshold (Mbps)

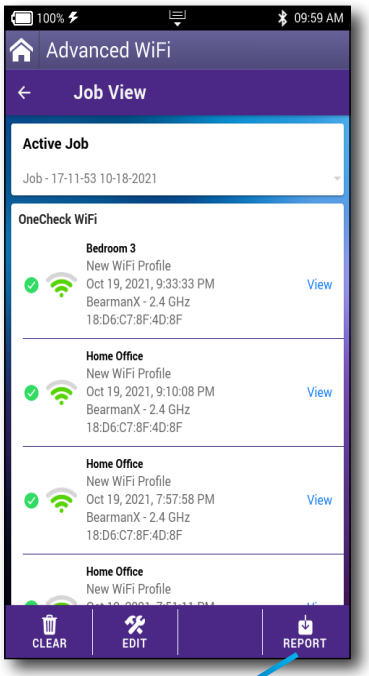
Creating a report

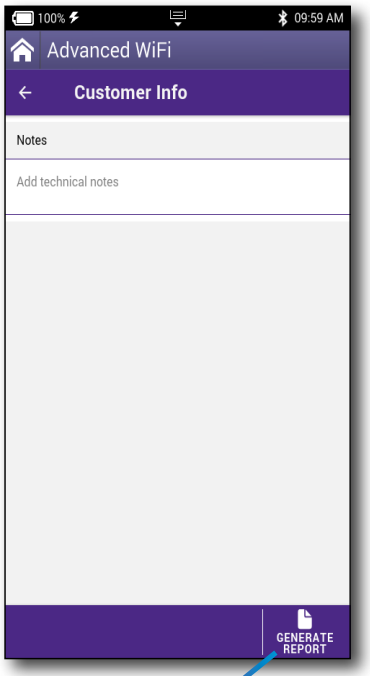
After running a test, you can save test results, configuration settings, and graphs as a report.

1. At the bottom of the test screen, select **Job View**.
2. Select the test you want to create a report for and then **Report** at the bottom of the screen.
3. Enter the work order, customer info, and any notes for the report and select **Generate Report**.

   The report will be created and saved to the meter. You can then export to your mobile device and email to your customer. See *"Managing files" on page 213.*



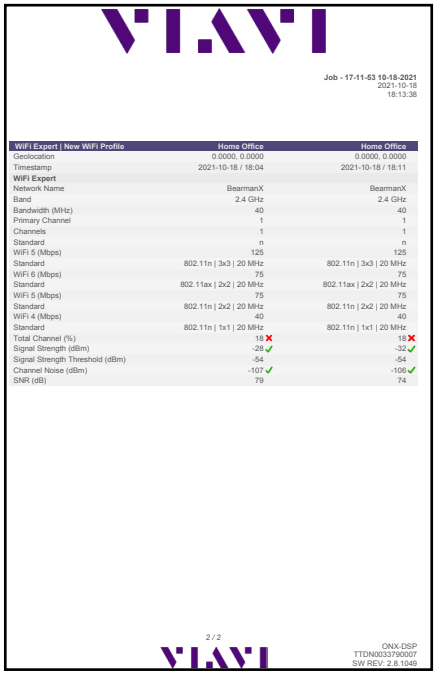




Job View

Report

Generate Report



Job - 17-11-53 10-18-2021
2021-10-18
18:13:38

WiFi Expert | New WiFi Profile	Home Office	Home Office
Geolocation	0.0000, 0.0000	0.0000, 0.0000
Timestamp	2021-10-18 / 18:04	2021-10-18 / 18:11
WiFi Expert		
Network Name	BearmanX	BearmanX
Band	2.4 GHz	2.4 GHz
Bandwidth (MHz)	40	40
Primary Channel	1	1
Channels	1	1
Standard	n	n
WiFi 5 (Mbps)	125	125
Standard	802.11n | 3x3 | 20 MHz	802.11n | 3x3 | 20 MHz
WiFi 6 (Mbps)	75	75
Standard	802.11ax | 2x2 | 20 MHz	802.11ax | 2x2 | 20 MHz
WiFi 5 (Mbps)	75	75
Standard	802.11n | 2x2 | 20 MHz	802.11n | 2x2 | 20 MHz
WiFi 4 (Mbps)	40	40
Standard	802.11n | 1x1 | 20 MHz	802.11n | 1x1 | 20 MHz
Total Channel (%)	16 ✗	16 ✗
Signal Strength (dBm)	-28 ✓	-32 ✓
Signal Strength Threshold (dBm)	-54	-54
Channel Noise (dBm)	-107 ✓	-106 ✓
SNR (dB)	79	74

2 / 2

ONX-DSP
TTDN0033790007
SW REV: 2.8.1049

WiFi reports

For a more detailed discussion of the results produced by this test, see *"Test Results" on page 220.*

Deleting a report

You can delete reports from the File Manager menu or from Mobile Tech. See *"Managing files" on page 213.*

Testing the data layer

Using the data layer tests, you can test for connectivity and throughput. See *"Data Testing" on page 105.*

9

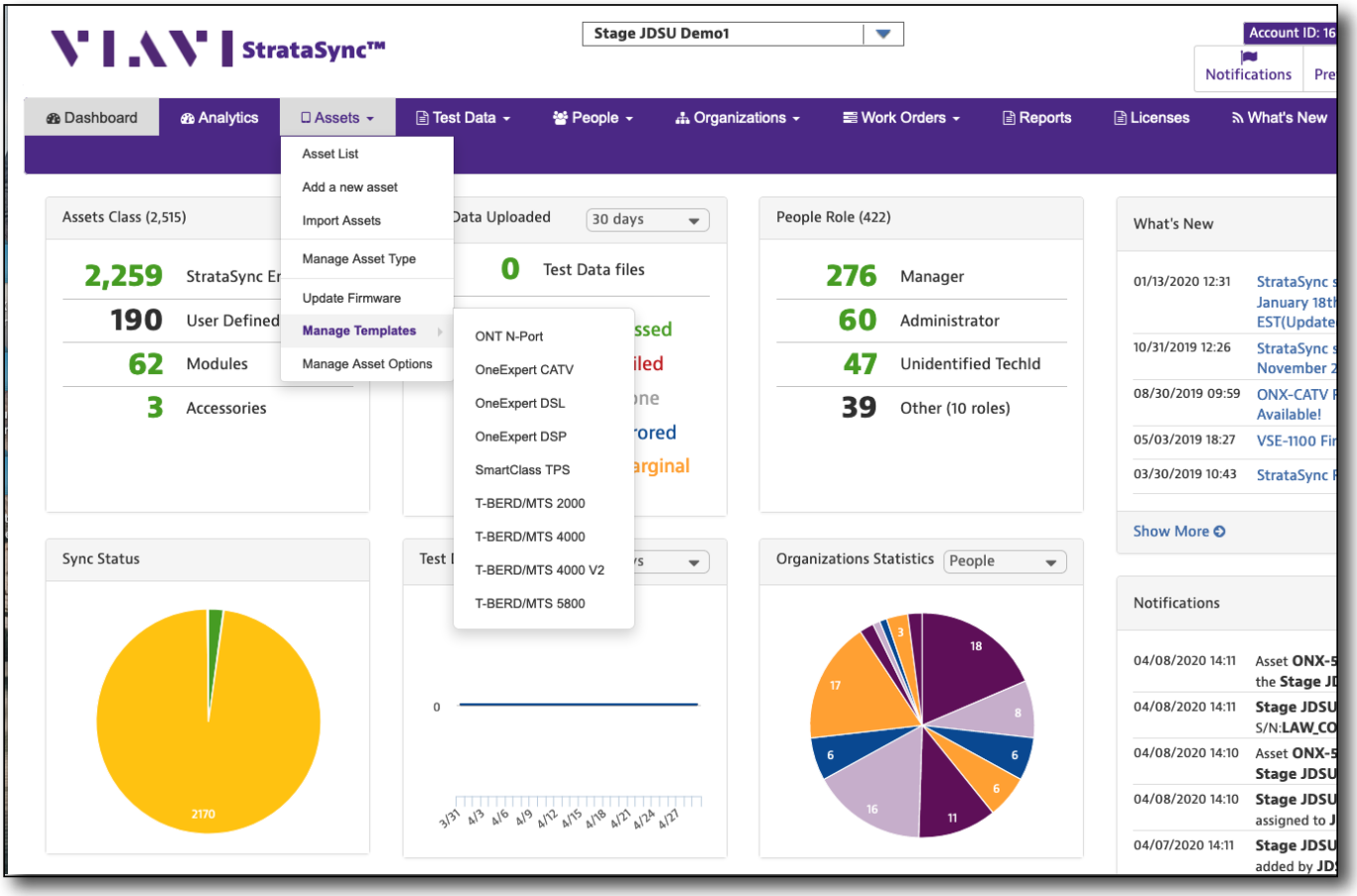
Configuring the OneExpert with StrataSync

This chapter provides configuration information for applications that must be configured via StrataSync, including the following:

Configuration Templates

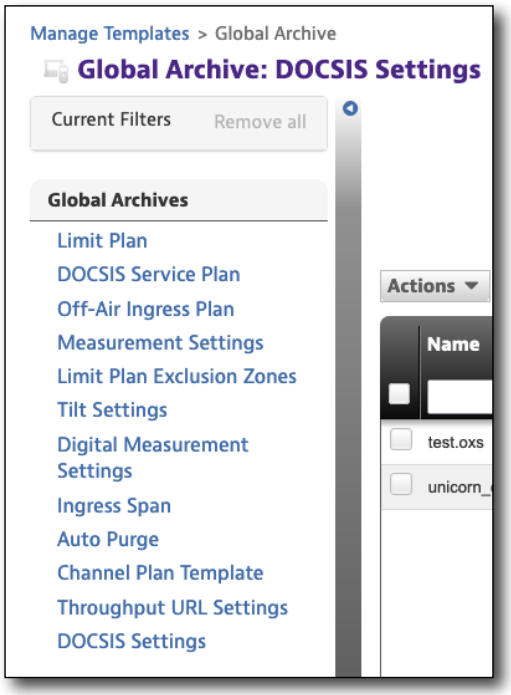
All high-level features for StrataSync are accessible from the main menu.

The configuration templates for OneExpert are accessed via the **Assets** menu in the tool bar.



XPERTrak Main Dashboard

Upon entering the Template screen, it will be blank. To display a particular type of template, select one of the options under **Global Archives**.



Configuration via StrataSync is available for the following:

- Limit plans
- DOCSIS service plans
- Off-air ingress plans
- Measurement settings
- Limit plan exclusion zones
- Tilt settings
- Digital measurement settings
- Ingress spans
- Auto purge
- Channel plan templates
- Throughput URL settings
- DOCSIS settings

Limit Plans

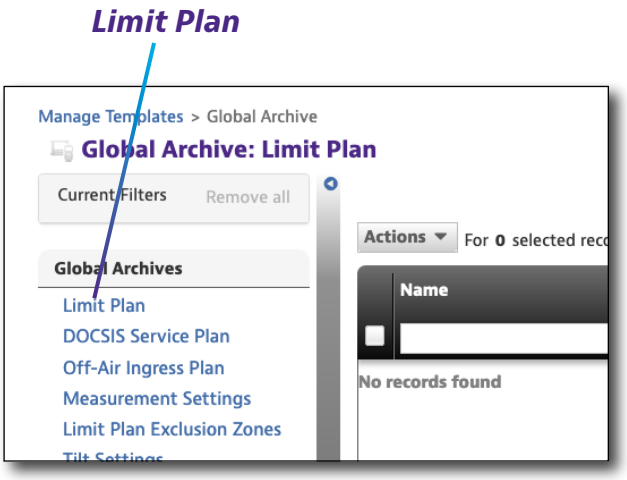
Limit Plans determine when a test result will end up being a Pass or Fail or if any result should be determined at all for that measurement.

There are currently three locations available for limit settings – Tap, Ground Block, and CPE.

Limit Plan Configuration

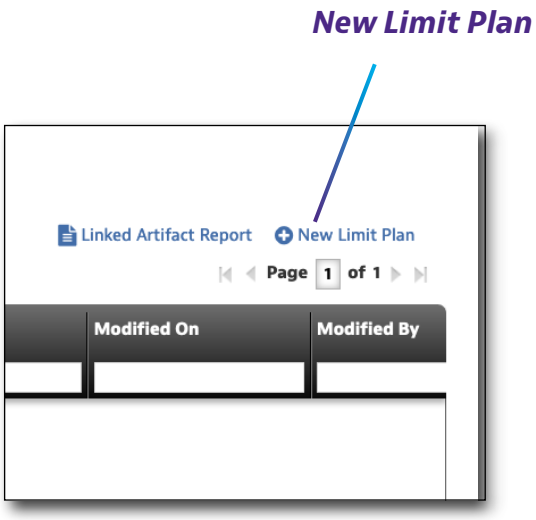
Before a limit plan can be deployed, the parameters of the circuit point available for limit testing must have limit values and conditions applied to them.

You can find Limit Plans through the **Global Archives** pane on the left side of the StrataSync Manage Templates screen. The Limit Plan screen appears.



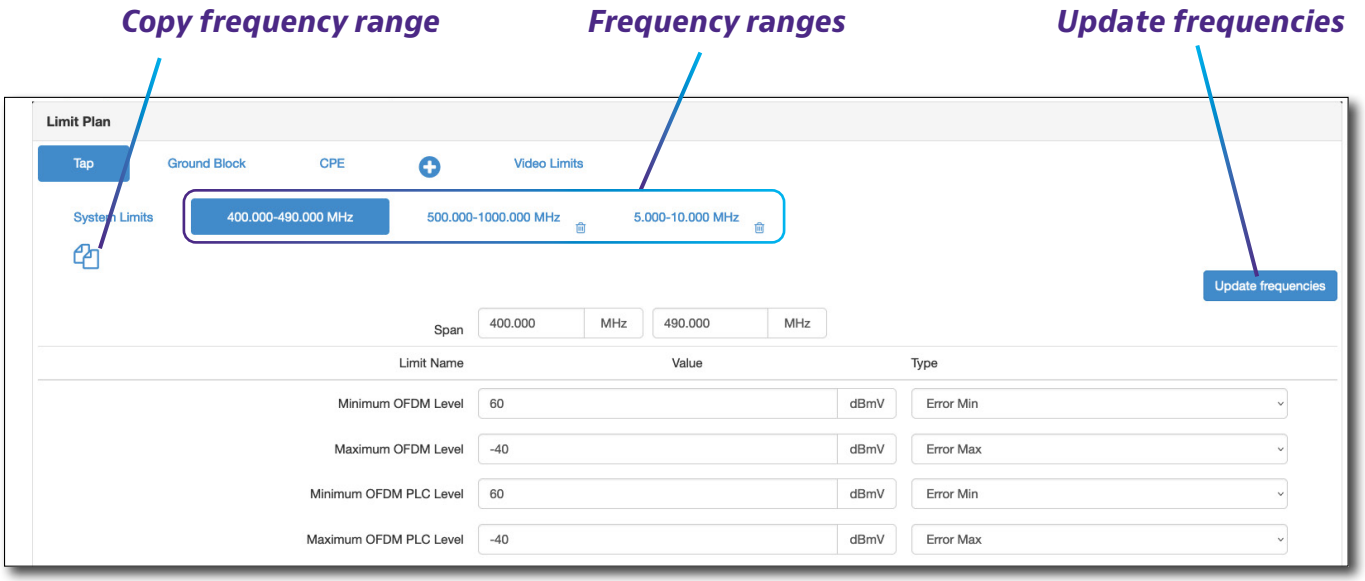
New Limit Plans

1. From the Limit Plan screen, select the **New Limit Plan** button in the upper right corner of the screen. The Create Limit Plan screen appears.
2. Enter the desired name and optional description.
3. When the desired data has been entered, select the **Create** button. The Limit Plan template appears.



Limit Plan Configuration

Limit Plans determine when a test result will end up being a pass or fail, or if any result should be determined at all for that measurement.



Three locations are currently available for different limits to be set:

- Tap
- Ground block
- CPE location

New locations can be added using the plus button.

For each item, a value can be entered that corresponds to the limits of that measurement at that location.

The type of limit is also selectable:

- **Error** – Pass if results meet the limit requirements or fail if results exceed limits.
- **Warning** – Pass but no fail; the measurement is highlighted to bring attention to the result that has exceeded the limit.
- **None** – Test result is shown but no pass or fail criteria is applied to the result.

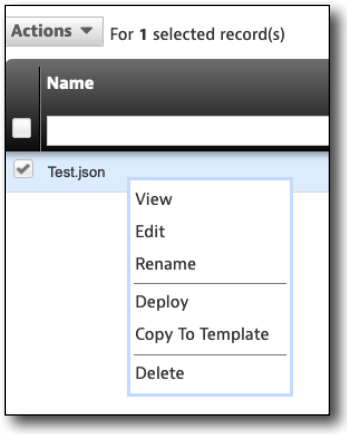
Adding Frequency-Based Limit Ranges

You can now add frequency-based limit ranges for limit plans with upstream ingress scan and downstream OFDM limits.

Select **Copy frequency range** to copy the current frequency range, then modify as needed below. The range will appear at the top with the existing ranges. When finished, click **Update frquencies** to update.

Viewing, Editing, Renaming, or Deleting a Limit Plan

1. Check the box in front of the desired limit plan.
2. Select the **Action** button above the left side of the list pane. The Actions dropdown appears.
3. Select **View, Edit, Rename, or Delete** from the dropdown list and change or confirm from the following screen.



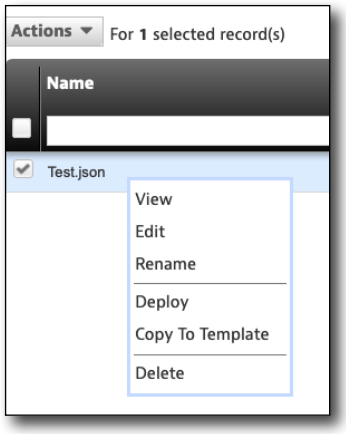
For deployment, see Limit Plan Deployment in the next section.

Saving Limit Plans

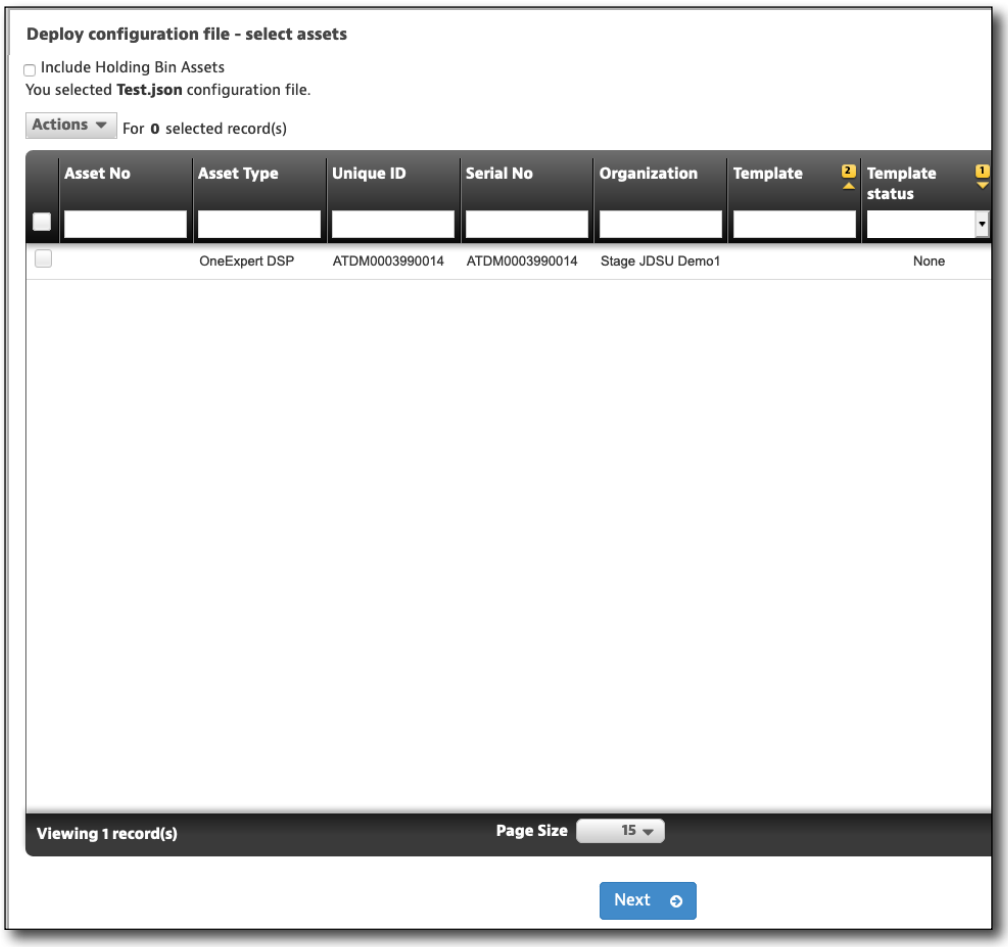
When all values have been entered, select **Save**.

Limit Plan Deployment

Only one limit plan can be deployed at a time to any meter. Saved limit plans can be deployed to one, many, or all units available to the StrataSync server.



1. From the Limit Plan screen, check the box in front of the limit plan in the list you would like to deploy.
2. Right-click or select the **Actions** button above the upper left side of the list screen.
3. Select **Deploy** from the list. The meter selection list appears.
4. Select the meter(s) to which you would like to deploy the plan.
    - Click the box in front of each meter to receive the deployment
    - To deploy to all meters in the list, select the checkbox in the header of the first column.
5. After all desired meters have been checked, select the **Next** button. A message will appear confirming the deployment.



DOCSIS Service Plans

DOCSIS service plans enable editing of throughput servers and configuration of up to five different MAC addresses.

VOIPCheck server limits can also be configured, for future use, even though the ONX does not perform VoIP Check at this time.

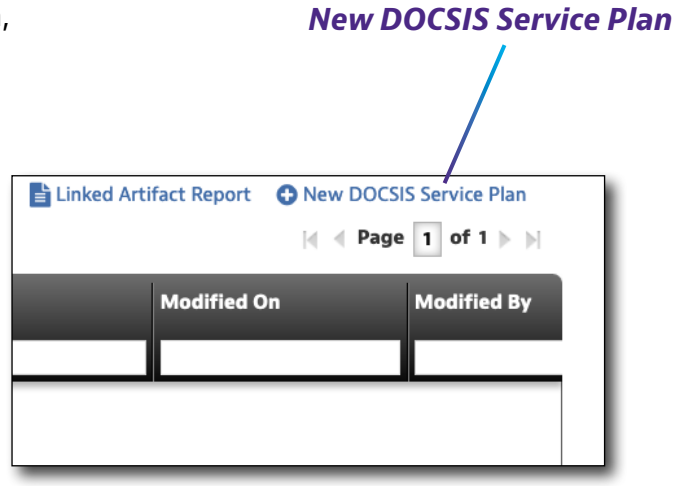
DOCSIS Service Plan Configuration

The configuration data for each of the ONX's 5 different cable modem MAC addresses can be configured independently via the DOCSIS plan. Additionally, the parameters of the DOCSIS IP performance can have limit values and conditions applied to them.

You can find DOCSIS Service Plans through the **Global Archives** pane on the left side of the StrataSync Manage Templates screen. The DOCSIS Service Plan screen appears.

New DOCSIS Service Plans

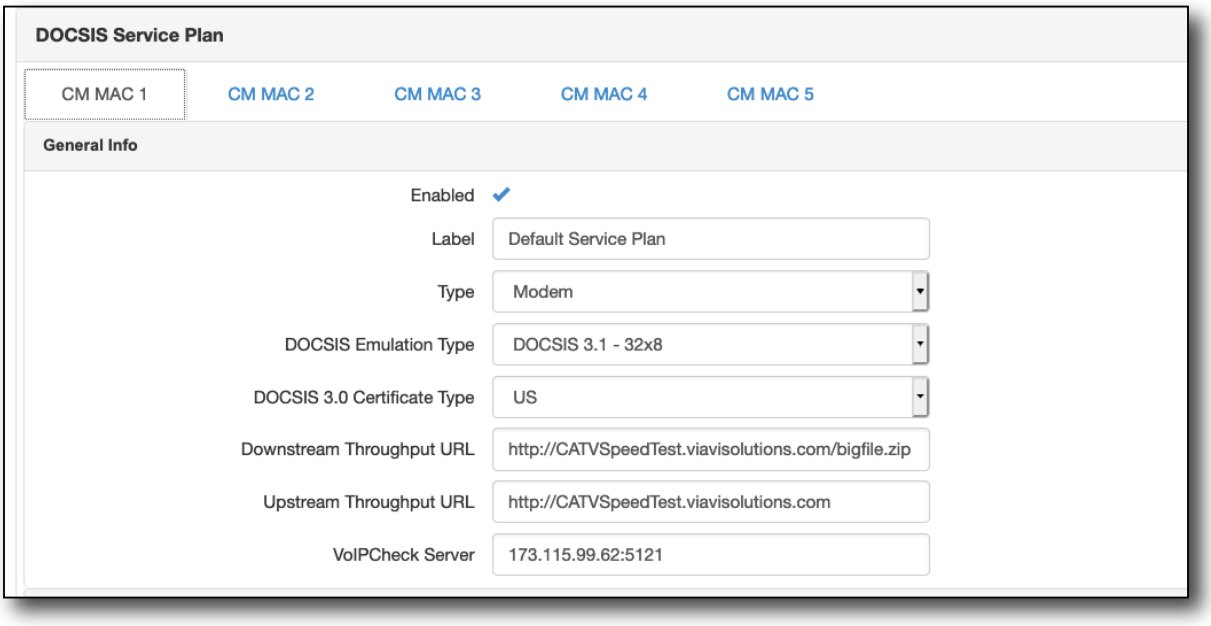
1. From the DOCSIS Service Plan screen, select the **New DOCSIS Service Plan** button on the upper right of the screen. The Create DOCSIS Service Plan screen appears.
2. Enter the name (required) and description if desired.
3. Select the **Create** button. The DOCSIS Service Plan template appears.



General Info

The five different cable modem MAC addresses on the ONX can be configured independently. The general information that can be assigned for each of the MAC addresses include:

- **Label** – The name that appears on the ONX under the Registration Information presented during a DOCSIS test to ensure the proper service plan was selected.
- **Type** – Type of device
- **DOCSIS emulation type** – DOCSIS 3.0 (8x4, 16x4, 24x4, 32x4) and DOCSIS 3.1 32x8
- **DOCSIS 3.0 certificate type –** US or Euro
- **Downstream Throughput URL** – The IP/URL address and file name of the HTTP server and test file that the ONX will use to download and calculate downstream throughput speeds (Ex: http://testurl.com/testfile.zip or http://12.34.56.78/testfile.zip)
- **Upstream Throughput URL** – The IP/URL address of the HTTP server the ONX will use to send data to and calculate upload throughput speeds. Typically it is the same IP/URL as downstream.
- **VOIPCheck Server** – If a VoIPCheck reflection server is available this can be entered into the VoIPCheck Server field.



Data Limits

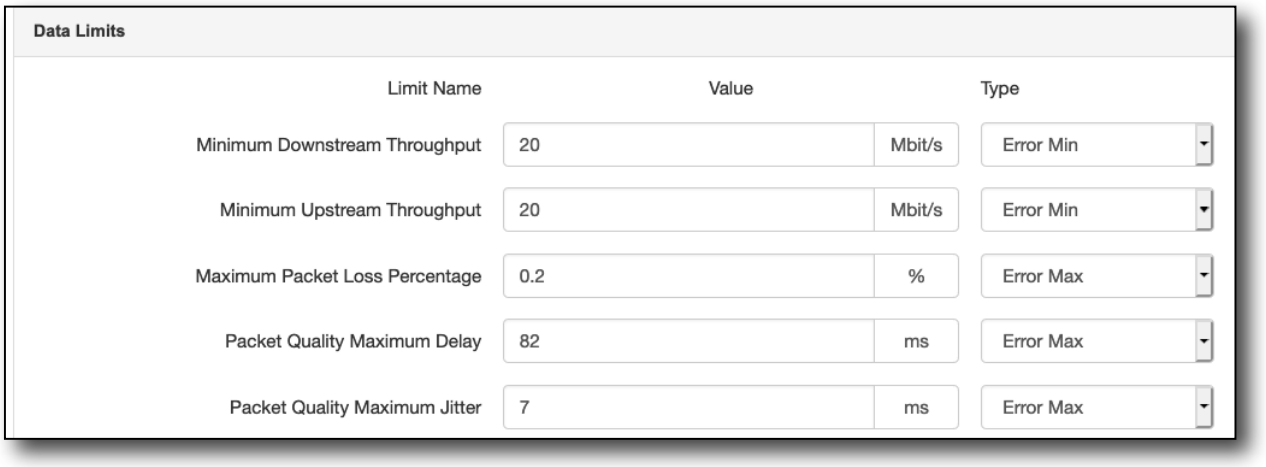
The data limits and their desired type that can be assigned for each of the MAC addresses, including:

- Minimum downstream throughput
- Minimum upstream throughput
- Maximum packet loss percentage
- Packet quality maximum delay
- Packet quality maximum jitter

For each item a value can be entered that corresponds to the limits of that measurement at that location.

The Type of limit is also selectable:

- **Error** – Pass if results meet the limit requirements or fail if results exceed limits
- **Warning** – Pass but no fail. The measurement is highlighted to bring attention to the result that has exceeded the limit
- **None** – Test result is shown but no pass or fail criteria is applied to the result.



VoIPCheck Limits

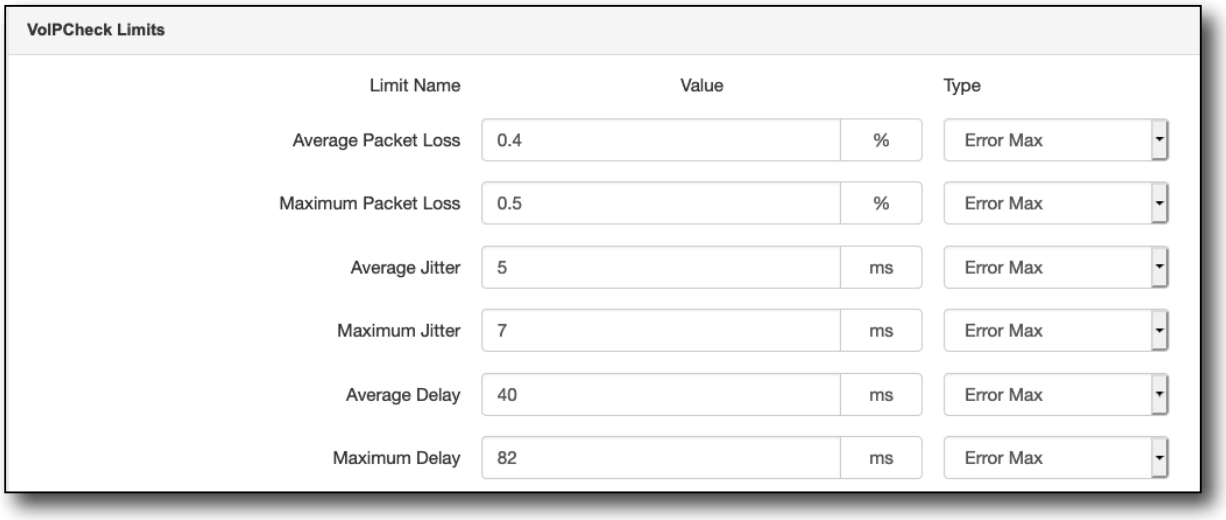
The VoIPCheck limits and their desired type that can also be assigned for each of the MAC addresses, including:

- Average packet loss
- Maximum packet loss
- Average jitter
- Maximum jitter
- Average delay
- Maximum delay

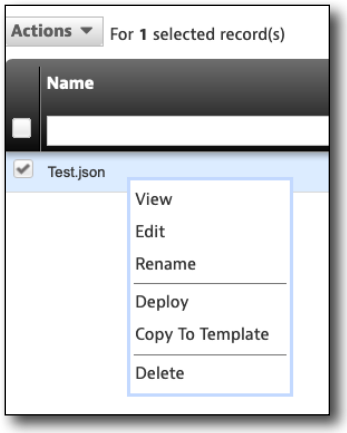
For each item a value can be entered that corresponds to the limits of that measurement at that location.

The Type of limit is also selectable:

- **Error** – Pass if results meet the limit requirements or fail if results exceed limits
- **Warning** – Pass but no fail. The measurement is highlighted to bring attention to the result that has exceeded the limit
- **None** – Test result is shown but no pass or fail criteria is applied to the result.



Viewing, Editing, Renaming, or Deleting a DOCSIS Plan



1. Check the box in front of the desired DOCSIS Plan.
2. Select the **Action** button above the left side of the list pane. The Actions dropdown appears.
3. Select **View, Edit, Rename,** or **Delete** from the dropdown list and change or confirm from the following screen.

For deployment, see DOCSIS Service Plan Deployment in the next section.

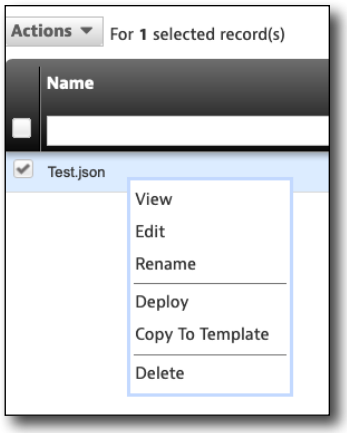
Saving DOCSIS Service Plans

When all values have been entered, select **Save**.

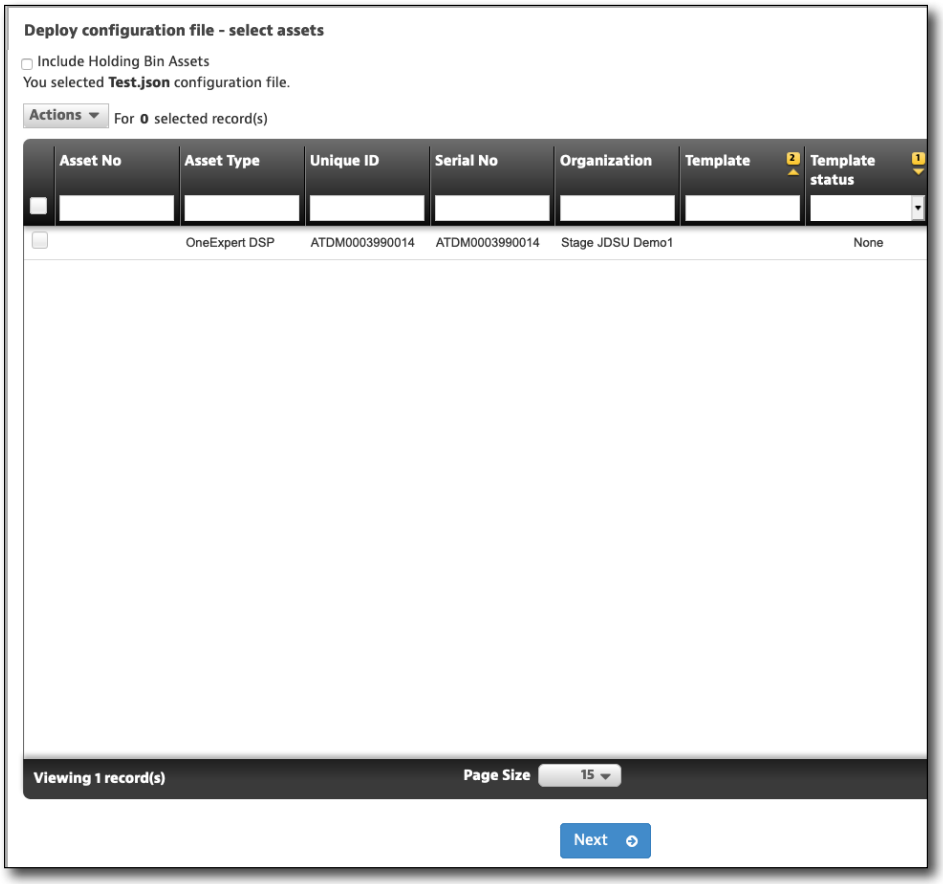
DOCSIS Service Plan Deployment

Only one DOCSIS Service plan can be deployed at a time to any meter.

Saved DOCSIS service plans can be deployed to one, many, or all units available to the StrataSync server.



1. From the DOCSIS Service Plan screen, check the box in front of the plan in the list you would like to deploy.
2. Right-click the **Actions** button above the upper left side of the list screen.
3. Select **Deploy** from the list. The meter selection list appears.
4. Select the meter(s) to which you would like to deploy the plan.
    - Click the box in front of each meter to receive the deployment
    - To deploy to all meters in the list, select the checkbox in the header of the first column.
5. After all desired meters have been checked, select the **Next** button. A message will appear confirming the deployment.



Off-Air Ingress Plans

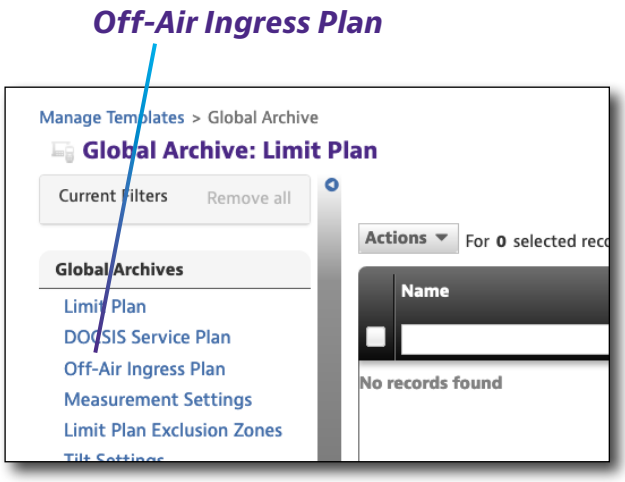
The Off-Air Ingress plan provides the ability to define where to search for off-air ingress in OneCheck and set the limits for pass/fail/warn indications.

Off-air ingress plans are used to designate which frequencies the ONX will measure during the OneCheck test for ingress interferers in the downstream frequency range. This ingress test is often used to find LTE or terrestrial broadcast interferers on the Hybrid Fiber-Coax network.

Also, if a QAM carrier is in the band, the ONX uses its Ingress Under the Carrier feature to see the noise floor below a QAM channel. If the spectrum is vacant the ONX will look at the spectral response in the band(s) to see if the limit is exceeded.

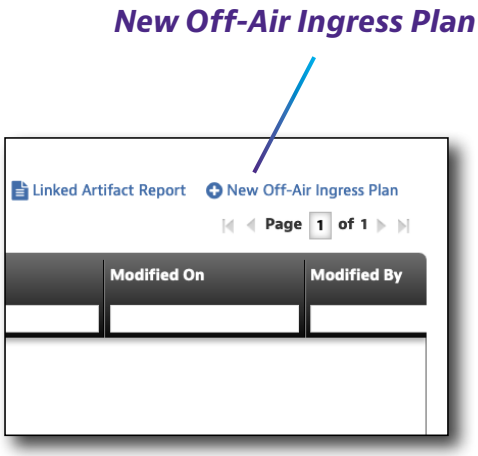
Off-Air Ingress Plan Configuration

You can find Off-air Ingress Plans through the Global Archives pane on the left side of the StrataSync Manage Templates screen. The Off-Air Ingress Plan screen appears.



New Off-Air Ingress Plans

1. From the Off-Air Ingress Plan screen, select the **New Off-Air Ingress Plan** button in the upper right corner of the screen. The Create Off-Air Ingress Plan screen appears.
2. Enter the desired name and optional description.
3. When the desired data has been entered, select the **Create** button. The Off-Air Ingress Plan template appears.



Off-Air Ingress Band

Each Ingress band to be tested has five fields to specify:

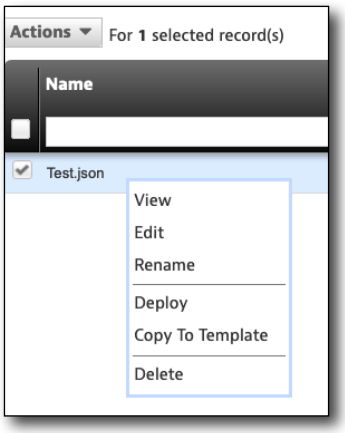
- Label
- Start frequency
- Stop frequency
- Limit
- Limit type

For each item a value can be entered that defines the ingress interferers to be tested.

To add or delete Off-Air Ingress bands from the list. Use the green (+) or red (-) buttons.

Viewing, Editing, Renaming, or Deleting an Off-Air Ingress Plan

1. Check the box in front of the desired Off-Air Ingress Plan.
2. Select the **Action** button above the left side of the list pane. The Actions dropdown appears.
3. Select **View, Edit, Rename,** or **Delete** from the dropdown list and change or confirm from the following screen.



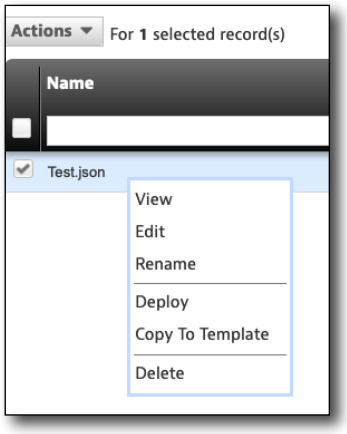
Saving Off-Air Ingress Plan

When all values have been entered, select **Save**.

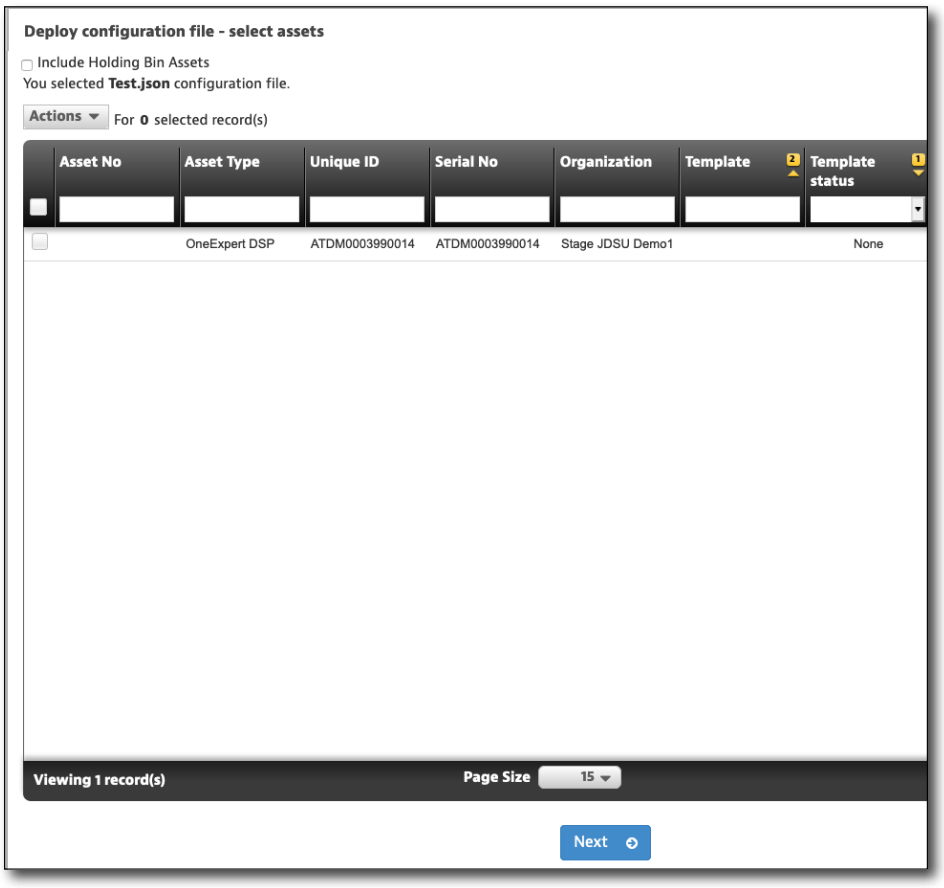
Off-Air Ingress Plan Deployment

Only one Off-Air Ingress plan can be deployed at a time to any meter.

Saved Off-Air Ingress plans can be deployed to one, many, or all units available to the StrataSync server.



1. From the Off-Air Ingress Plan screen, check the box in front of the plan in the list you would like to deploy.
2. Right-click the **Actions** button above the upper left side of the list screen.
3. Select **Deploy** from the list. The meter selection list appears.
4. Select the meter(s) to which you would like to deploy the plan.
    - Click the box in front of each meter to receive the deployment
    - To deploy to all meters in the list, select the checkbox in the header of the first column.
5. After all desired meters have been checked, select the **Next** button. A message will appear confirming the deployment.

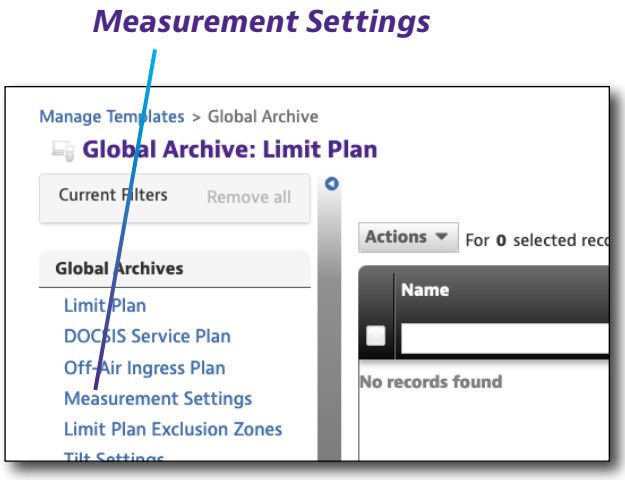


Measurement Settings

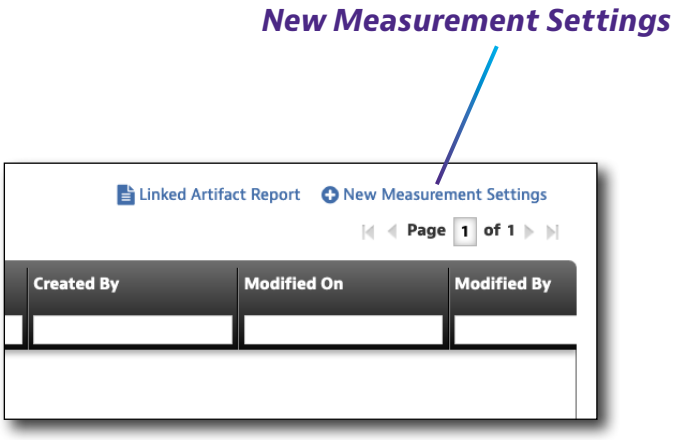
Measurement settings are used to determine if a DOCSIS test (range and registration) is performed and if DOCSIS service tests (throughput and packet loss) are performed when a OneCheck test is run. Application of the measurement settings are made to all locations: tap, ground block, and CPE.

Measurement Settings Configuration

You can find Measurement Settings through the **Global Archives** pane on the left side of the StrataSync Template screen.



New Measurement Settings



1. From the Measurement Settings Plans screen, select the **New Measurement Settings** button in the upper right corner of the screen. The Create Measurement Setting screen appears.
2. Enter the desired name and optional description.
3. When the desired data has been entered, select the **Create** button.

OneCheck Settings

There are several measurement settings to be configured:

- DOCSIS test
- DOCSIS service tests
- HL leakage test
- HL leakage squelch threshold
- HL leakage minimum running time
- Reset HL leakage equalized

DOCSIS Test – Determines whether a OneCheck test should perform a DOCSIS test (range and registration).

Enable – Test will communicate with the CMTS

Disable – The OneCheck test will only run the Ingress and Downstream channel tests

DOCSIS Service Tests – Determines whether a OneCheck test should also perform IP service (throughput & packet loss) tests. Only available if DOCSIS Test is enabled.

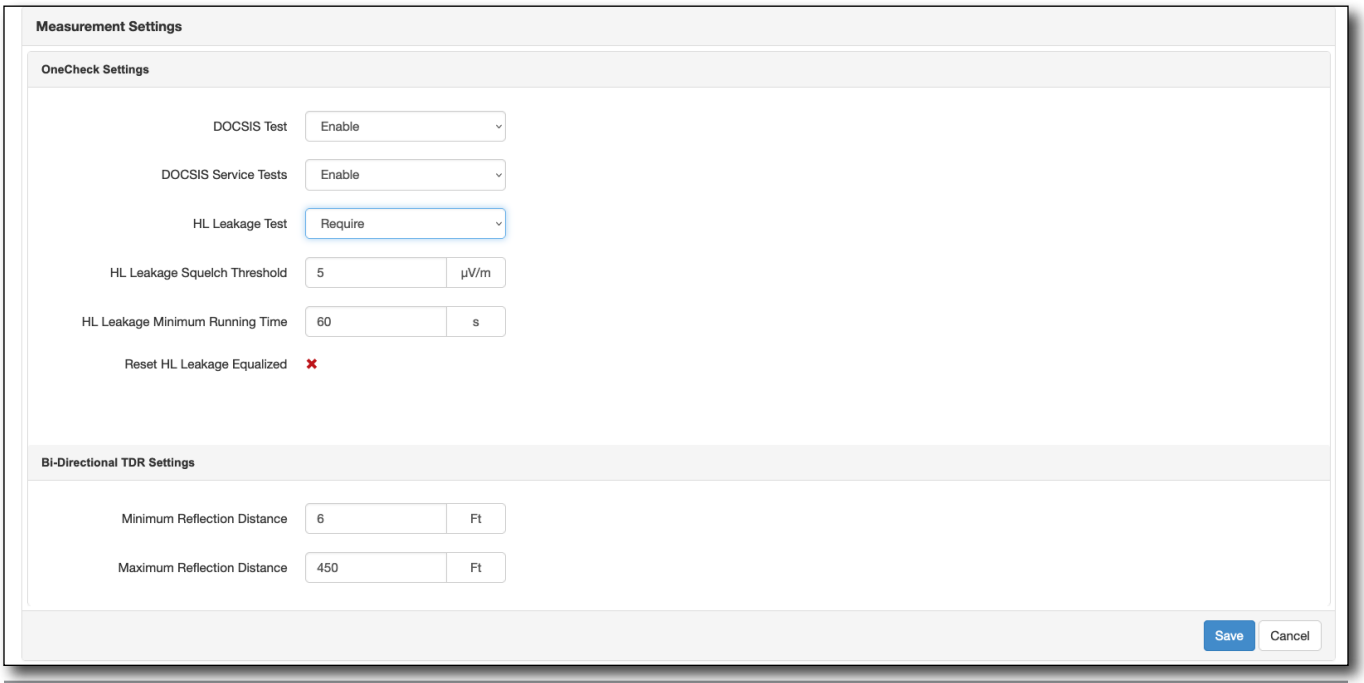
Enable – Will perform IP service test

Disable – IP service test not performed

Bi-Directional TDR Settings

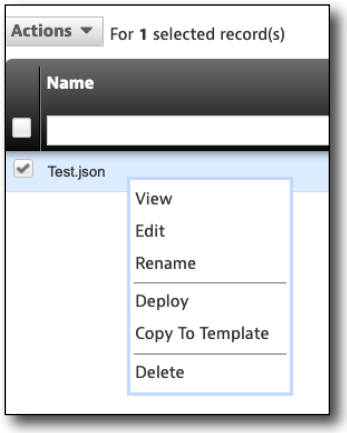
There are several measurement settings to be configured:

- Minimum reflection distance
- Maximum reflection distance



Viewing, Editing, Renaming or Deleting a Measurement Plan

1. Check the box in front of the desired Measurement Plan.
2. Select the **Action** button above the left side of the list pane. The Actions dropdown appears.
3. Select **View, Edit, Rename,** or **Delete** from the dropdown list and change or confirm from the following screen.



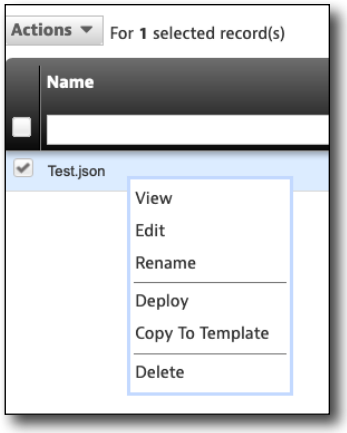
Saving Measurement Settings

When all values have been entered, select **Save**.

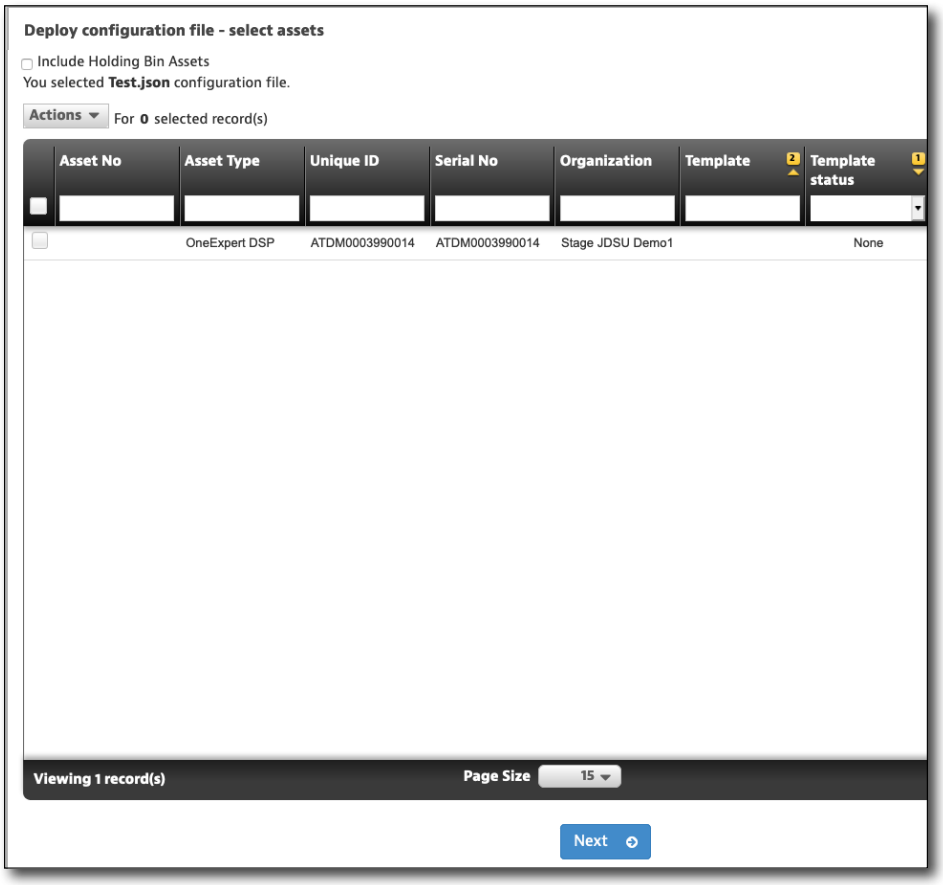
Measurement Settings Deployment

Only one set of measurement settings can be deployed at a time to any meter.

Measurement settings can be deployed to one, many or all units available to the StrataSync server.



1. From the Measurement Settings screen, check the box in front of the Measurement Settings in the list you would like to deploy.
2. Right-click the **Actions** button above the upper left side of the list screen.
3. Select **Deploy** from the list. The meter selection list appears.
4. Select the meter(s) to which you would like to deploy the plan.
    - Click the box in front of each meter to receive the deployment
    - To deploy to all meters in the list, select the checkbox in the header of the first column.
5. After all desired meters have been checked, select the **Next** button. A message will appear confirming the deployment.



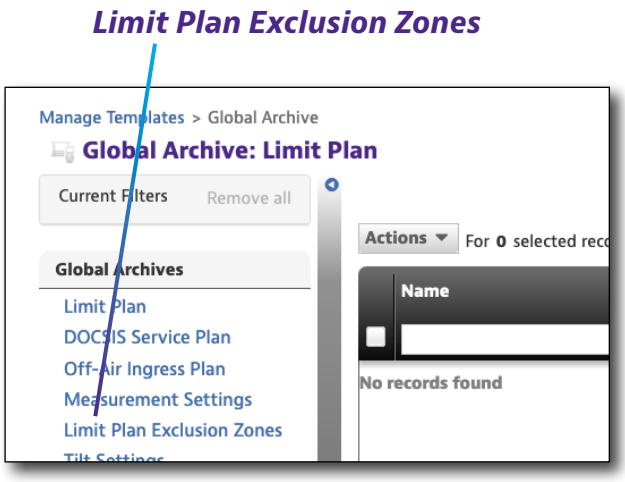
Limit Plan Exclusion Zones

You may have signals in your plant that you don't want wish to measure, or the spectrum has known interferers.

Creating Limit Plan Exclusion Zones allows you to configure if the channels in these zones will have limits ignored and still show the channels, or to completely ignore the channels altogether.

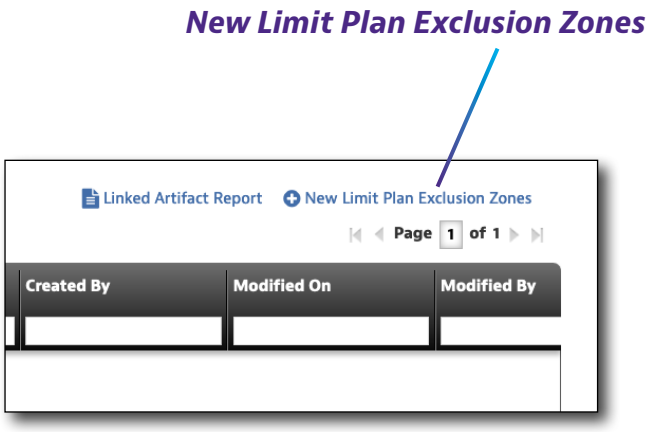
Limit Plan Exclusion Zone Configuration

You can find Limit Plan Exclusion Zones through the **Global Archives** pane on the left side of the StrataSync Manage Templates screen. The Limit Plan Exclusion Zones screen appears.



New Limit Plan Exclusion Zones

1. From the Limit Plan Exclusion Zones screen, select the **New Limit Plan Exclusion Zones** button on the upper right of the screen. The Create Limit Plan Exclusion Zones screen appears.
2. Enter the name (required) and description if desired.
3. Select the **Create** button. The Limit Plan Exclusion Zone template appears.

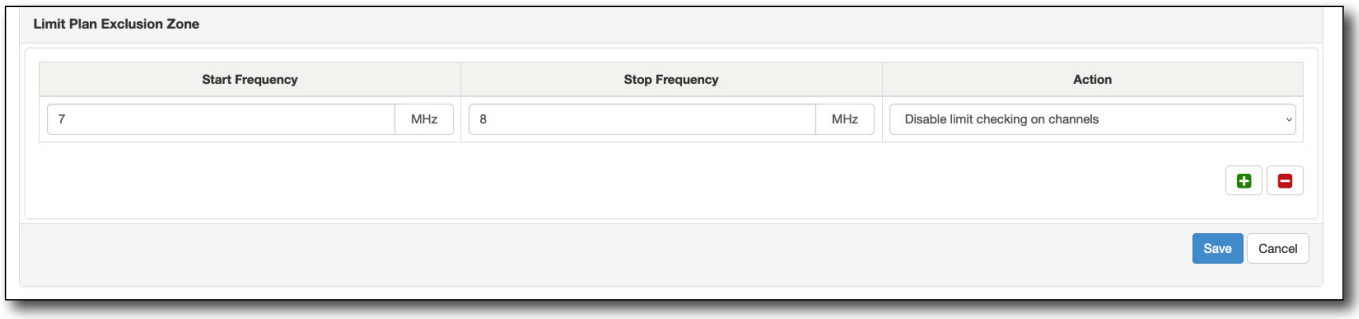


Limit Plan Exclusion Zone Configuration

Each limit plan exclusion zone includes the following fields:

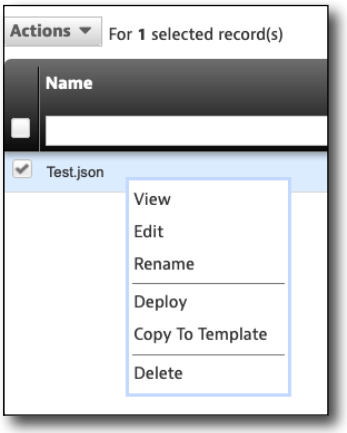
- Start frequency
- Stop frequency
- Disable limit checking on channels
- Disable all tests on channels

To add or delete exclusion zones from the list, use the green (+) or red (-) buttons.



Viewing, Editing, Renaming, or Deleting a Limit Plan Exclusion Zone

1. Check the box in front of the desired Limit Plan Exclusion Zone.
2. Select the **Action** button above the left side of the list pane. The Actions dropdown appears.
3. Select **View, Edit, Rename,** or **Delete** from the dropdown list and change or confirm from the following screen.



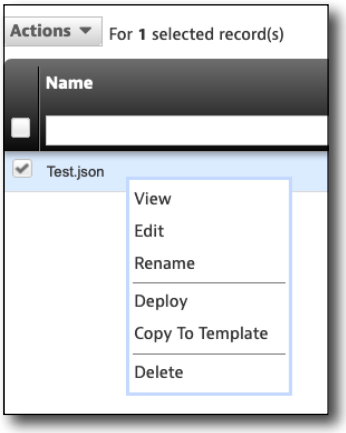
Saving Limit Plan Exclusion Zones

When all values have been entered, select **Save**.

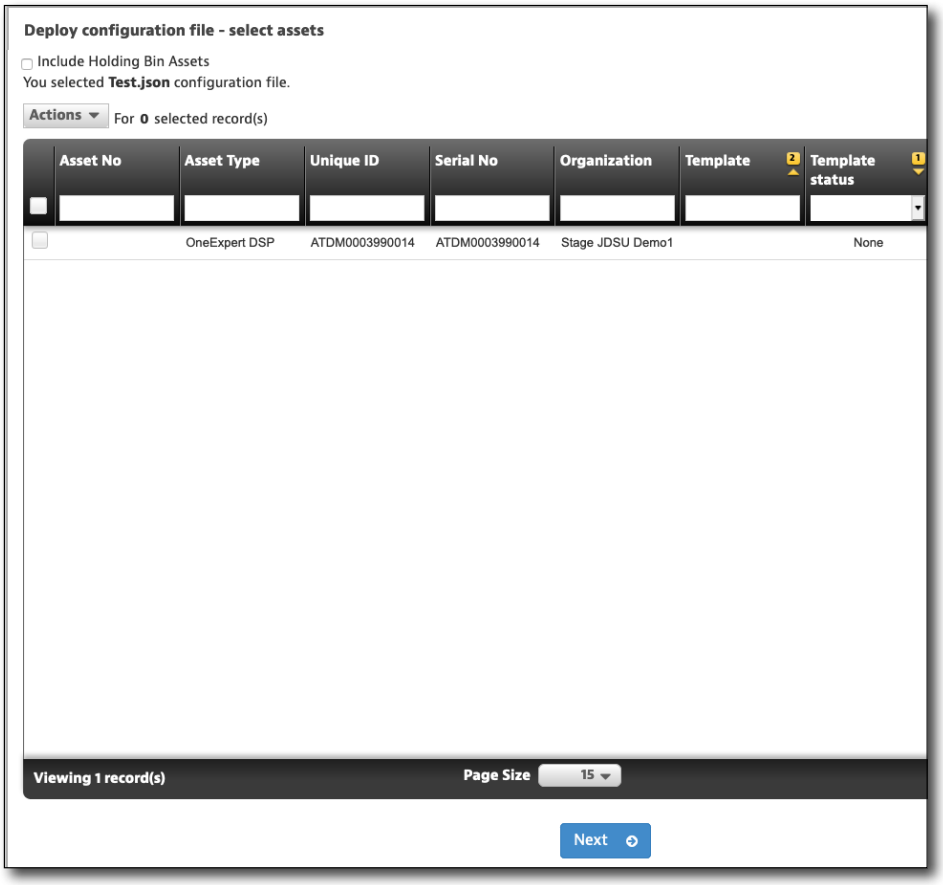
Limit Plan Exclusion Zone Deployment

Only one Limit Plan Exclusion Zone plan can be deployed at a time to any meter.

Saved Limit Plan Exclusion Zone plans can be deployed to one, many, or all units available to the StrataSync server.



1. From the Limit Plan Exclusion Zone screen, check the box in front of the plan in the list you would like to deploy.
2. Right-click the **Actions** button above the upper left side of the list screen.
3. Select **Deploy** from the list. The meter selection list appears.
4. Select the meter(s) to which you would like to deploy the plan.
    - Click the box in front of each meter to receive the deployment
    - To deploy to all meters in the list, select the checkbox in the header of the first column.
5. After all desired meters have been checked, select the **Next** button. A message will appear confirming the deployment.



Tilt Settings

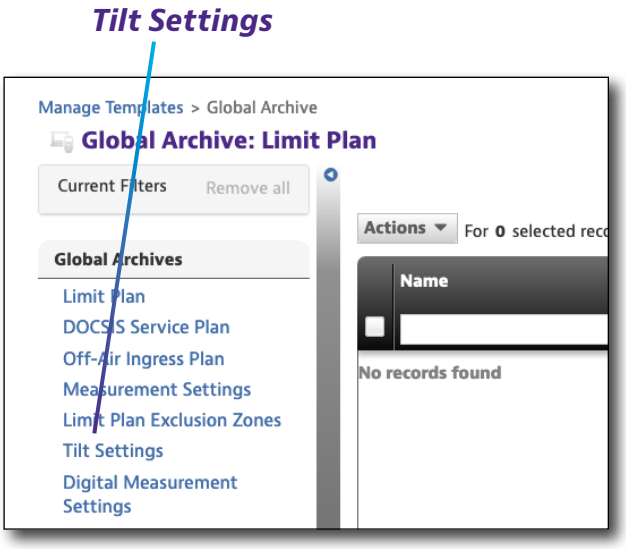
Titl Settings allows you to set the low and high frequencies for tilt (85–1218 MHz).

Tilt Settings Configuration

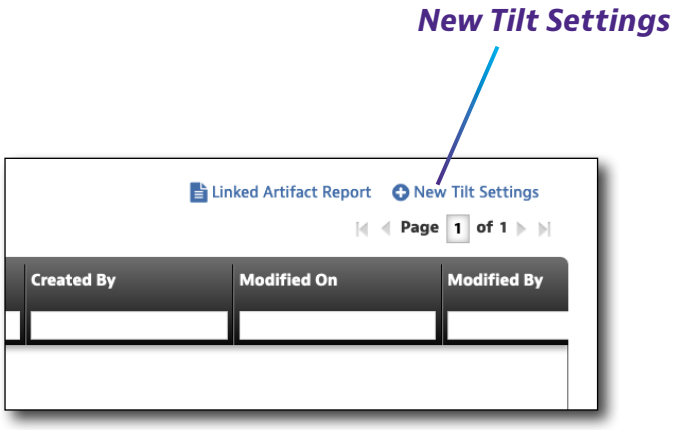
You can find Tilt Settings through the **Global Archives** pane on the left side of the StrataSync Manage Templates screen. The Tilt Settings screen appears.

New Tilt Settings

1. From the Tilt Settings screen, select the **New Tilt Settings** button on the upper right of the screen. The Create Tilt Settings screen appears.



2. Enter the name (required) and description if desired.
3. Select the **Create** button. The Tilt Settings template appears.



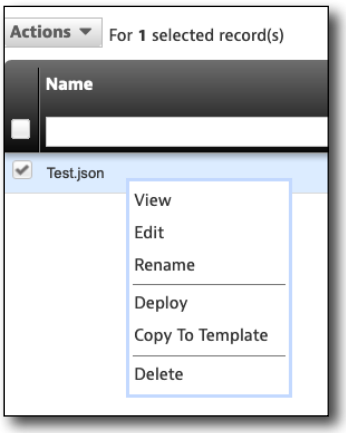
Tilt Settings

The tilt settings include the following fields:

- Low tilt channel
- High tilt channel

Viewing, Editing, Renaming, or Deleting Tilt Settings

1. Check the box in front of the desired Tilt Settings.
2. Select the **Action** button above the left side of the list pane. The Actions dropdown appears.
3. Select **View, Edit, Rename,** or **Delete** from the dropdown list and change or confirm from the following screen.



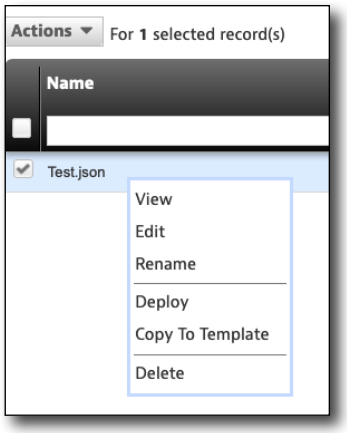
Saving Tilt Settings

When all values have been entered, select **Save**.

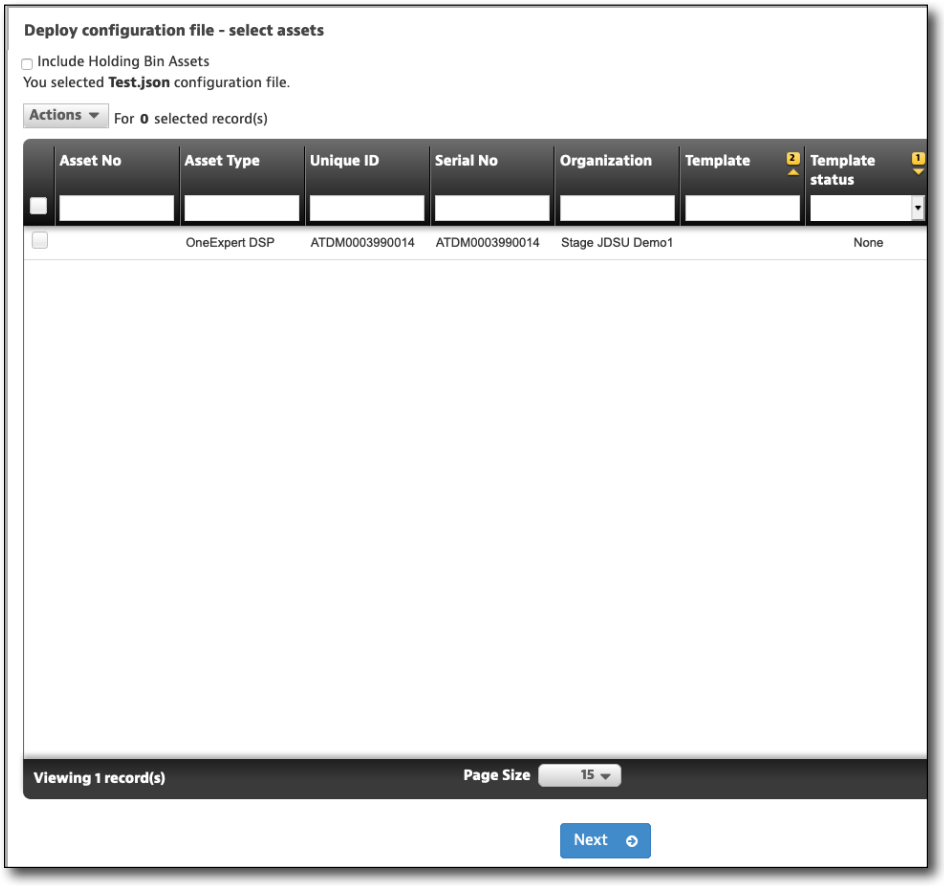
Tilt Settings Deployment

Only one Tilt Setting can be deployed at a time to any meter.

Saved Tilt Settings can be deployed to one, many, or all units available to the StrataSync server.



1. From the Tilt Settings screen, check the box in front of the plan in the list you would like to deploy.
2. Right-click the **Actions** button above the upper left side of the list screen.
3. Select **Deploy** from the list. The meter selection list appears.
4. Select the meter(s) to which you would like to deploy the plan.
    - Click the box in front of each meter to receive the deployment
    - To deploy to all meters in the list, select the checkbox in the header of the first column.
5. After all desired meters have been checked, select the **Next** button. A message will appear confirming the deployment.

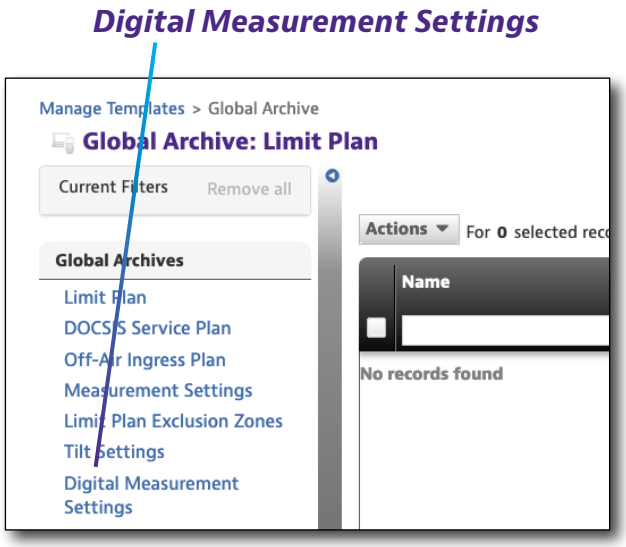


Digital Measurement Settings

Digital measurement settings allows you to set the BER (Bit Error Ratio) for ChannelCheck and OneCheck testing.

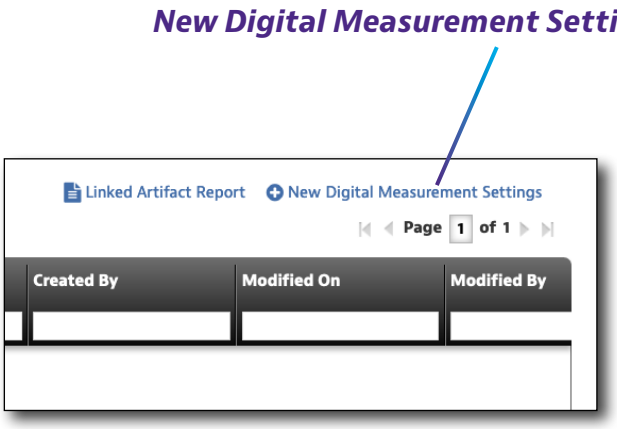
Digital Measurement Settings Configuration

You can find Digital Measurement Settings through the **Global Archives** pane on the left side of the StrataSync Manage Templates screen. The Digital Measurement Settings screen appears.



New Digital Measurement Settings

1. From the Digital Measurement Settings screen, select the **New Digital Measurement Settings** button on the upper right of the screen. The Create Digital Measurement Settings screen appears.
2. Enter the name (required) and description if desired.
3. Select the **Create** button. The Digital Measurement Settings template appears.

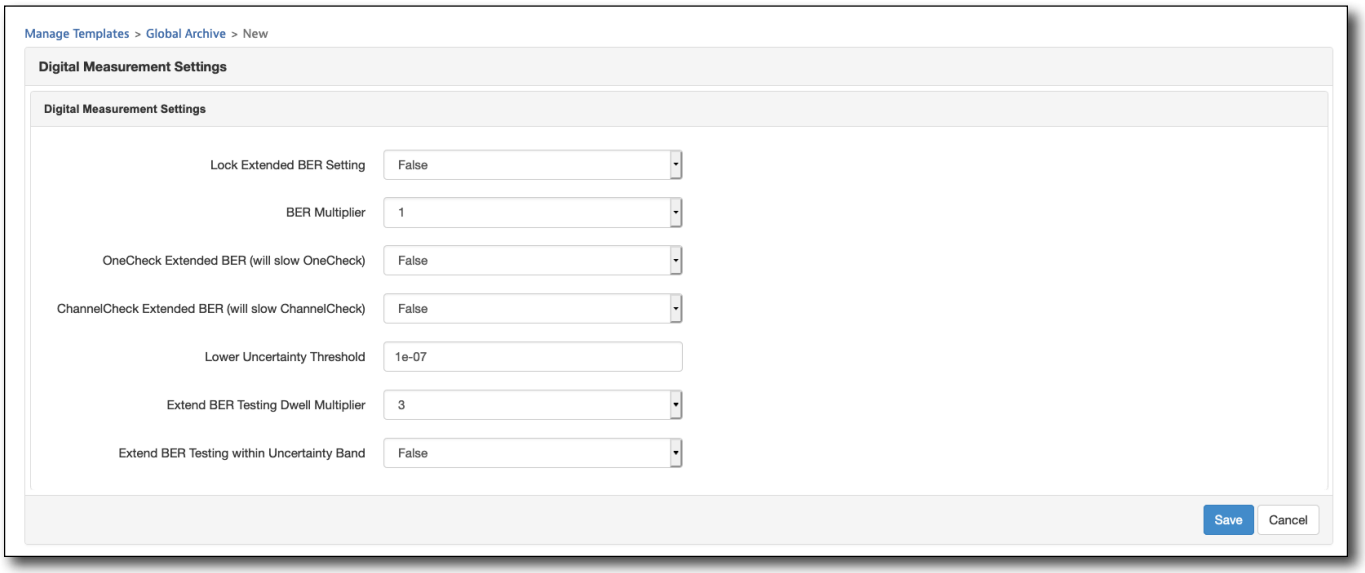


Digital Measurement Settings

The Digital Measurement Settings include the following fields:

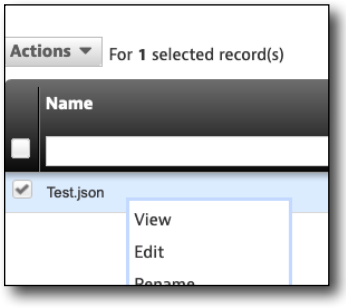
- Lock extended BER settings
- BER multiplier
- OneCheck Extended BER (will slow OneCheck)
- ChannelCheck Extended BER (will slow OneCheck)
- Lower uncertainty threshold
- Extended BER testing dwell multiplier
- Extended BER testing with uncertainty band

For some items, a value can be entered that corresponds to the limits of that measurement at that location.



Viewing, Editing, Renaming, or Digital Measurement Settings

1. Check the box in front of the desired Digital Measurement Settings.
2. Select the **Action** button above the left side of the list pane. The Actions dropdown appears.
3. Select **View, Edit, Rename,** or **Delete** from the dropdown list and change or confirm from the following screen.



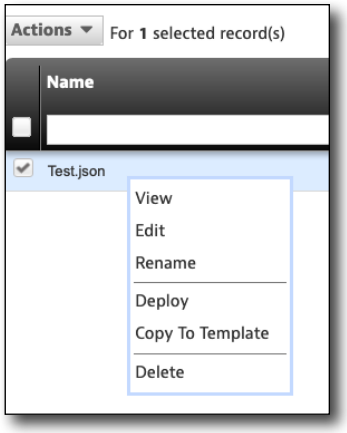
Saving Digital Measurement Settings

When all values have been entered, select **Save**.

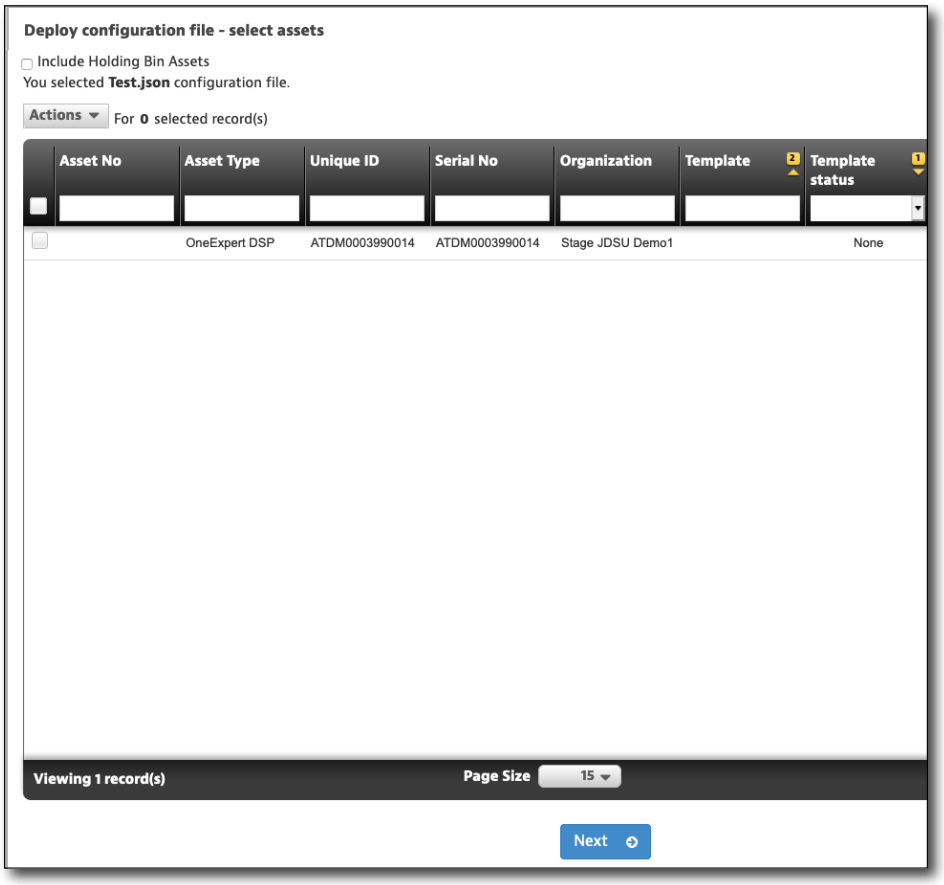
Digital Measurement Settings Deployment

Only one set of the measurement settings can be deployed at a time to any meter.

Measurement settings can be deployed to one, many, or all units available to the StrataSync server.



1. From the Digital Measurement Settings screen, check the box in front of the Digital Measurement Settings in the list you would like to deploy.
2. Right-click the **Actions** button above the upper left side of the list screen.
3. Select **Deploy** from the list. The meter selection list appears.
4. Select the meter(s) to which you would like to deploy the plan.
    - Click the box in front of each meter to receive the deployment
    - To deploy to all meters in the list, select the checkbox in the header of the first column.
5. After all desired meters have been checked, select the **Next** button. A message will appear confirming the deployment.



Ingress Span

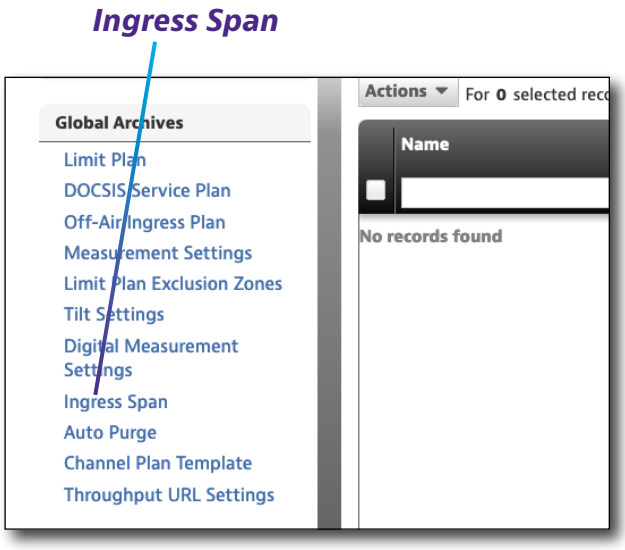
Depending on your network cofiguration, you may have to set the ingress span max frequency (42–204 MHz).

Ingress Span Configuration

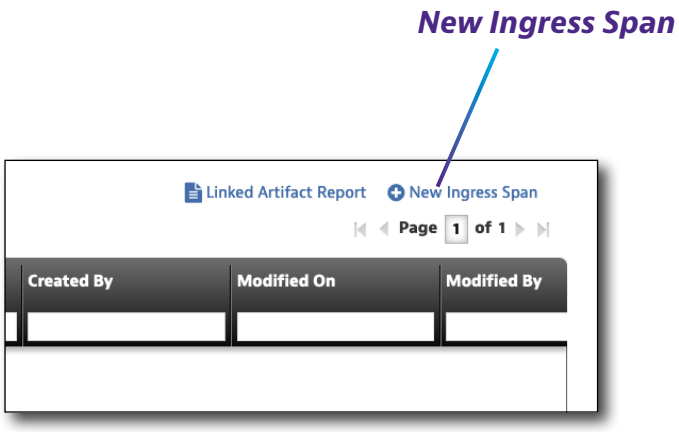
You can find Ingress Span through the **Global Archives** pane on the left side of the StrataSync Manage Templates screen. The Ingress Span screen appears.

New Ingress Span

1. From the Ingress Span screen, select the **New Ingress Span** button on the upper right of the screen. The Create Ingress Span screen appears.



2. Enter the name (required) and description if desired.
3. Select the **Create** button. The Ingress Span template appears.



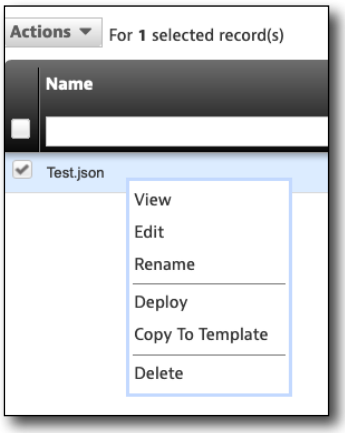
Ingress Span

The Ingress Span settings include the following fields:

- Ingress max frequency

Viewing, Editing, Renaming, or Deleting Ingress Span

1. Check the box in front of the desired Ingress Span.
2. Select the **Action** button above the left side of the list pane. The Actions dropdown appears.
3. Select **View, Edit, Rename,** or **Delete** from the dropdown list and change or confirm from the following screen.



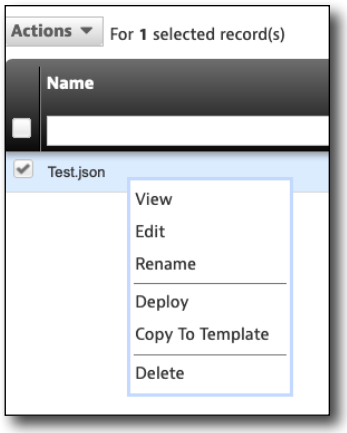
Saving Ingress Span

When all values have been entered, select **Save**.

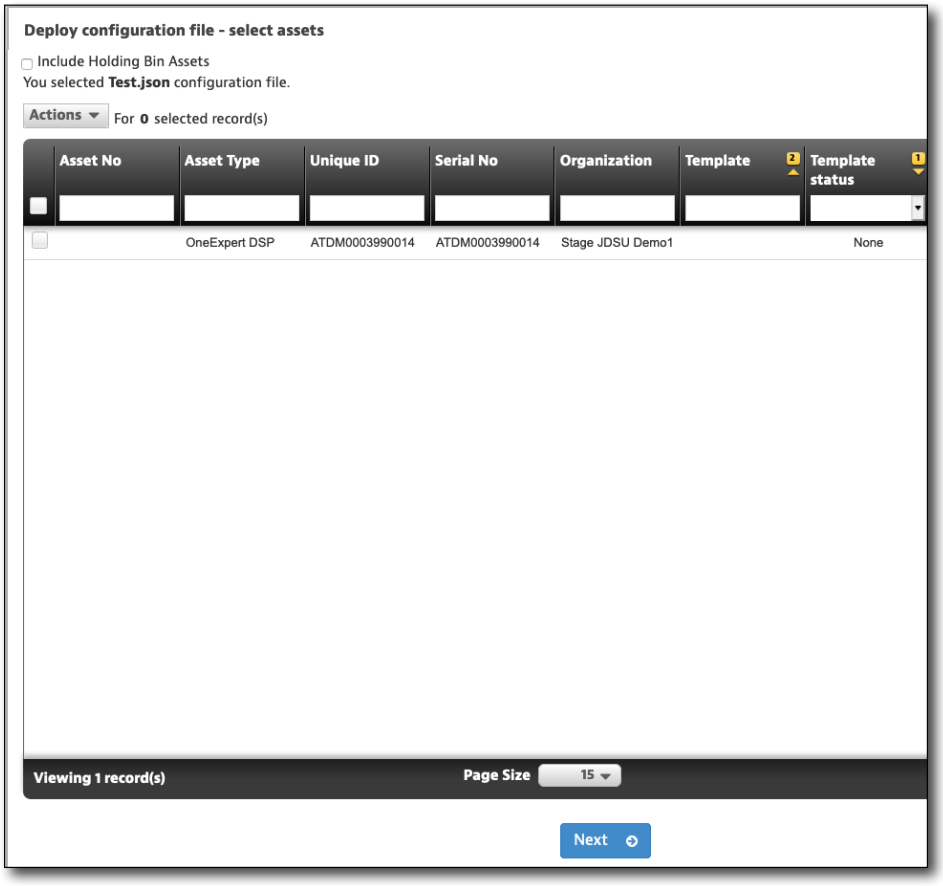
Ingress Span Deployment

Only one Ingress Span can be deployed at a time to any meter.

Saved Ingress Span can be deployed to one, many, or all units available to the StrataSync server.



1. From the Ingress Span screen, check the box in front of the plan in the list you would like to deploy.
2. Right-click the **Actions** button above the upper left side of the list screen.
3. Select **Deploy** from the list. The meter selection list appears.
4. Select the meter(s) to which you would like to deploy the plan.
    - Click the box in front of each meter to receive the deployment
    - To deploy to all meters in the list, select the checkbox in the header of the first column.
5. After all desired meters have been checked, select the **Next** button. A message will appear confirming the deployment.



Auto Purge

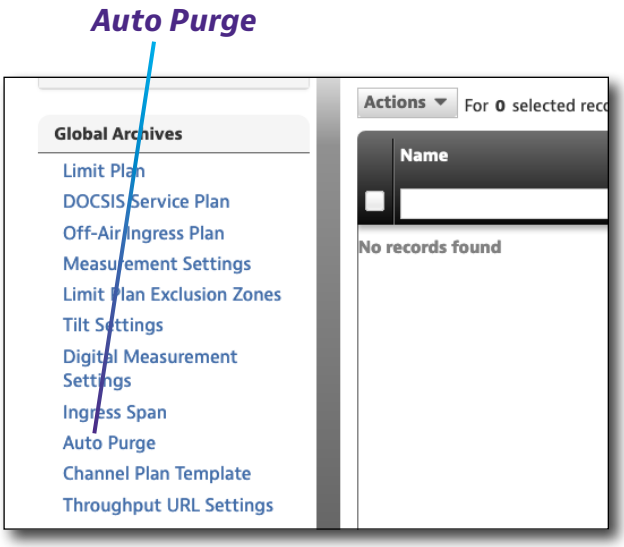
Auto Purge allows you to set whether synced files are purged and at what frequency.

Auto Purge Configuration

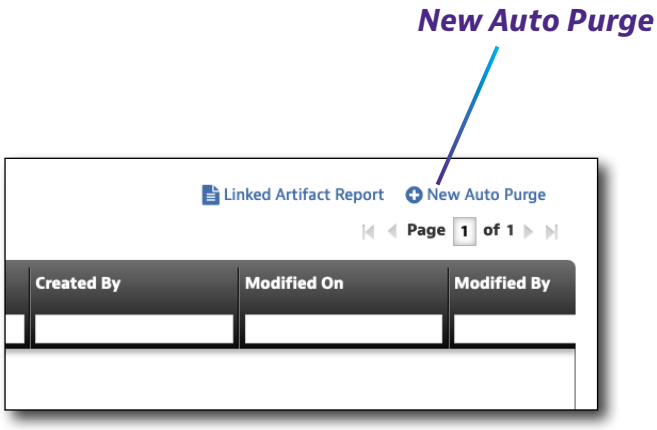
You can find Auto Purge through the **Global Archives** pane on the left side of the StrataSync Manage Templates screen. The Auto Purge screen appears.

New Auto Purge

1. From the Auto Purge screen, select the **New Auto Purge** button on the upper right of the screen. The Create Auto Purge screen appears.



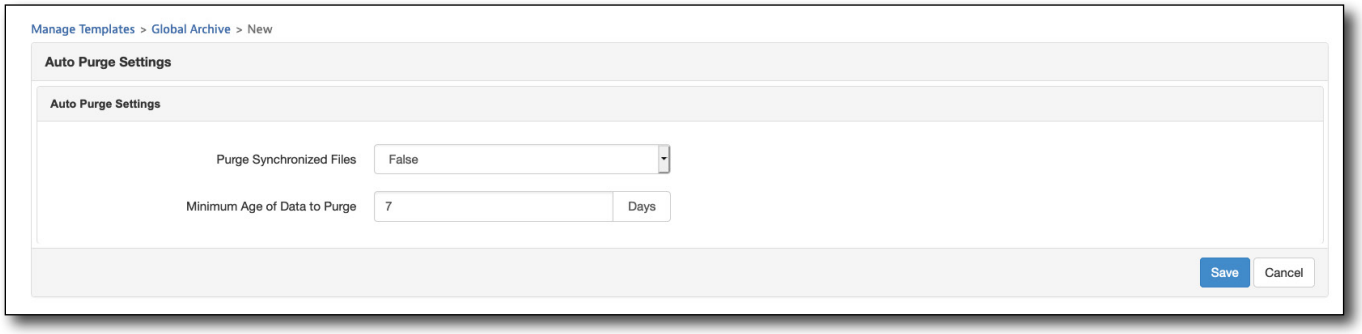
2. Enter the name (required) and description if desired.
3. Select the **Create** button. The Tilt Settings template appears.



Auto Purge Settings

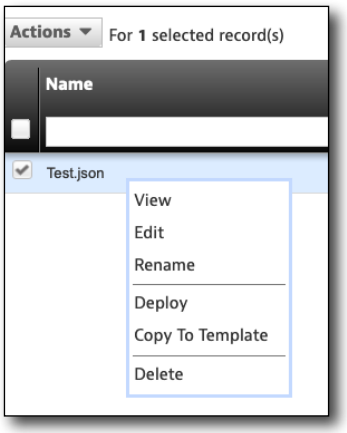
Auto Purge Settings include the following fields:

- Purge synchronization files
- Minimum age of data to purge



Viewing, Editing, Renaming, or Deleting Auto Purge

1. Check the box in front of the desired Auto Purge.
2. Select the **Action** button above the left side of the list pane. The Actions dropdown appears.
3. Select **View, Edit, Rename,** or **Delete** from the dropdown list and change or confirm from the following screen.



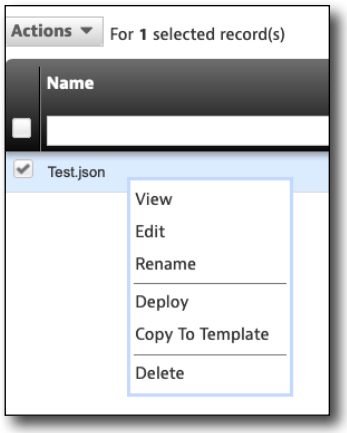
Saving Auto Purge

When all values have been entered, select **Save**.

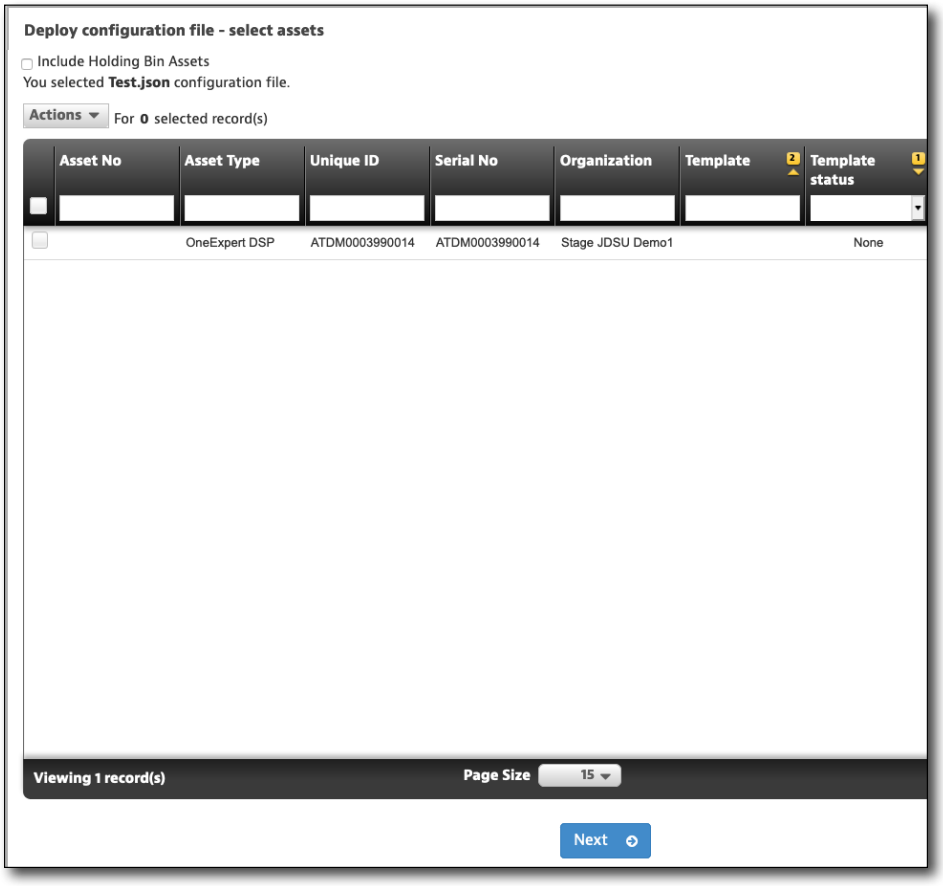
Auto Purge Deployment

Only one Auto Purge setting can be deployed at a time to any meter.

Saved Auto Purge settings can be deployed to one, many, or all units available to the StrataSync server.



1. From the Auto Purge screen, check the box in front of the plan in the list you would like to deploy.
2. Right-click the **Actions** button above the upper left side of the list screen.
3. Select **Deploy** from the list. The meter selection list appears.
4. Select the meter(s) to which you would like to deploy the plan.
    - Click the box in front of each meter to receive the deployment
    - To deploy to all meters in the list, select the checkbox in the header of the first column.
5. After all desired meters have been checked, select the **Next** button. A message will appear confirming the deployment.



Channel Plan Template

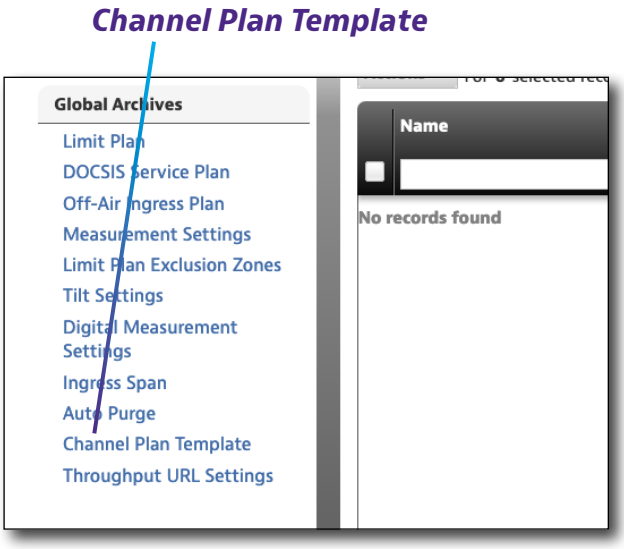
Channel Plan Template allows you to associate a name to a channel number and center channel frequency for Channel/DOCSIS Check and OneCheck testing.

Channel Plan Template Configuration

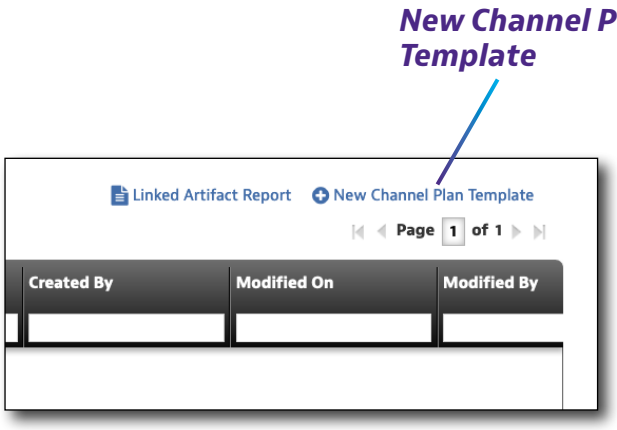
You can find Channel Plan Template through the **Global Archives** pane on the left side of the StrataSync Manage Templates screen. The Channel Plan Template screen appears.

New Channel Plan Template

1. From the Channel Plan Template screen, select the **New Channel Plan Template** button on the upper right of the screen. The Create Channel Plan Template screen appears.



2. Enter the name (required) and description if desired.
3. Select the **Create** button. The Channel Plan Template screen appears.

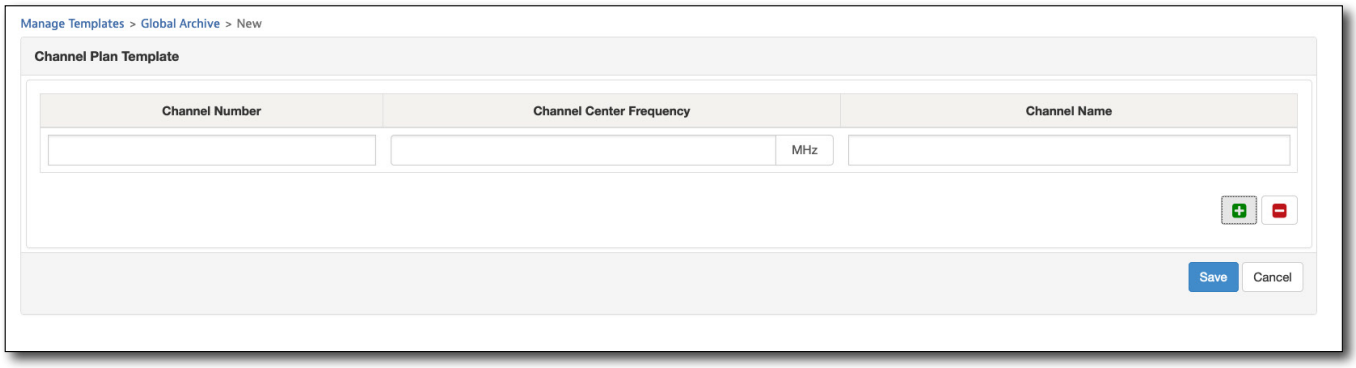


Channel Plan Template Settings

The Channel Plan Template settings include the following fields:

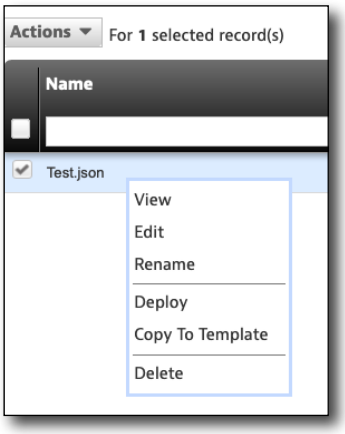
- Channel number
- Channel center frequency
- Channel name

To add or delete exclusion zones from the list, use the green (+) or red (-) buttons.



Viewing, Editing, Renaming, or Deleting a Channel Plan Template

1. Check the box in front of the desired Channel Plan Template.
2. Select the **Action** button above the left side of the list pane. The Actions dropdown appears.
3. Select **View, Edit, Rename,** or **Delete** from the dropdown list and change or confirm from the following screen.



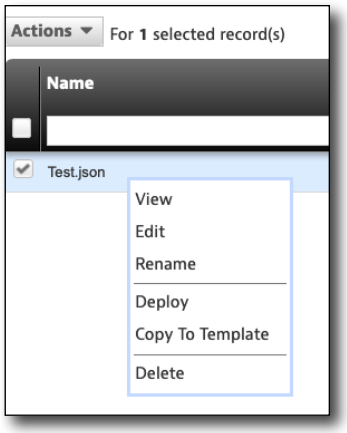
Saving Channel Plan Templates

When all values have been entered, select **Save**.

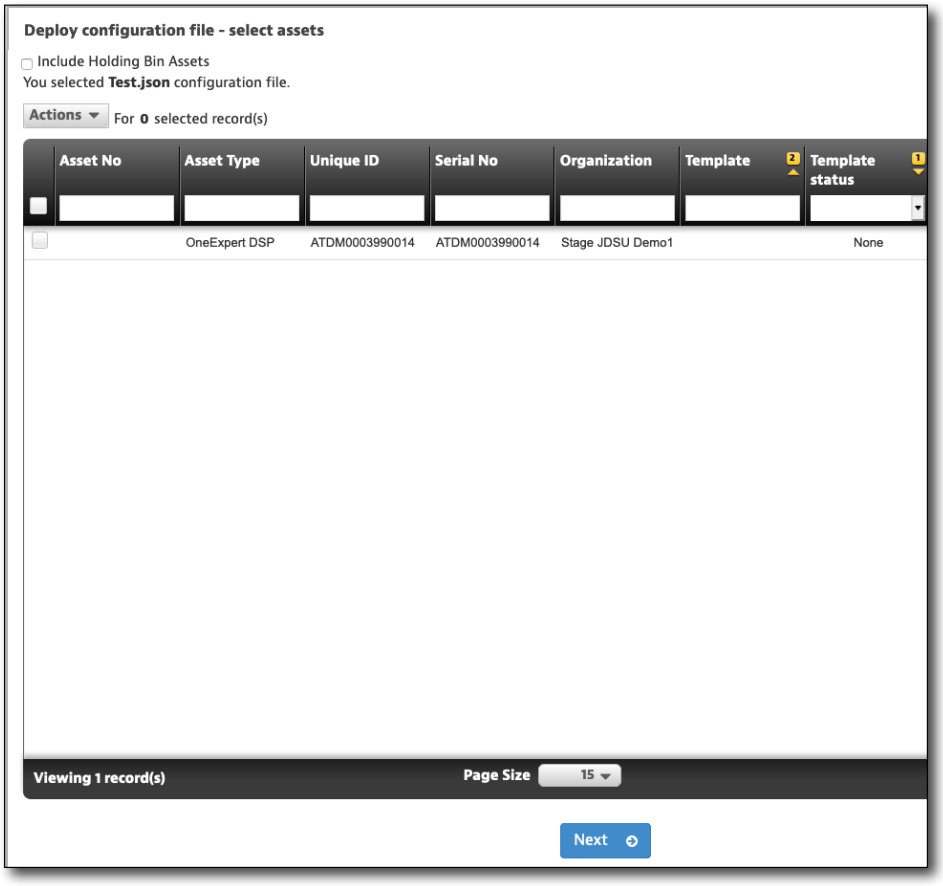
Channel Plan Template Deployment

Only one Channel Plan Template can be deployed at a time to any meter.

Saved Channel Plan Templates can be deployed to one, many, or all units available to the StrataSync server.



1. From the Channel Plan Template screen, check the box in front of the plan in the list you would like to deploy.
2. Right-click the **Actions** button above the upper left side of the list screen.
3. Select **Deploy** from the list. The meter selection list appears.
4. Select the meter(s) to which you would like to deploy the plan.
    - Click the box in front of each meter to receive the deployment
    - To deploy to all meters in the list, select the checkbox in the header of the first column.
5. After all desired meters have been checked, select the **Next** button. A message will appear confirming the deployment.



Throughput URL Settings

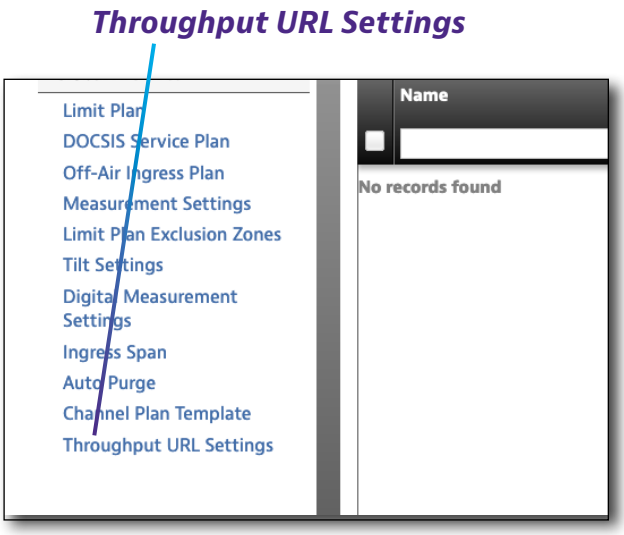
Throughput URL Settings allow you to set throughput URLs for more accurate testing.

Throughput URL Settings Configuration

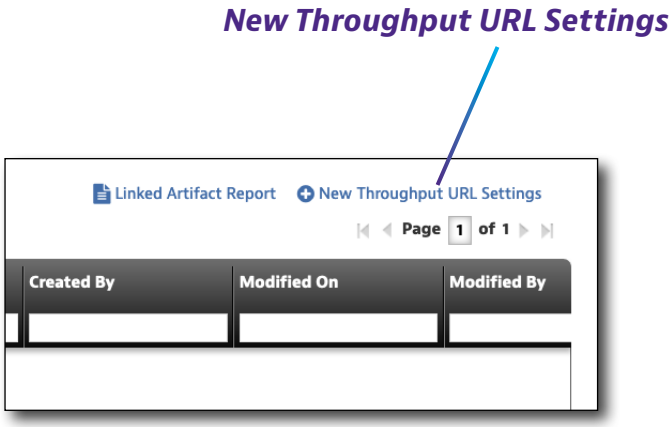
You can find Throughput URL Settings through the **Global Archives** pane on the left side of the StrataSync Manage Templates screen. The Throughput URL Settings screen appears.

New Throughput URL Settings

1. From the Throughput URL Settings screen, select the **New Throughput URL Settings** button on the upper right of the screen. The Create Throughput URL Settings screen appears.



2. Enter the name (required) and description if desired.
3. Select the **Create** button. The Throughput URL Settings template appears.

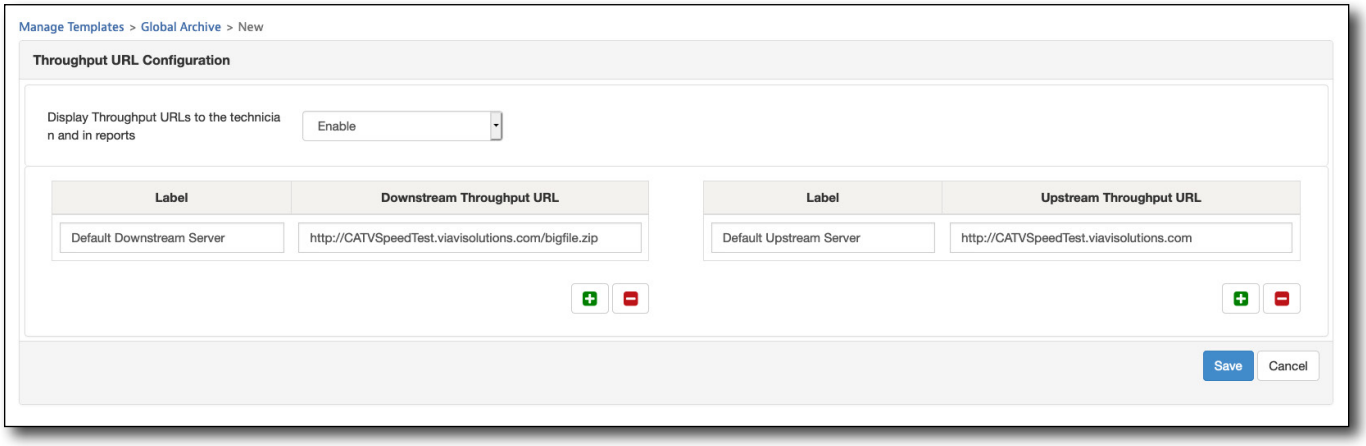


Throughput URL Settings

The Throughput URL Settings include the following fields:

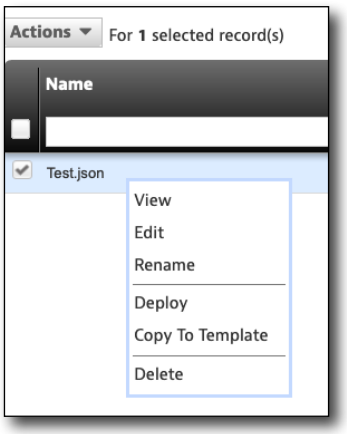
- Display throughput URLs to the technican and in reports
- Label and downstream throughput URL
- Label and upstream throughput URL

To add or delete throughput URLs from the list, use the green (+) or red (-) buttons.



Viewing, Editing, Renaming, or Deleting Throughput URL Settings

1. Check the box in front of the desired Throughput URL Settings.
2. Select the **Action** button above the left side of the list pane. The Actions dropdown appears.
3. Select **View, Edit, Rename,** or **Delete** from the dropdown list and change or confirm from the following screen.



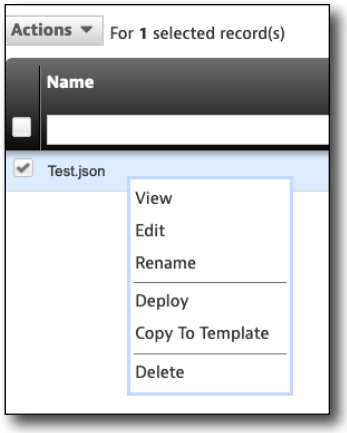
Saving Throughput URL Settings

When all values have been entered, select **Save**.

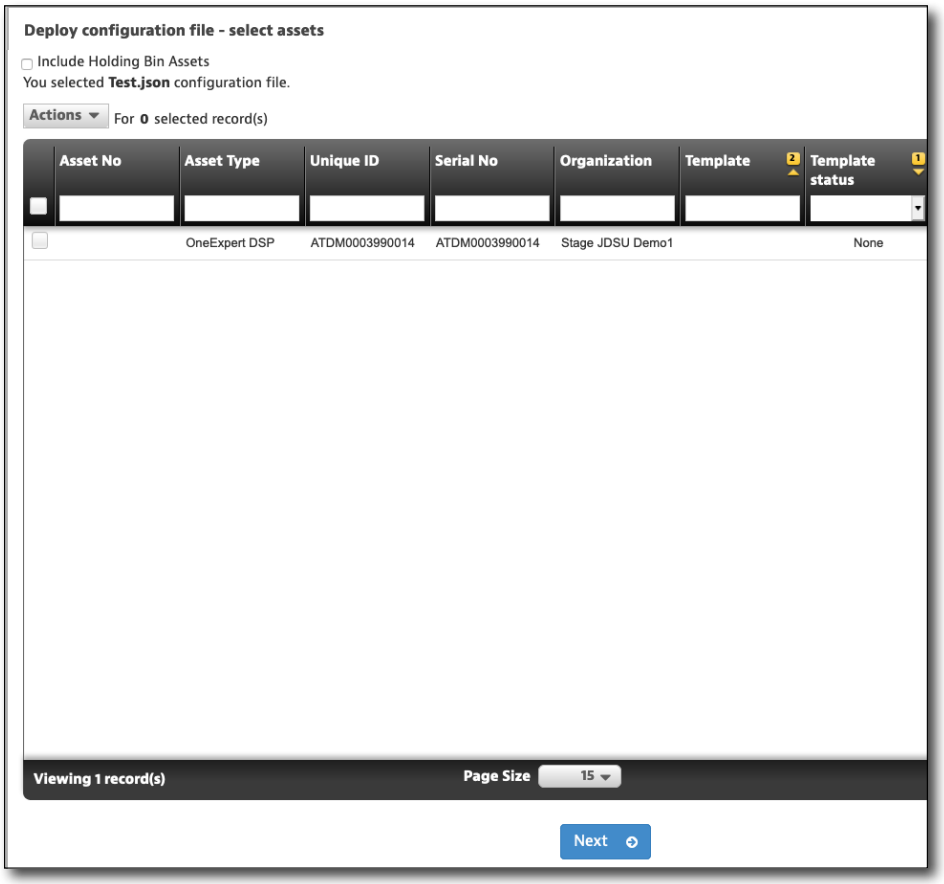
Throughput URL Settings Deployment

Only one set of the throughput settings can be deployed at a time to any meter.

Throughtput settings can be deployed to one, many, or all units available to the StrataSync server.



1. From the Throughput URL Settings screen, check the box in front of the Throughput URL Settings in the list you would like to deploy.
2. Right-click the **Actions** button above the upper left side of the list screen.
3. Select **Deploy** from the list. The meter selection list appears.
4. Select the meter(s) to which you would like to deploy the plan.
    - Click the box in front of each meter to receive the deployment
    - To deploy to all meters in the list, select the checkbox in the header of the first column.
5. After all desired meters have been checked, select the **Next** button. A message will appear confirming the deployment.

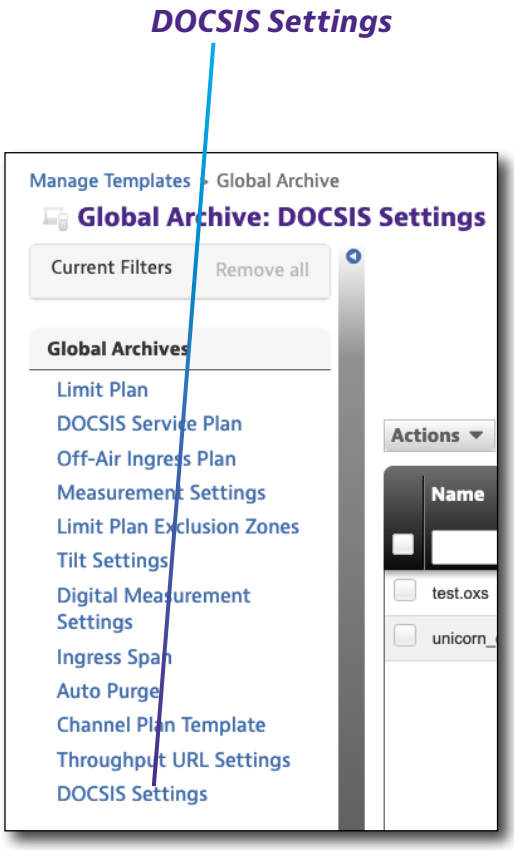


DOCSIS Settings

DOCSIS Settings allow you to set throughput URLs for more accurate testing.

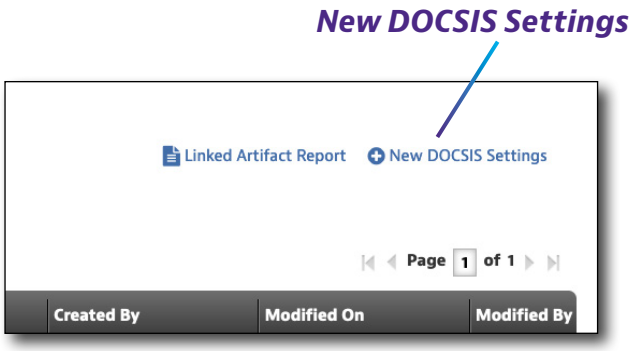
DOCSIS Settings Configuration

You can find DOCSIS Settings through the **Global Archives** pane on the left side of the StrataSync Manage Templates screen. The DOCSIS Settings screen appears.



New DOCSIS Settings

1. From the DOCSIS Settings screen, select the **New DOCSIS Settings** button on the upper right of the screen. The Create DOCSIS Settings screen appears.
2. Enter the name (required) and description if desired.
3. Select the **Create** button. The DOCSIS Settings template appears.



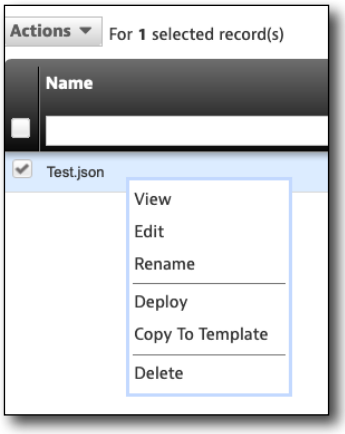
DOCSIS Settings

The DOCSIS Settings include the following fields:

- Upstream reference bandwidth –1.6 MHz, 6.4 MHz, or Modem default
- CM DHCP additional wait time per request
- RG DHCP additional wait time

Viewing, Editing, Renaming, or Deleting DOCSIS Settings

1. Check the box in front of the desired DOCSIS Settings.
2. Select the **Action** button above the left side of the list pane. The Actions dropdown appears.
3. Select **View, Edit, Rename,** or **Delete** from the dropdown list and change or confirm from the following screen.



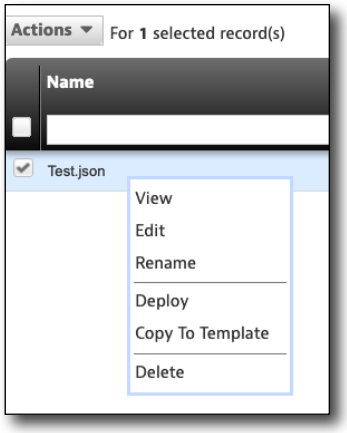
Saving DOCSIS Settings

When all values have been entered, select **Save**.

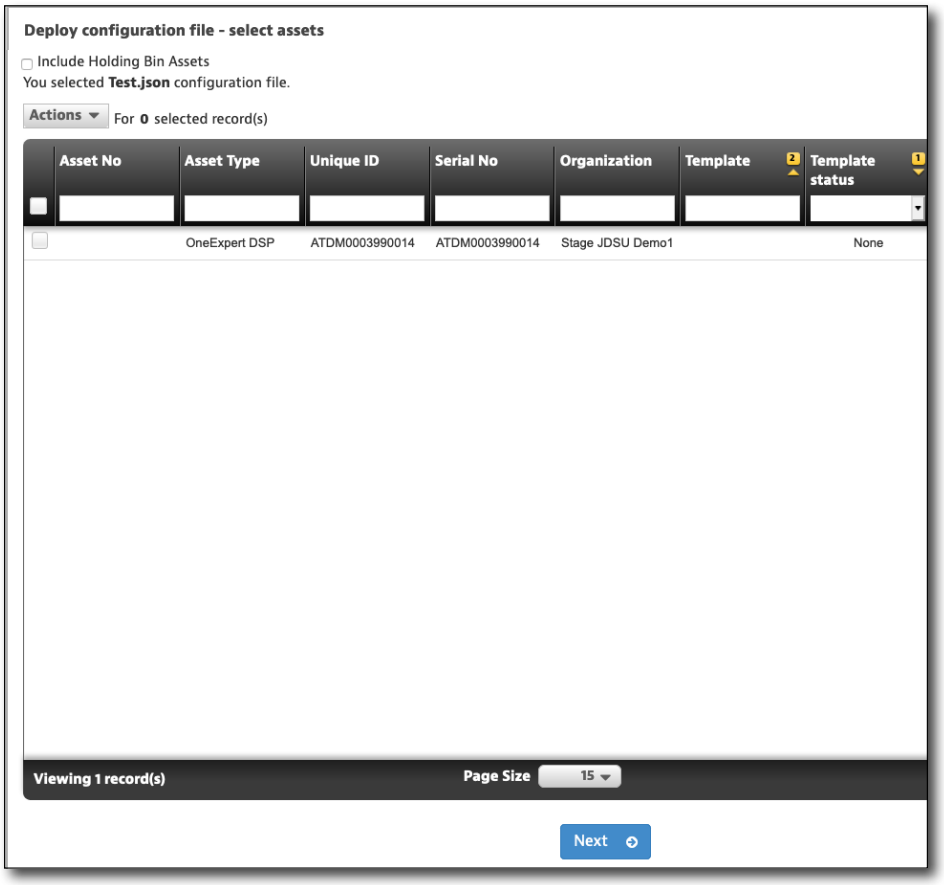
DOCSIS Settings Deployment

Only one set of the DOCSIS Settings settings can be deployed at a time to any meter.

DOCSIS Settings can be deployed to one, many, or all units available to the StrataSync server.



1. From the DOCSIS Settings screen, check the box in front of the DOCSIS Settings in the list you would like to deploy.
2. Right-click the **Actions** button above the upper left side of the list screen.
3. Select **Deploy** from the list. The meter selection list appears.
4. Select the meter(s) to which you would like to deploy the plan.
    - Click the box in front of each meter to receive the deployment
    - To deploy to all meters in the list, select the checkbox in the header of the first column.
5. After all desired meters have been checked, select the **Next** button. A message will appear confirming the deployment.



10

Using the OneExpert with a Mobile Device

This chapter provides steps for using the VIAVI Mobile Tech app, including the following:

VIAVI Mobile Tech app

The OneExpert is designed to be paired with a mobile device or tablet (such as an iPhone, iPad, or similar Android device), and leverages the user interface of those devices along with the **VIAVI Mobile Tech App** to provide a smooth user experience.

Mobile Tech

You can view test results, set up the OneExpert, sync files, update the meter, and configure test parameters from the app.

To get started, download the VIAVI Mobile Tech app from your App Store or available from your VIAVI representative.

Connecting to StrataSync

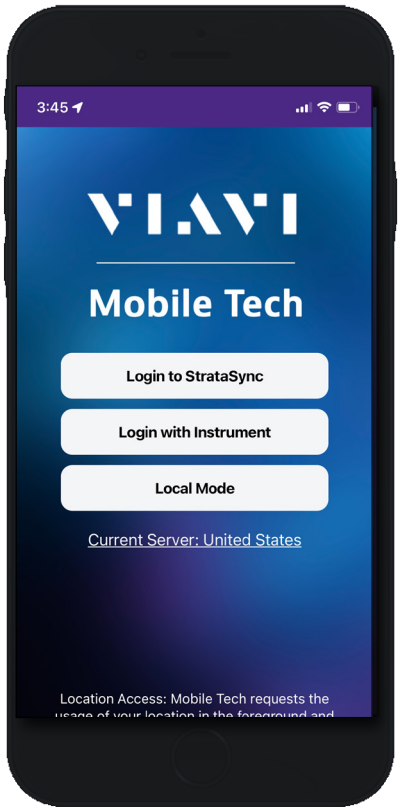
You can connect to StrataSync using your smart phone or tablet anytime, anywhere using the VIAVI Mobile Tech app.

Once your instrument is connected to the Mobile Tech app via Bluetooth, geo location information can be added to reports and files when syncing to StrataSync. If configuration files or work orders are set to be deployed from StrataSync to your meter, you can check those here, as well as browsing files from the unit itself.

Download on the App Store

GET IT ON Google Play

Once you download the application, log in to StrataSync just as you do on the website. To operate the tests, follow the instructions on the application screens.



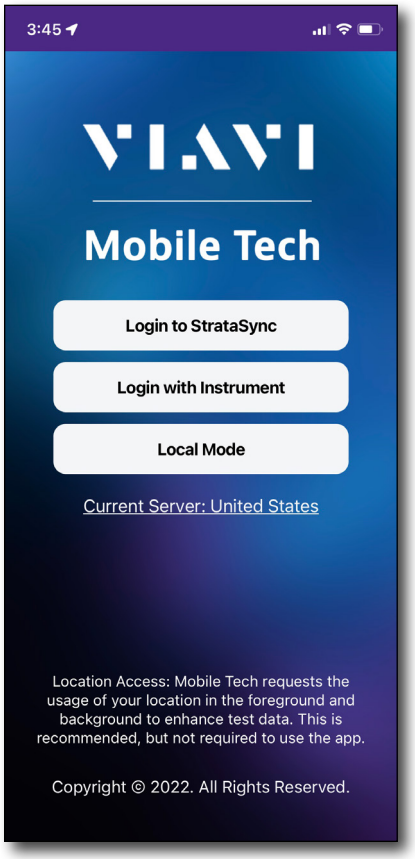
Using the Mobile Tech app

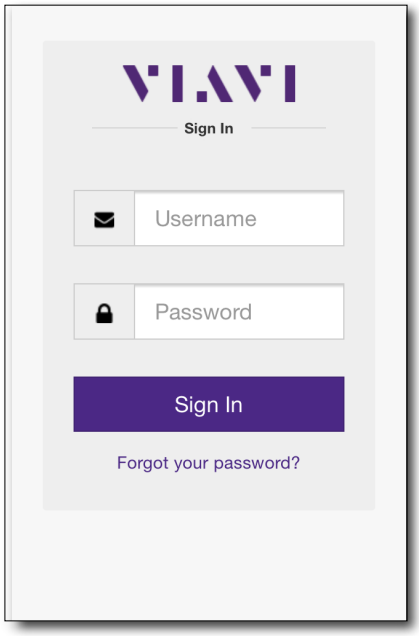
Logging in to StrataSync

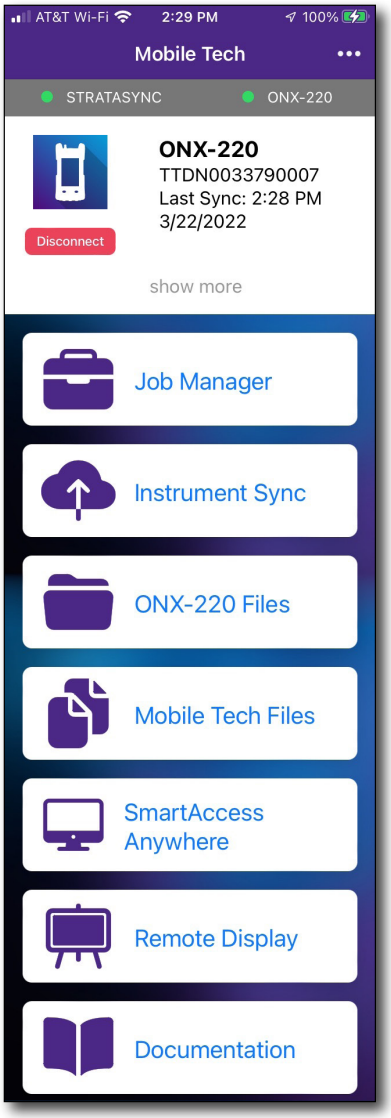
To get started using the Mobile Tech app, you need to log in to StrataSync.

1. Launch the **Mobile Tech app** on your mobile device.
2. Press the **Login to StrataSync, Login with Instrument, or Local Mode** button. The Login screen will be displayed.
3. Enter your Username and Password, then press the **Sign In** button. The Mobile Tech **Main menu** will be displayed.

- If your meter is compatible, you can also log in with your instrument or transfer files in local mode.
- To change your current server, select **Current Server** at the bottom and choose **Europe** or **United States**.





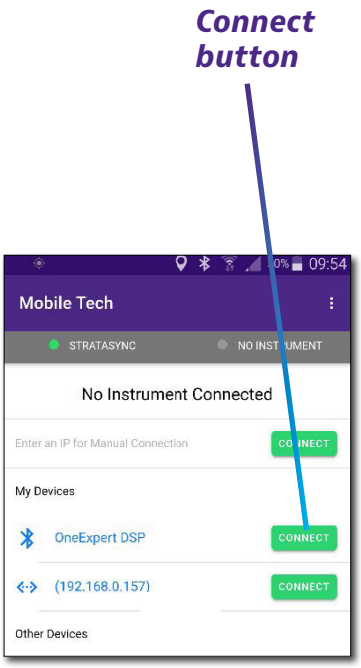


Pairing the OneExpert to your mobile device

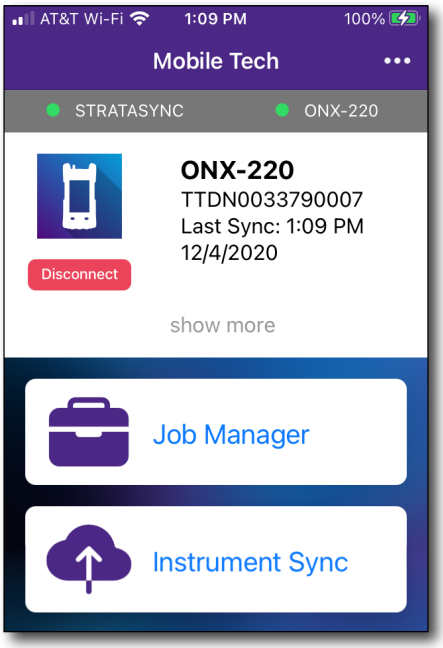
To interact with your OneExpert, the mobile device must be paired with the unit over Bluetooth.

1. On the OneExpert, make sure Bluetooth is on by pressing **Bluetooth** in the tray menu to enter pairing mode.
2. On the mobile device, do the following:
   - Go to the **Settings** menu, then select **Bluetooth**.
   - Verify that the device is not paired with ***any*** OneExpert DSP unit.
3. From the Mobile Tech Main menu, under **My Devices**, find the Companion, shown as “OneExpert DSP”, and select **Connect**.

   If you don't see the device, you may need to press **Discover Devices**.
4. Select the OneExpert you want to connect to and the devices will begin pairing.
5. When connected, your ONX-220 should appear in the Mobile Tech app.



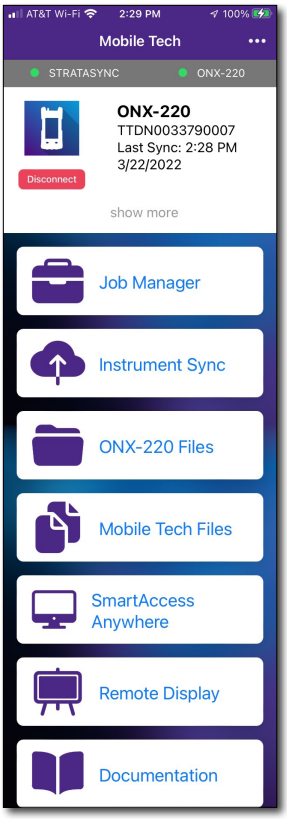
You can now transfer files and sync your OneExpert to StrataSync through the Mobile Tech App.

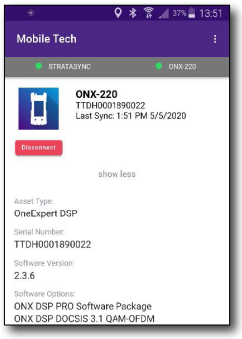


Mobile Tech Main Menu

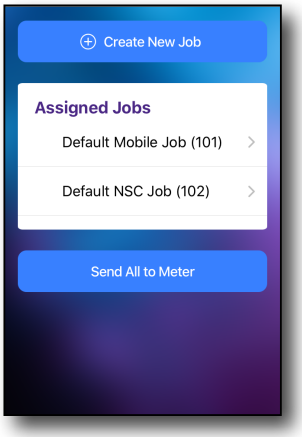
Once you log into StrataSync, you will see the Main menu. Here you can see details of the instrument, sync to StrataSync, manage files on the unit, view documentation, and even contact product support for more information or to request a repair or calibration.

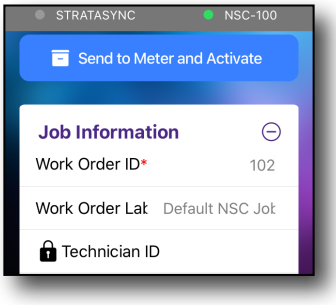
Near the top of the Main menu, you can click **Show more** to see details on your instrument, including all of the installed options.

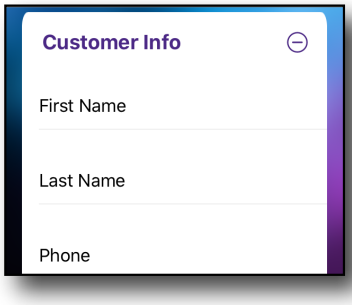




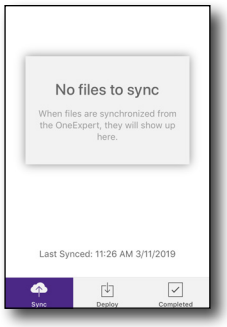
- **Job Manager** – Attach jobs to tests, including customer info and work orders, and track test results

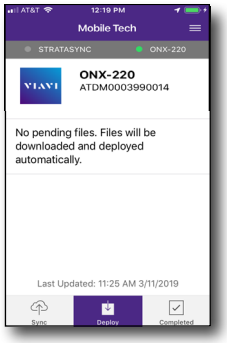


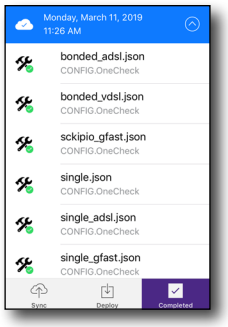




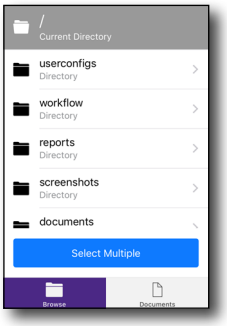
- **Instrument Sync** – Sync your instrument to StrataSync and deploy configuration files

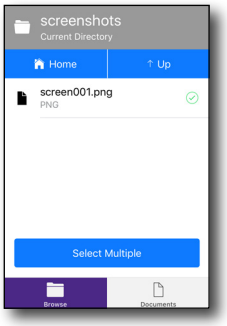




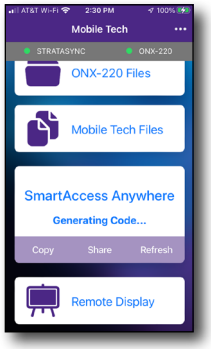


- **ONX-220 Files and Mobile Tech Files** – Manage files on the unit that you can save to your phone or tablet. Use the **ONX-220 Files** menu to manage files stored on your meter, use the **Mobile Tech Files** menu to manage those stored on your mobile device.

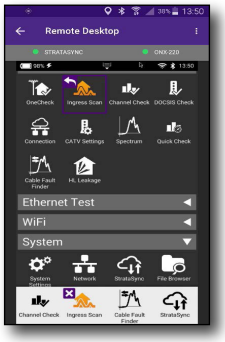




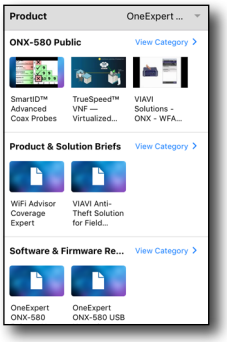
- **SmartAccess Anywhere** – Receive remote assistance directly on your instrument from a product or technical specialist in another location, including a central office or even another job site.



- **Remote Display** – Connect directly to the OneExpert remotely to configure your unit and run tests



- **Documentation** – View and download various documentation for your instrument, including applications notes, software release notes, and quick reference guides



Connecting to your OneExpert via Remote Display

Once your OneExpert is paired to the Mobile Tech app, you can connect to it remotely to configure and run tests. See*"Remotely operating the instrument" on page 71* and *"Pairing the OneExpert to your mobile device" on page 198* for more details.

From the Main menu, select **Remote Display** to get started.

NOTE:

You need to enable Remote Operation to remote control the meter through the VIAVI Mobile Tech app. See "Remotely operating the instrument" on page 71.

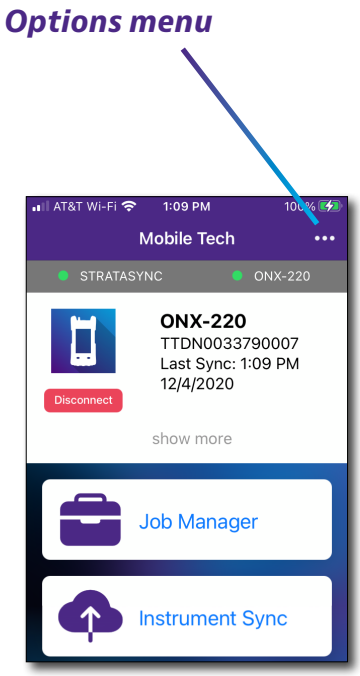
Updating the firmware from StrataSync

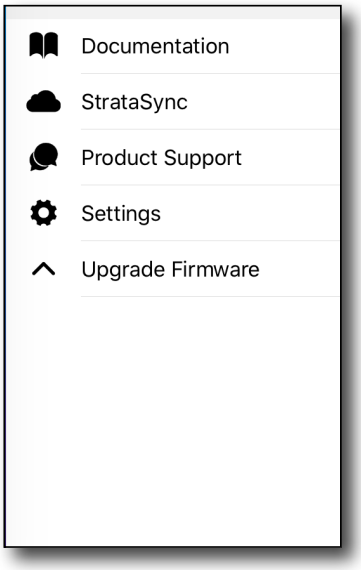
Once you are logged into StrataSync, you can update the firmware of your unit via Ethernet.

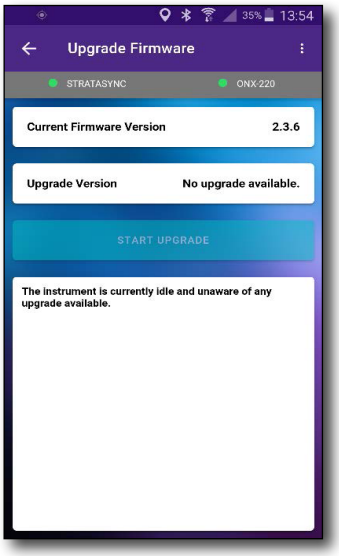
1. Connect the OneExpert to the AC charger adapter to ensure an uninterrupted supply of power during the update.
2. Connect the OneExpert to your network via wired Ethernet.
3. Go back to the Main screen and select the **Options** menu in the upper right. The Options menu appears.
4. Select **Upgrade Firmware**. The Upgrade Firmware screen appears, showing the current firmware version and if an update is available.

   You can also get to the Upgrade Firmware screen from the Main menu and selecting **Show More**.
5. If an update is available, select **Start Upgrade** to update the unit.

The update will begin and the meter will power off when finished. Please wait as this could take 10-15 minutes, based on the size of the update file and connection speed.







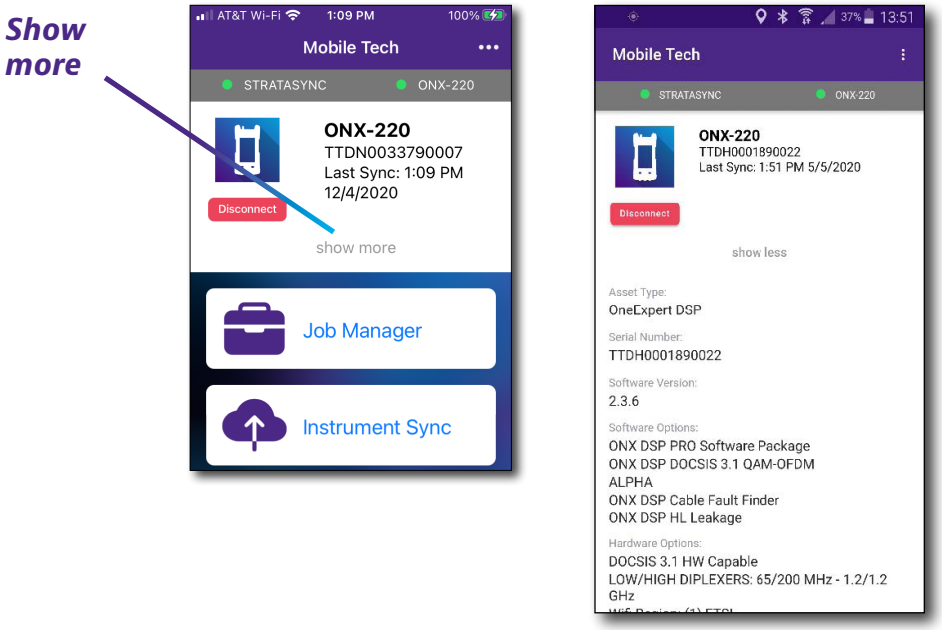
NOTE:

You need the appropriate permissions in StrataSync to update the firmware.

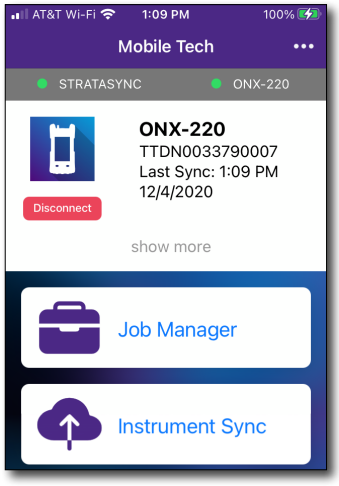
Viewing hardware/software versions and options

You can easily see more detail about your OneExpert, including the software version, serial number, Tech ID, and installed software options.

From the Main menu, select **Show More** near the top of the screen. Scroll down to see more details.



Syncing to the StrataSync server



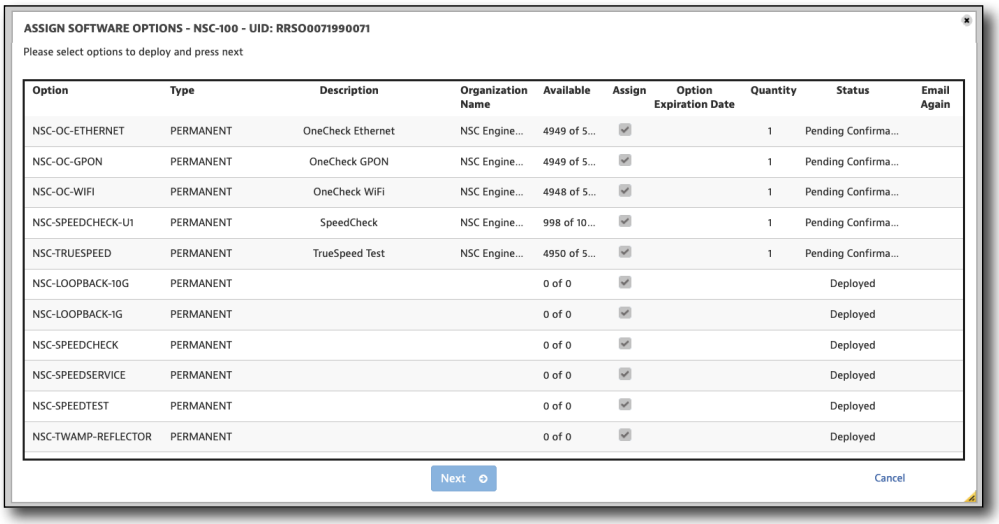
StrataSync® is a hosted, cloud-based software application that provides VIAVI instrument asset, configuration, and test-data management. StrataSync manages inventory, test results, and performance data anywhere with browser-based ease and improves technician and instrument efficiency.

Features include the following:

- Tracking ownership of the unit
- Pushing certain configuration settings to the unit
- Pushing work orders to the unit and keeping in sync with the server
- Receiving certain configuration setting from the unit
- Adding and/or removing software options
- Updating the software on the unit
- Updating the software on the modem
- Cloning a device (create a “golden” unit)
- Uploading and storing of test reports, screenshots, OneCheck profiles, and configurations

To obtain the latest configuration settings, software options and updates, and ownership registration information, the OneExpert can sync with a VIAVI server via the internet. The synchronization also stores any user files saved on the unit to the StrataSync server.

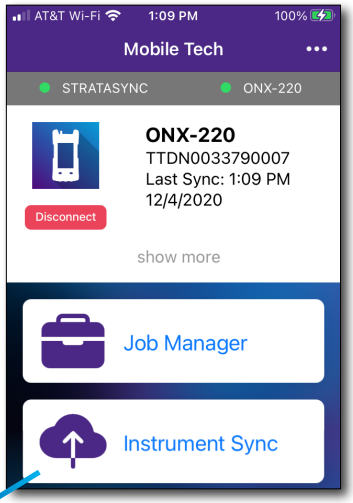
You should sync immediately upon receipt of the unit and on a regular (daily) basis thereafter to ensure that the unit is as up-to-date as possible and to allow all user information to be backed up. Before attempting to synchronize with StrataSync, please confirm your server settings with your manger or your company's IT organization.



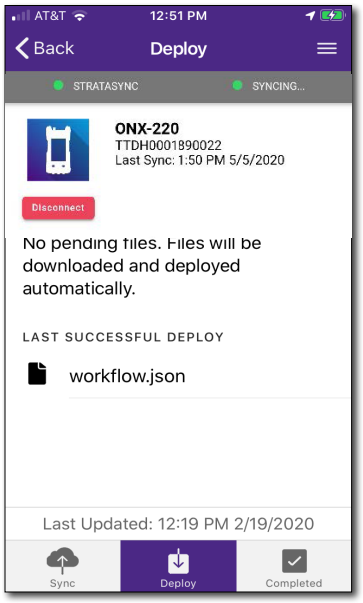
Software options in StrataSync

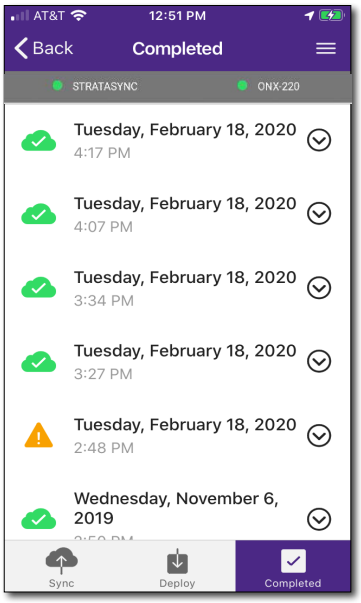
Syncing with StrataSync

1. From the Main menu, select **Instrument Sync**. The StrataSync Sync menu appears.
2. Select **Sync**, **Deploy**, or **Completed** at the bottom of the screen.:
   - **Sync** – Shows any files ready to sync to StrataSync
   - **Deploy** – Shows any files from StrataSync that are ready to be deployed to the unit
   - **Completed** – Shows files that have been synced or deployed. Select the arrow to the right for more detail



Instrument Sync





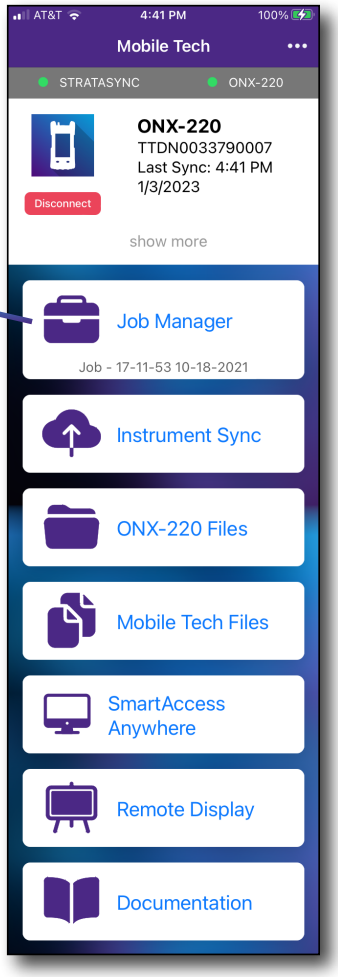
- Upon synchronization with the StrataSync server, the unit will send to the server the following information:
  - The unit's serial number
  - The unit's hardware information (constituent assemblies and their revision levels)
  - The unit's MAC address
  - The unit's user settings – Name (user/technician) and ID
  - Software update milestones (includes status and warnings, if applicable)

    If the configuration information contained on the server is newer than that on the unit, the server will be considered to be the most up-to-date.
- The server will then send any files to the unit being synchronized that it determines are newer than those on the unit.
- The unit will then send any reports, configuration profiles, XML results, screen shots, etc. that have been saved on the unit since the last configuration.
- The server then applies any applicable options to the unit.
- Copy ("clone") the configuration settings for the base unit, as well as any company-specific configurations such as custom filters, web bookmarks, and FTP passwords. This can be used to create a "golden" unit.
- Lastly, if any updates are available, you will be prompted that you can update

When synchronization is complete, the Status will indicate "Sync Complete".

Job Manager

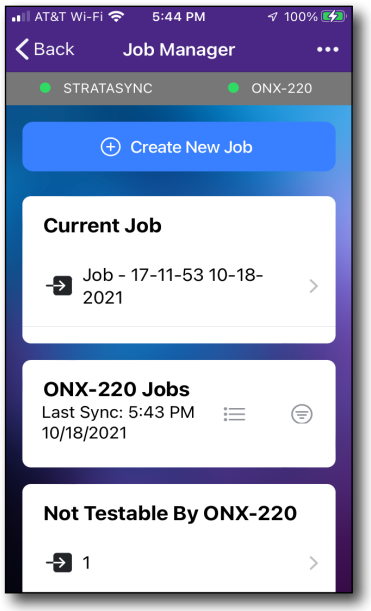
You can use the **Job Manager** to set up and manage your jobs, make them active, add work orders, and export to another app on your device, such as text or email, and track the test results for further troubleshooting.

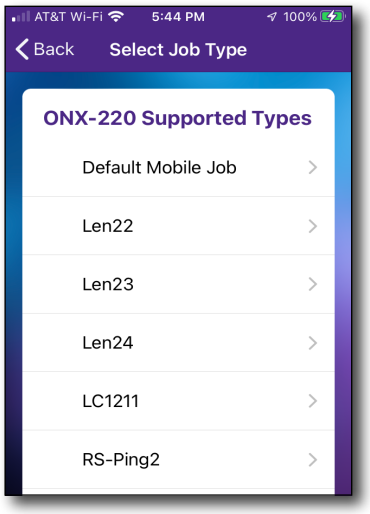


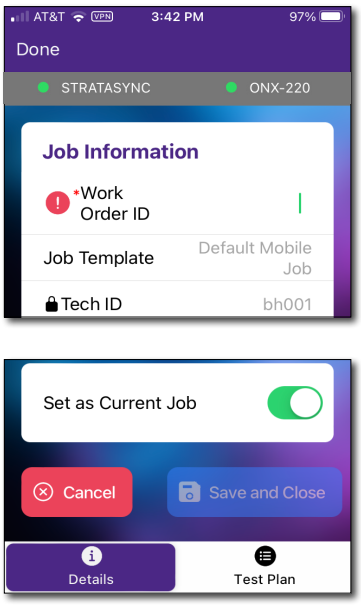
Job Manager

Creating a job

1. From the **Main** menu, select **Job Manager**. The Job Manager screen appears.
2. Select **Create New Job** at the top.
3. From the pop-up, select **Default Mobile Job**. The Job Information screen appears.
4. Enter a unique work order ID.
5. Select **Set as Current Job**, if needed.
6. When finished, select **Save and Close** at the bottom. The job will be added to the jobs list (and set as the current job, if enabled). The status of the job is also shown under Job Manager on the Mobile Tech main menu.





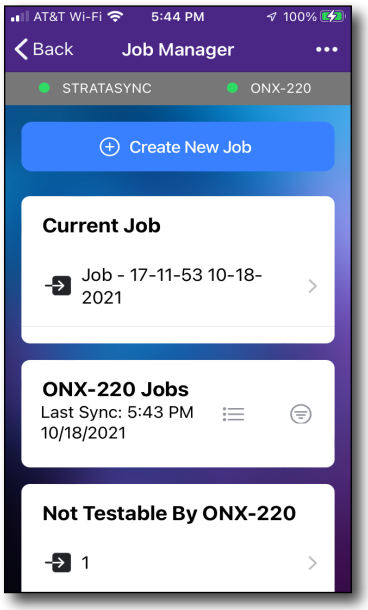


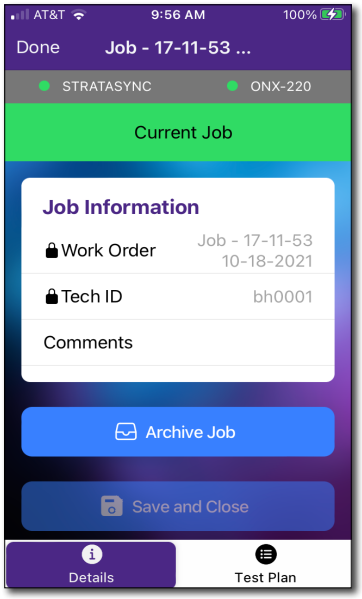
Managing jobs

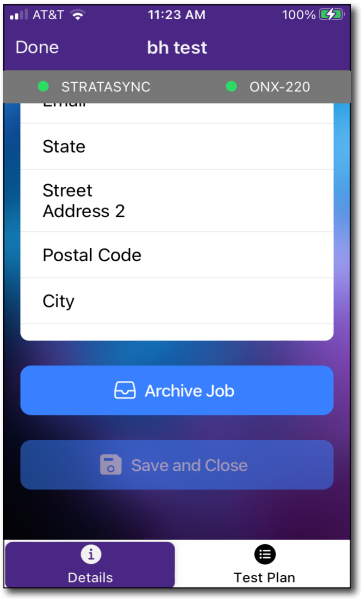
Once you create a job, you can add additional details and files, then send to the meter.

To return to the Main menu at any time, select **Back** in the upper left.

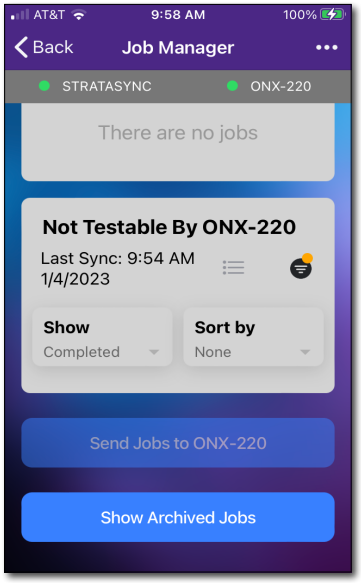
1. From the Job Manager screen, select the active or assigned job you want to add detail.
2. Add detail as necessary, including customer information.
3. When finished, select **Save and Close** at the bottom.
4. When ready to send jobs to the meter, from the Job Manager main menu, select **Send Jobs to ONX-220** at the bottom.
    - To change the active job, select a job from the **Jobs List** and select **Set as Current Job.** It will appear in the Current Job list.

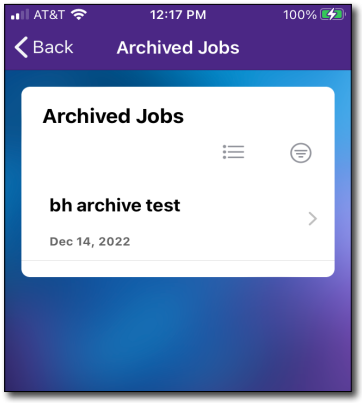


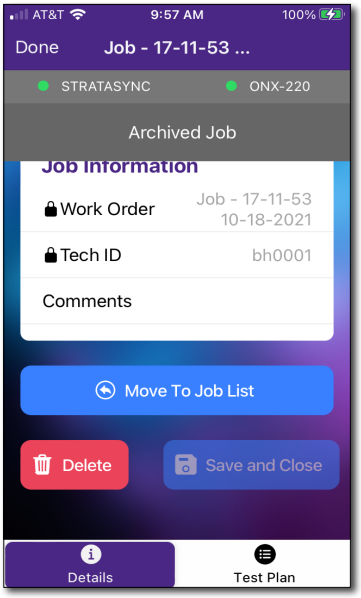




- To archive a job, select **Archive Job**. It will be added to the Archived Jobs List.
  - To show archived jobs, from the Job Manager main menu, select **Show Archived Jobs** at the bottom.
  - To move an archived job to the Job List, select the job from the Archived Jobs list, and select **Move to Job List**.
- To delete a job, first archive it, and then select **Delete** from the Archived Jobs list.





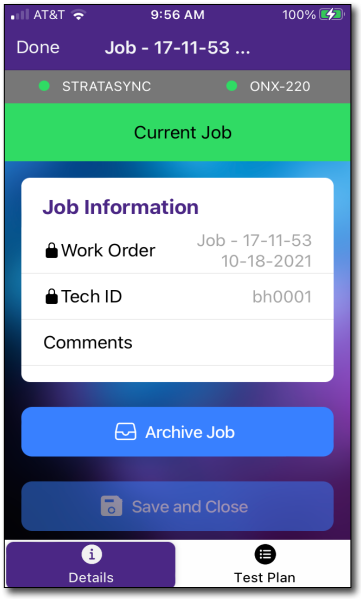


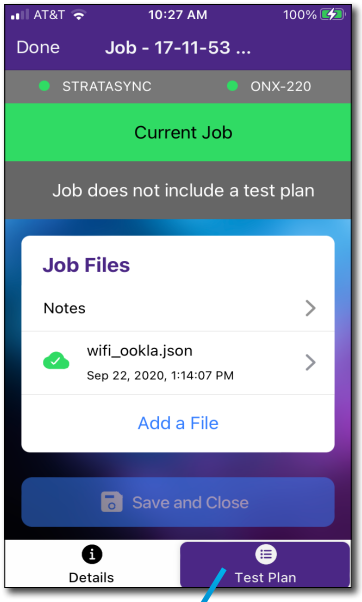
Adding job files

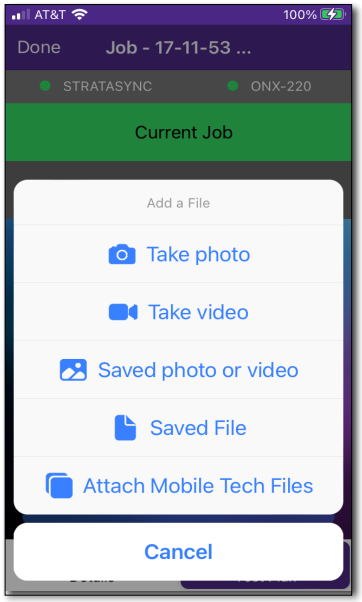
You can add job files to the current job, including any file from your mobile device or test results JSON files from the ONX.

To return to the Main menu at any time, select **Back** in the upper left.

1. From the Job Manager screen, select the active or assigned job you want to add files or notes.
2. Select the **Test Plan** tab at the bottom.
3. Under Job Files, select **Add a File**, then choose **Take photo**, **Take video**, **Saved photo or video, Saved File**, or **Attach Mobile Tech Files**. Choose the file or video. The file will be added to the Job Files section. You can also add notes here, if needed.

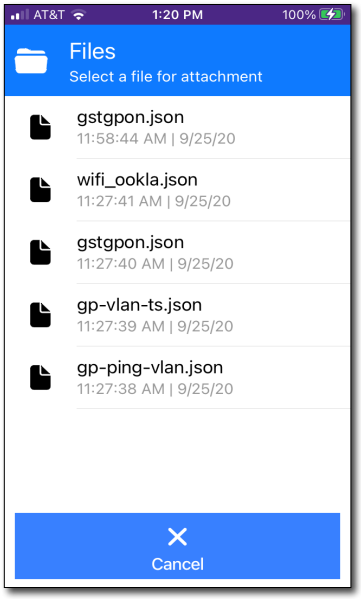


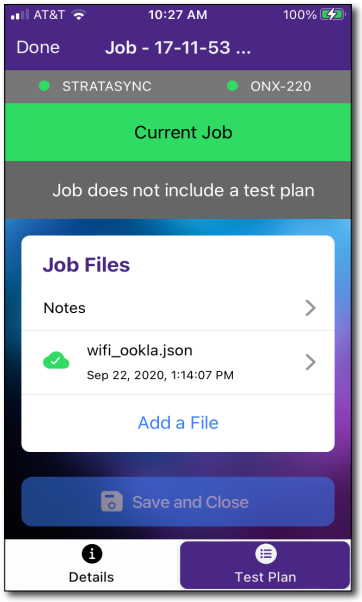


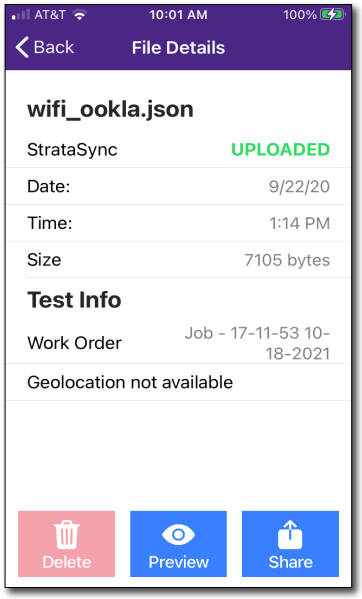


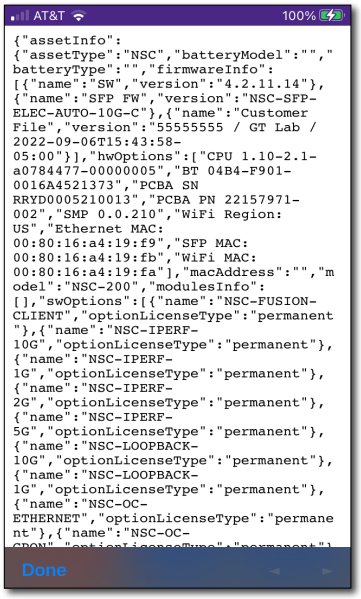
Test Plan tab

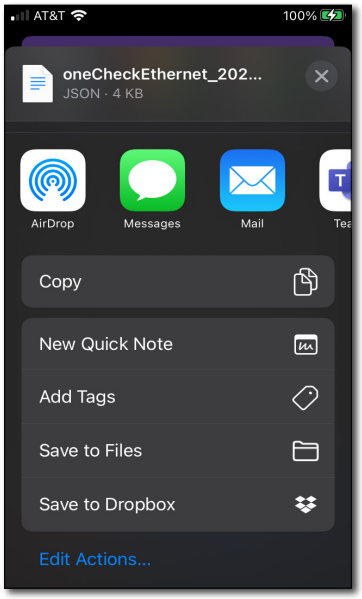
- To see details of a JSON test file, select the file under Job Files. The File Details screen appears.
- To see the test results, from the File Details screen, select **Preview**. The test results are shown.
- To export job files to another app, select the job file, select **Share**, and choose the app you want from the pop up.











Managing files

The OneExpert's file management is separated into 2 menus, **ONX-220 Files** and **Mobile Tech Files**. Use the ONX-220 Files menu to manage files stored on your meter, while the Mobile Tech Files menu is used to manage those stored on your mobile device, deploy to the OneExpert, or upload to StrataSync.

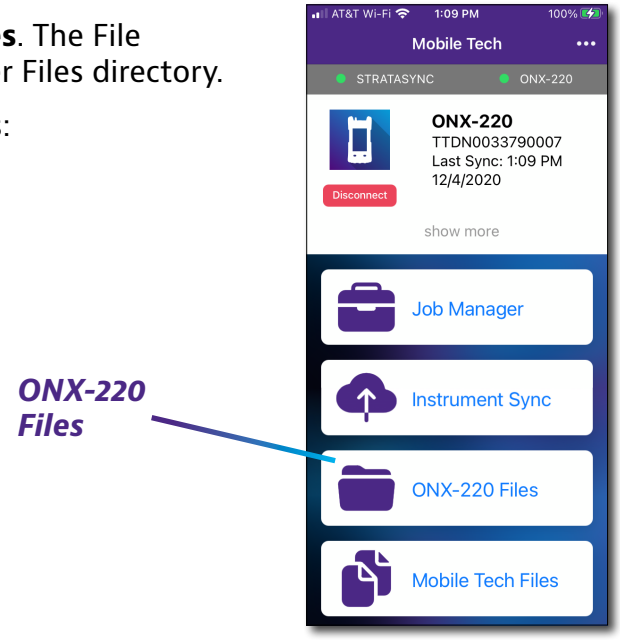
ONX-220 Files

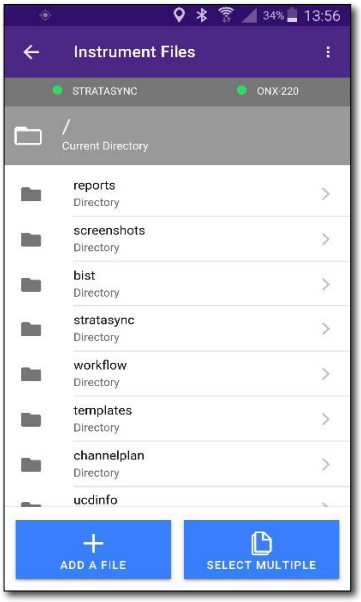
Use the **ONX-220 Files** menu to manage the files on the OneExpert and download to your mobile device.

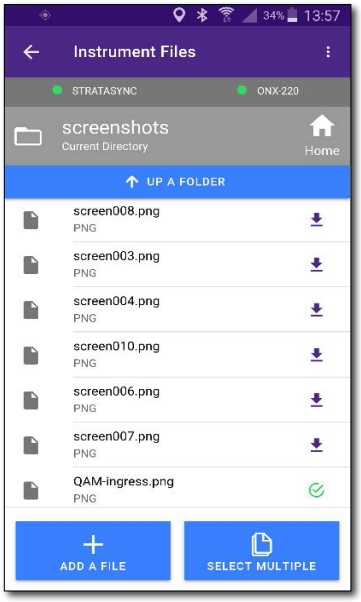
1. From the Main menu, select **ONX-220 Files**. The File Manager screen appears, showing the User Files directory.

   Here you will see the following directories:

   - Reports
   - Workflow
   - Templates

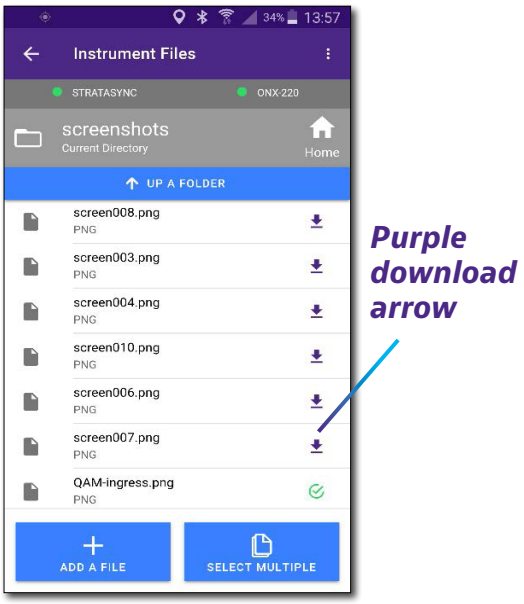






2. Select the directory you want to open. The directory will open and show a list of files.

   To return to the main menu at any time, select **Home** in the upper right. You can also go up a folder directory by selecting **Up a Folder.**



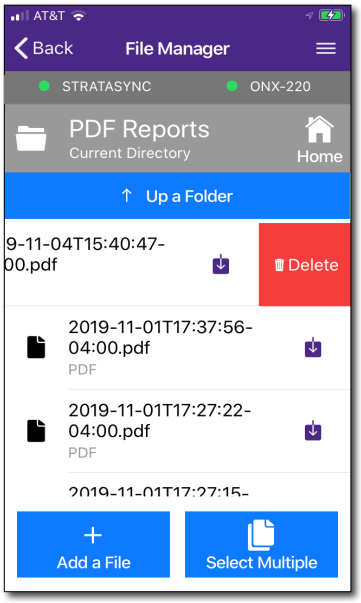
   - To download a file to your mobile device, press the purple download arrow. Once it is downloaded, it will change to a green checkmark.

     Files and reports will then be saved to the **Mobile Tech Files** menu. For more info, see the next section.

   - To delete a file, select the file and swipe to the left. Then select **Delete**.

   - To add a file to the meter, press the **Add a File** button at the bottom, then choose which file from the local files on your mobile device you want to send to the meter.

   - To select multiple files, press the **Select Multiple** button at the bottom, and then select the files to download or delete. Then select **Download** or **Delete**.



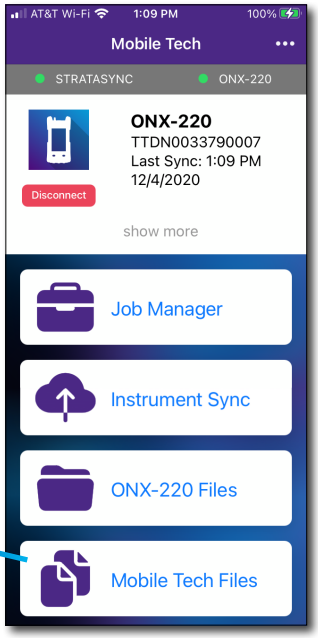
Mobile Tech Files

Use the **Mobile Tech Files** menu to manage the files on your mobile device, deploy to the OneExpert, upload to StrataSync, or export to another app on your device, such as text or email.

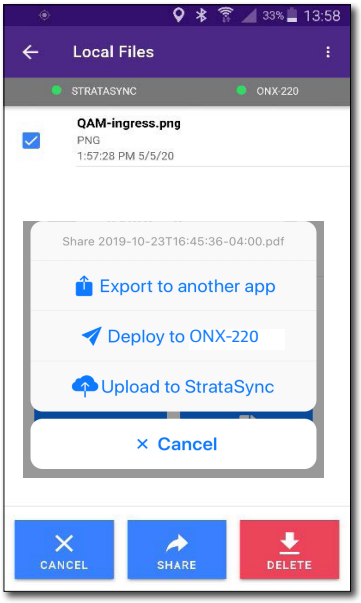
When you download files and reports from the OneExpert to save to your device, they will apper here.

To view PDF files, you may need to download a PDF reader app, such as Adobe PDF Reader.

1. From the Main menu, select **Mobile Tech Files**. Mobile Tech Files screen appears, showing the list of files on your mobile device.

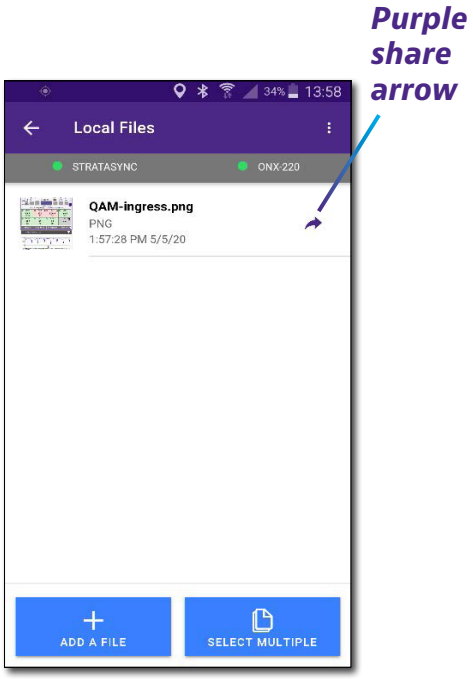


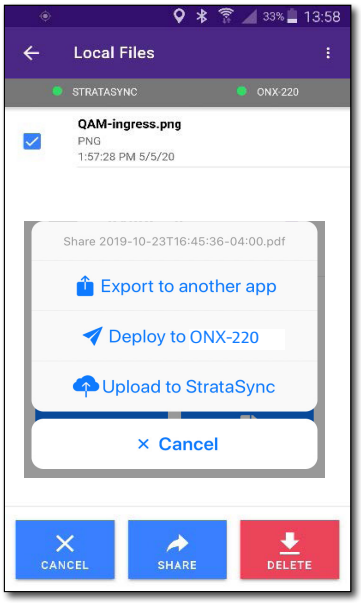
Mobile Tech Files

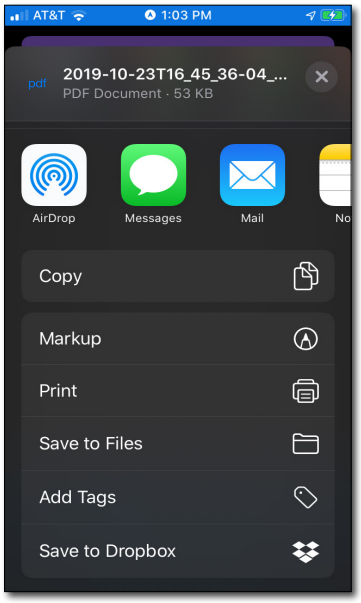


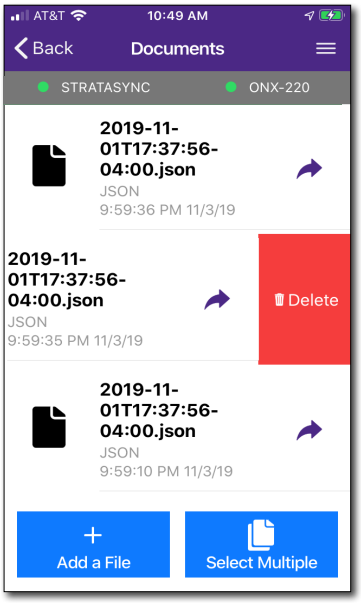
2. Select the purple share arrow to the right of the file you want to send. A pop-up will appear with the following options:
    - Export to another app
    - Deploy to OneExpert
    - Upload to StrataSync

    To return to the Main menu at any time, select **Back** in the upper left.
3. Choose the option you want. To export to another app, choose the app you want from the pop-up. The file will also be deployed or uploaded to StrataSync, if selected.
    - To delete a file, select the file and swipe to the left. Then select **Delete**.

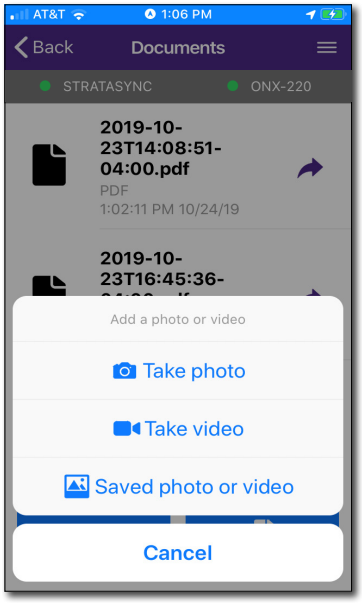


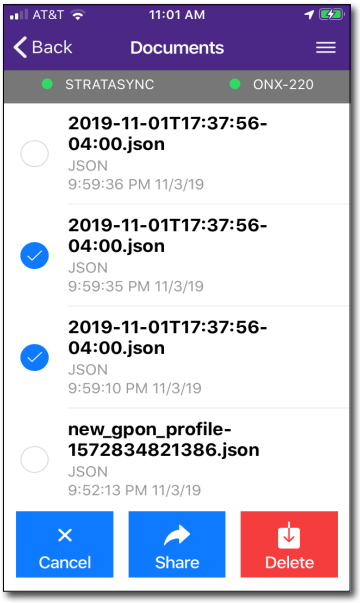






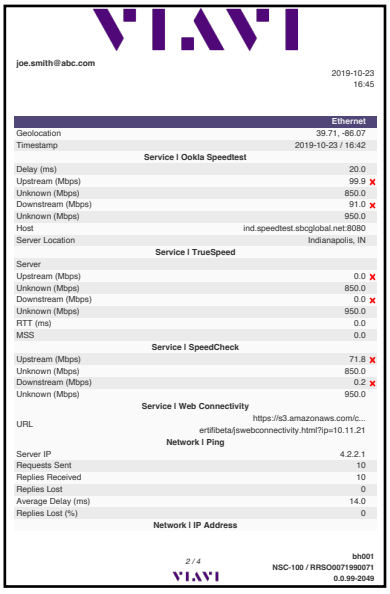
- To add a photo or video to the meter, press the **Add a File** button at the bottom, then choose **Take photo**, **Take video**, or **Saved Photo or video**.
- To select multiple files, press the **Select Multiple** button at the bottom, and then select the files to share or delete. Then select **Share** or **Delete**.





Managing files with StrataSync

When the OneExpert syncs with StrataSync, various files are uploaded and stored in the StrataSync cloud, such as test reports, screenshots, work orders, and configurations. You can access these files via the StrataSync website. For more information see *"Syncing to the StrataSync server" on page 205.*


joe.smith@abc.com

2019-10-23
16:45

Ethernet	
Geolocation	39.71, -86.07
Timestamp	2019-10-23 / 16:42
Service I Ookla Speedtest	
Delay (ms)	20.0
Upstream (Mbps)	99.9
Unknown (Mbps)	850.0
Downstream (Mbps)	91.0
Unknown (Mbps)	950.0
Host	ind.speedtest.sbcglobal.net:8080
Server Location	Indianapolis, IN
Service I TrueSpeed	
Server	
Upstream (Mbps)	0.0
Unknown (Mbps)	850.0
Downstream (Mbps)	0.0
Unknown (Mbps)	950.0
RTT (ms)	0.0
MSS	0.0
Service I SpeedCheck	
Upstream (Mbps)	71.8
Unknown (Mbps)	850.0
Downstream (Mbps)	0.2
Unknown (Mbps)	950.0
Service I Web Connectivity	
URL	https://s3.amazonaws.com/c... ertifibeta/jswebconnectivity.html?ip=10.11.21
Network I Ping	
Server IP	4.2.2.1
Requests Sent	10
Replies Received	10
Replies Lost	0
Average Delay (ms)	14.0
Replies Lost (%)	0
Network I IP Address	

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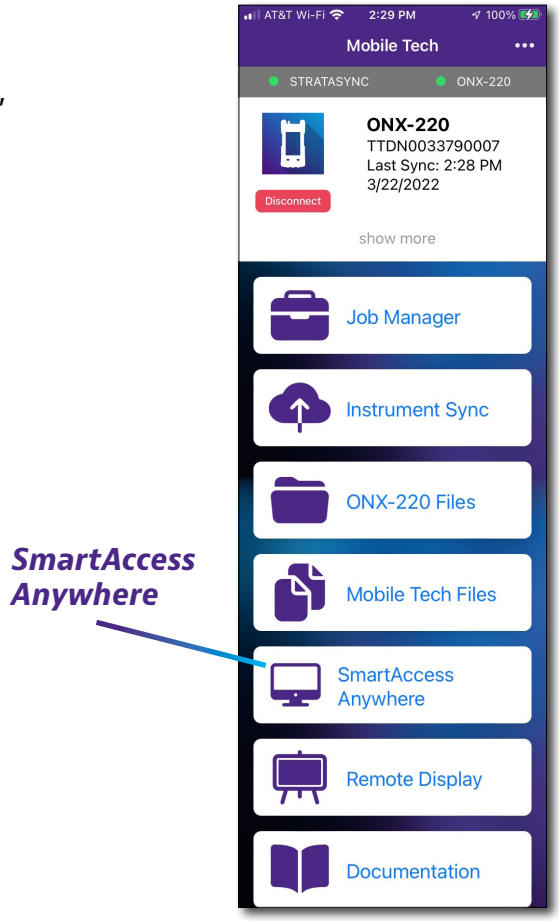
SmartAccess Anywhere

Smart Access Anywhere (SAA) allows secure, remote assistance for field techs directly on their instrument from a product or technical specialist in another location, including a central office or even another job site.

With Smart Access Anywhere (SAA) users can:

- Maximize experts' time to remotely coach less experienced personnel in the field
- Remotely control instruments minimizing time spent inside customer premises
- Access remote instruments without driving out to their location

Using a laptop, tablet or smartphone, an instrument can be remotely controlled in order to verify correct instrument/test configuration and to launch, view, and analyze results in real-time.



For client downloads and more information, see:

https://www.viavisolutions.com/en-us/products/smart-access-anywhere-saa

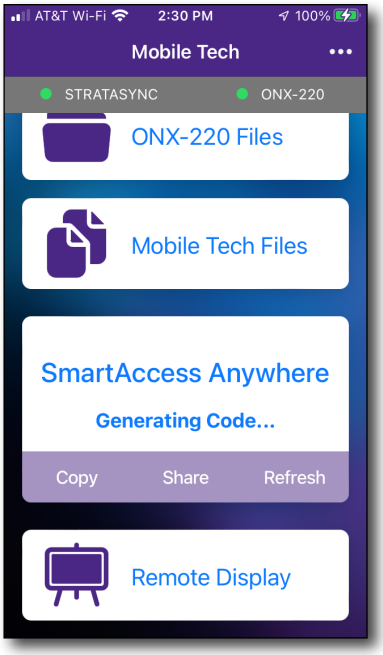
https://www.viavisolutions.com/en-us/software-download/smart-access-anywhere-saa-software

VIAVI provides links to Android and PC only. You can find the iOS version in the Apple App store.

Generating an SAA Code

1. From the Main menu, select **SmartAccess Anywhere**. The SmartAccess Anywhere screen appears.
2. Select **Generate Code**. After a few seconds, a code will be generated.
3. At the bottom, select **Copy** or **Share** to share with another application, such as text or email.

   If you need a new code, select **Refresh**.
4. Share the SAA code with your product or technical specialist to remotely connect to your unit.



11

Test Results

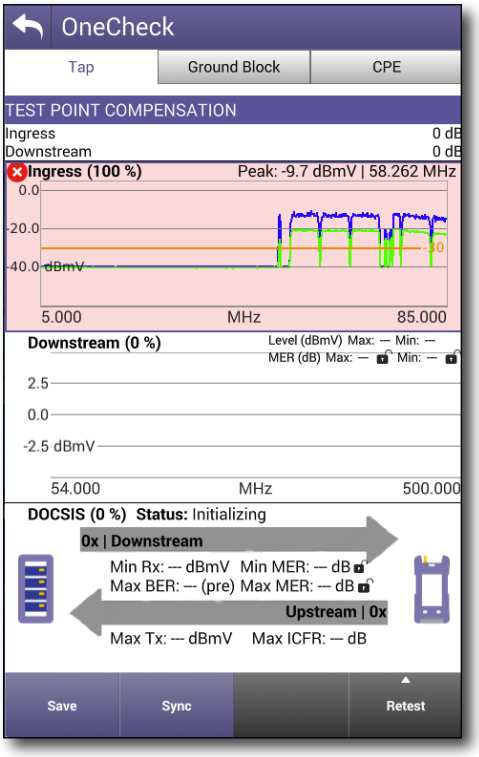
This chapter describes the test results that are gathered when running a test. Topics in this chapter include the following:

OneCheck results

The OneCheck results dashboard is comprised of the following areas:

- Upstream
- Downstream
- DOCSIS

Each area has an associated detailed results view accessible by double-tapping within its dashboard area.



Upstream Results

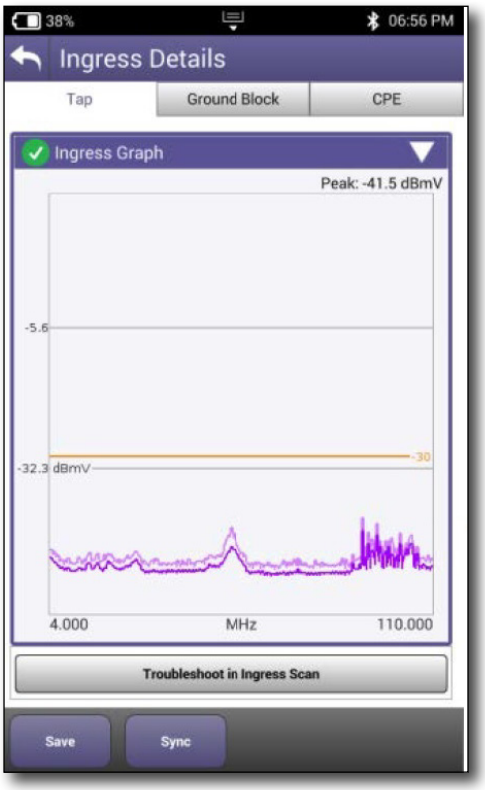
The expanded OneCheck Upstream results screen is accessible by double-tapping on the Upstream area of the OneCheck results dashboard.

The expanded Upstream area displays a scan of the ingress waveform.

To switch directly to the Ingress Scan test application for closer analysis and troubleshooting of the circuit, select the **Troubleshoot in Ingress Scan** button.

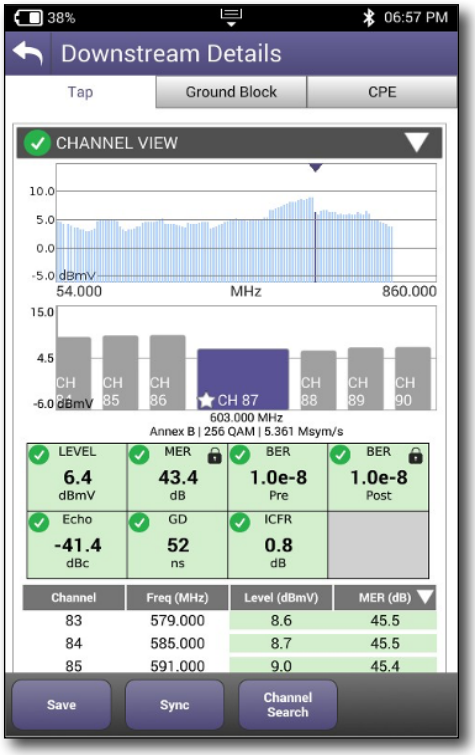
To get an updated scan of the circuit under test, select the **Sync** button

To save the scan for future reference, select the **Save** button.



Downstream Details

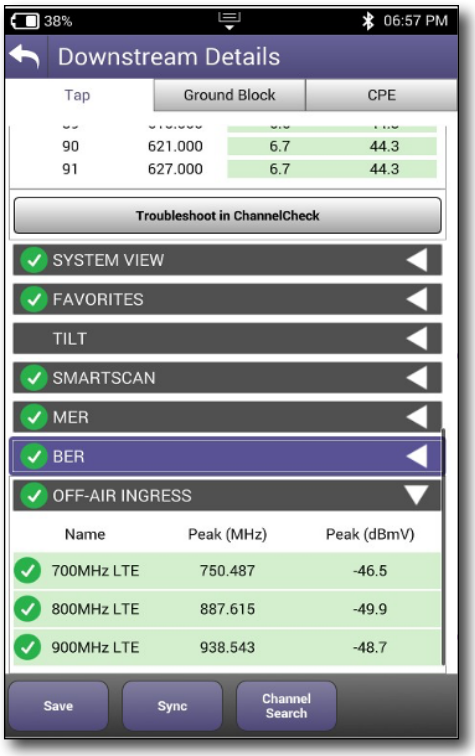
The expanded OneCheck Downstream results screen is accessible by double-tapping on the Downstream area of the OneCheck results dashboard.



The OneCheck results screen displays a series of expandable screens quantifying the Downstream performance, as follows:

- Channel View
- System View
- Favorites
- Tilt
- Smartscan (optional)
- MER
- BER
- Off-Air Ingress

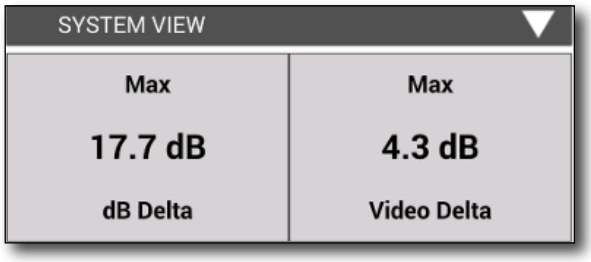
OneCheck does not display live results. To switch to live measurement, press the **Troubleshoot In Channel Check** button.



Some of these features are similar to ChannelCheck, but we'll cover the differences here. For more detail, see *"ChannelCheck results" on page 225.*

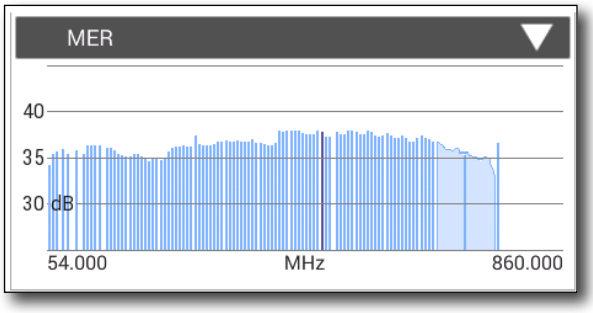
System View

The System View screen displays the current max dB and video deltas.



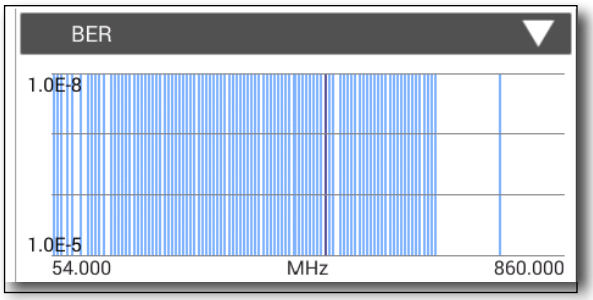
MER

The MER screen displays the current MER performance.



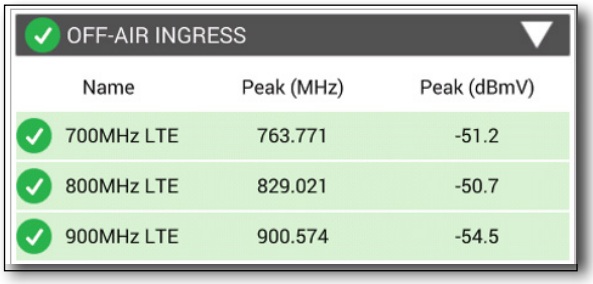
BER

The BER screen displays the current BER performance.



Off-Air Ingress

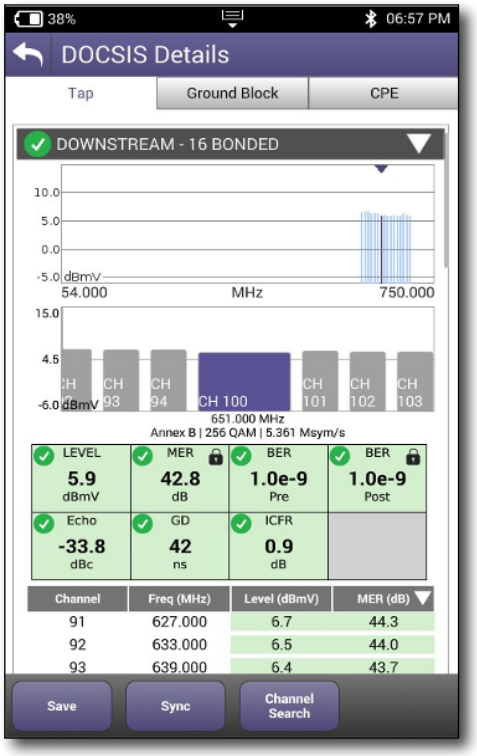
The Off-Air Ingress screen displays the current peak off-air ingress performance for both frequency and level.

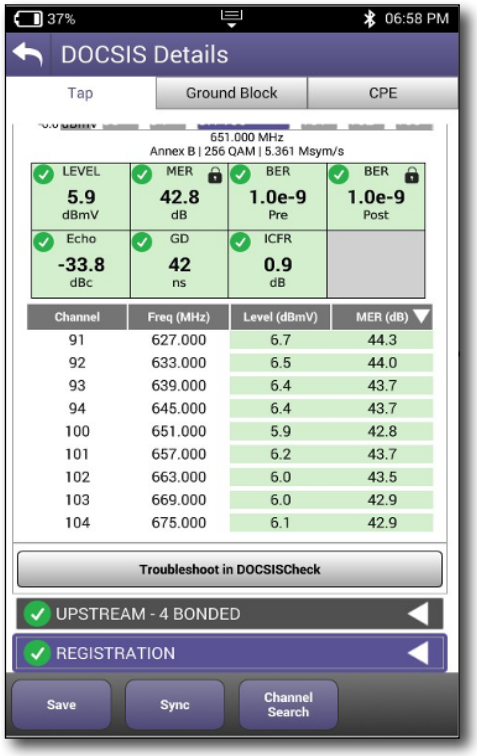


DOCSIS Details

The expanded OneCheck DOCSIS results screen is accessible by double-tapping on the DOCSIS area of the OneCheck results dashboard.

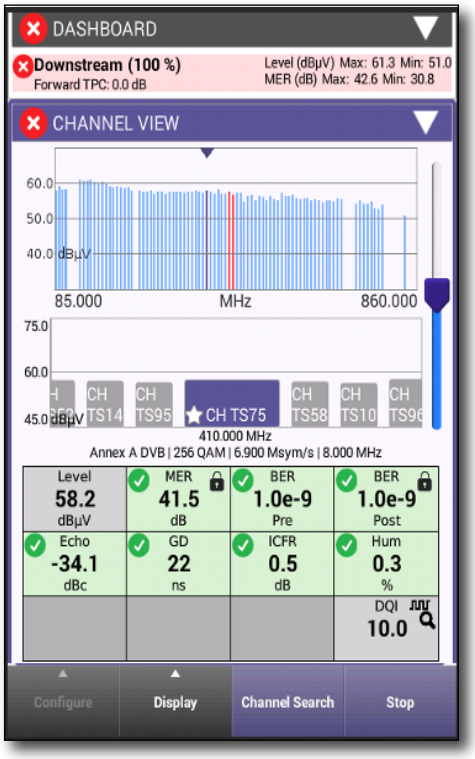
All the results displayed are similar to those described later in this chapter, except that OneCheck does not display live results. See *"DOCSISCheck results" on page 232*





ChannelCheck results

ChannelCheck results screen displays a series of expandable screens quantifying the Downstream performance, as follows:



QAM Channels

- Limits Deviation (Dashboard)
- Channel View
- Spectrum/IUC
- Level Over Time (optional)
- MER Over Time (optional)
- BER Over Time (optional)
- DQI Over Time (optional)
- ICFR (optional)
- Tilt
- Smartscan (optional)
- Favorites
- Constellation

OFDM Channels

Measurements for OFDM channels remove all of the over time and constellation measurements mentioned above, and instead include:

- Level Variation
- MER Variation
- Profile Analysis

NOTE:

The Over Time measurements are available for the optional PRO options package only.

Dashboard

Displays the condition of the incoming testing results when compared to the limits configured in StrataSync.

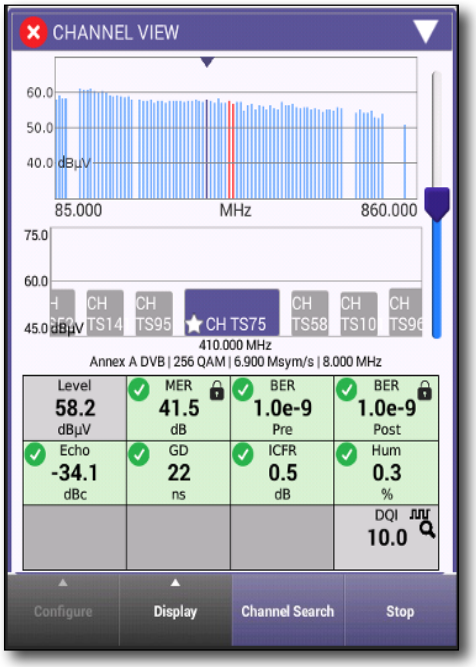
Channel View

The Channel view provides a full scan view of the test circuit with markers for the currently selected channel and the frequency range displayed.

The Adjacent Channels graph indicates the selected channel and its adjacent channels.

The Measurements table provides values for the parameters under test, indicating their condition in comparison to the configured limits.

Data values for the focused channel are provided for the following:

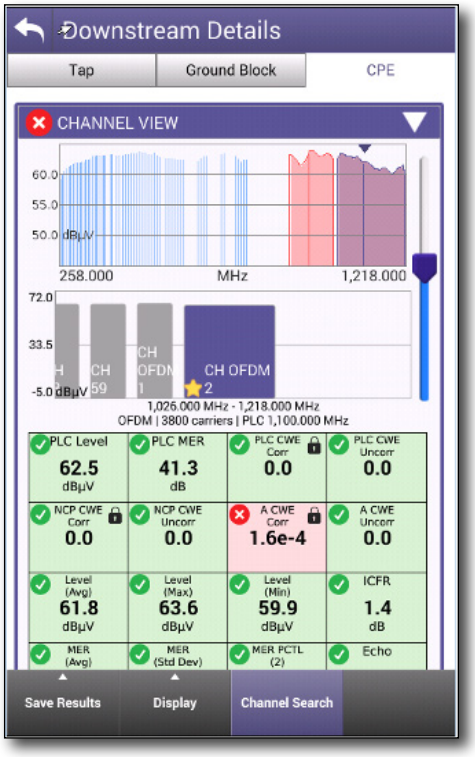


QAM Channels

- Level
- MER
- BER
- BER
- Echo
- GD
- ICFR
- DQI

OFDM Channels

Measurements for OFDM channels provide more detail for PLC and MER levels and code word errors, including:



- PLC (PHY Link Channel) Level
- PLC MER
- PLC CWE (Code Word Error) Correctable
- PLC CWE Uncorrectable
- NCP (Next Codeword Pointer) CWE Correctable
- NCP CWE Uncorrectable
- A CWE Correctable
- A CWE Uncorrectable

Codeword (CW) – A data bucket within a DOCSIS packet

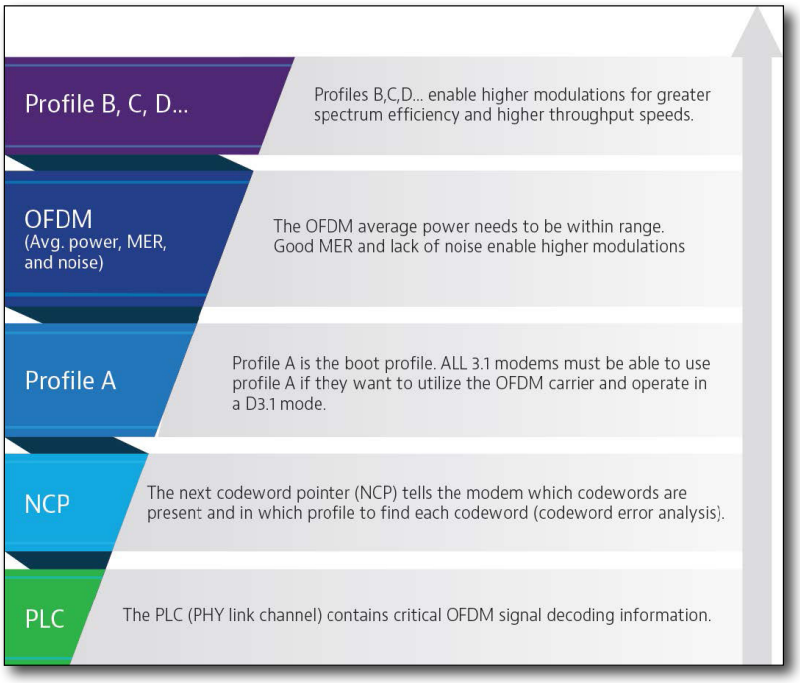
CW Error (CWE) – A byte-level data packet corruption resulting from QAM symbol displacement across constellation decision boundaries. LDPC can fix it or not:

- Correctable CWE (CCWE) are an early warning that the uncorrectable threshold may be near! Think pre-FEC BER.
- Uncorrectable CWE (UCWE) indicate dropped packets. Retransmit is required for recovery. Think post-FEC BER.

CCWE vs. UCWE is determined by number of corrupted symbols relative to CMTS forward error correction level settings.

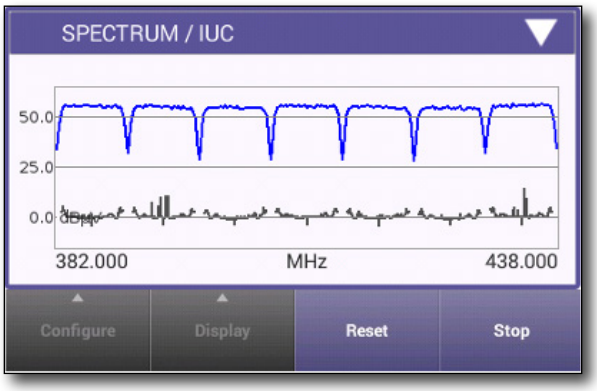
There is no recovery from dropped packets for real-time apps like VoIP.

Important: For a good D 3.1 signal, you want to make sure there are no uncorrectable CWE.



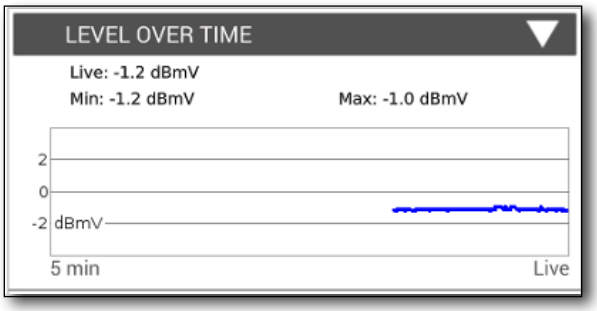
Spectrum/IUC

The Spectrum / IUC screen provides live spectral data and a view of Ingress Under Channel interference.



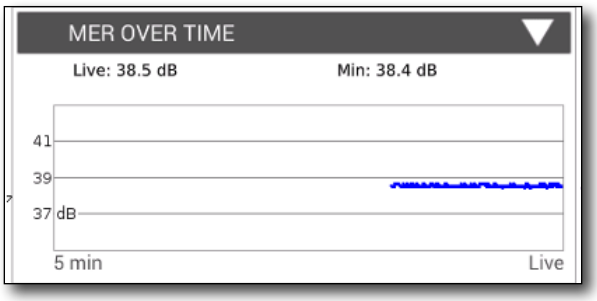
Level Over Time (optional)

The Level Over Time screen displays a graph and key parameters of the historical level of interference measured up to the present. This is an optional feature.



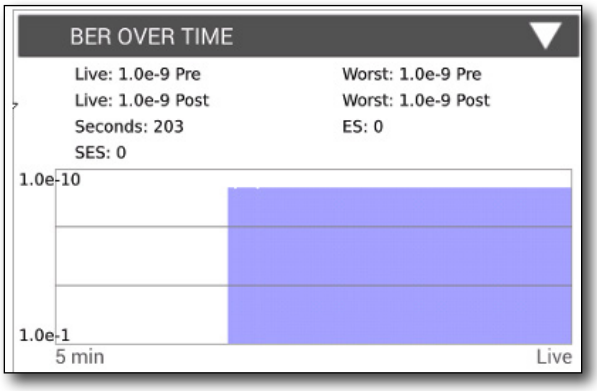
MER Over Time (optional)

The MER Over Time screen displays a graph of the historical MER performance up to the present. This is an optional feature.



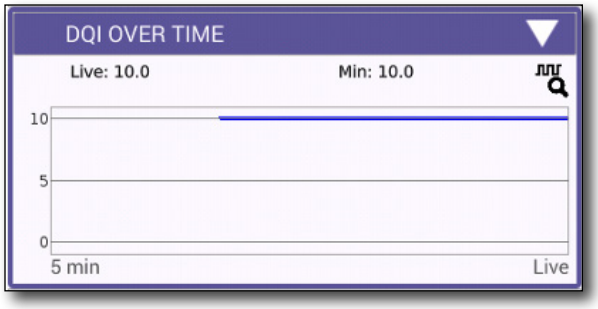
BER Over Time (optional)

The BER (both pre- and post) Over Time screen displays a graph of the historical BER performance up to the present. This is an optional feature.



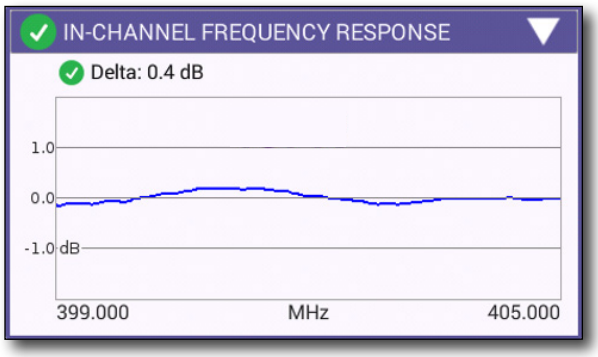
DQI Over Time (optional)

The DQI Over Time screen displays a graph of the historical DQI performance up to the present. This is an optional feature.



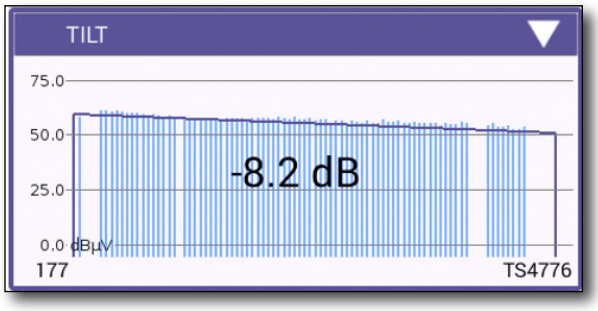
ICFR (In-Channel Frequency Response) (optional)

The In-Channel Frequency Response (ICFR) screen shows the flatness of the selected channel. This is an optional feature.



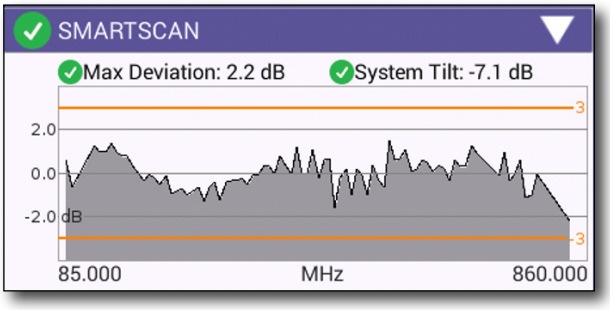
Tilt

The Tilt screen shows the the level difference between two selectable channels.



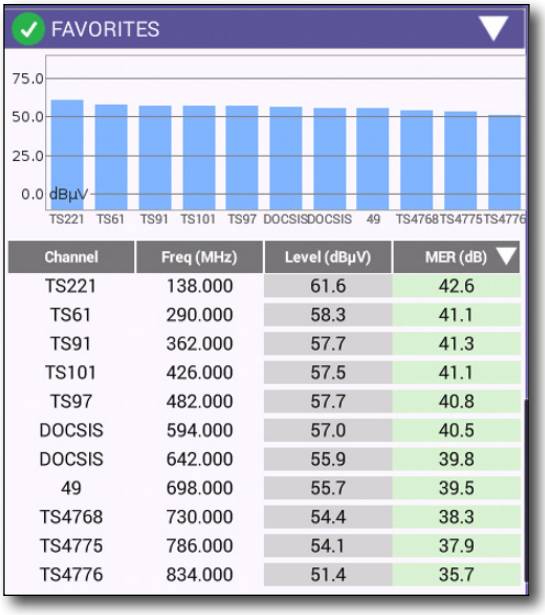
SmartScan (optional)

The SmartScan screen simplifies system analysis by taking out the effects of tilt and different carrier types at TAP, GB and CPE. This is an optional feature.



Favorites

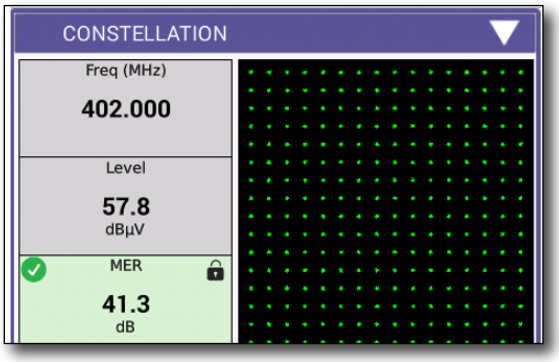
The Favorites screen shows the Level and MER of channels selected for monitoring by the user in both graphical and table format.



Channel	Freq (MHz)	Level (dBµV)	MER (dB)
TS221	138.000	61.6	42.6
TS61	290.000	58.3	41.1
TS91	362.000	57.7	41.3
TS101	426.000	57.5	41.1
TS97	482.000	57.7	40.8
DOCSIS	594.000	57.0	40.5
DOCSIS	642.000	55.9	39.8
49	698.000	55.7	39.5
TS4768	730.000	54.4	38.3
TS4775	786.000	54.1	37.9
TS4776	834.000	51.4	35.7

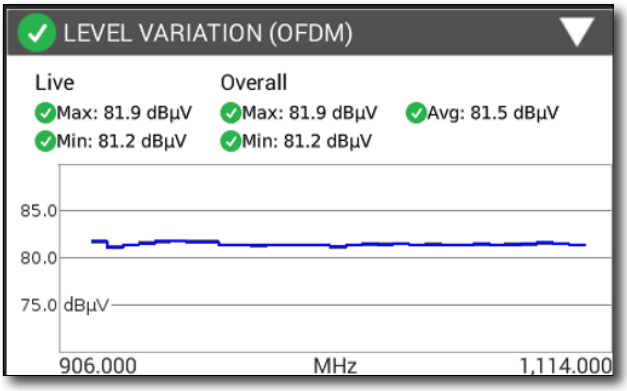
Constellation

The Constellation screen shows the constellation diagram for quick analysis of interference and distortion.



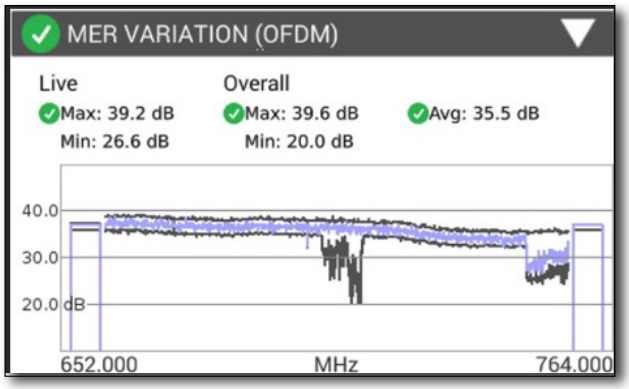
Level Variation (OFDM)

The Level Variation screen shows the live and overall level variation values and graph for the channel.



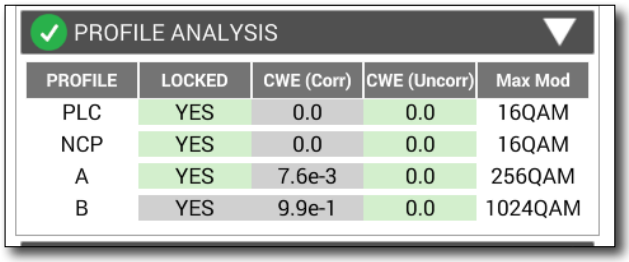
MER Variation (OFDM)

The MER Variation screen shows the live and overall MER variation values and graph for the channel.



Profile Analysis (OFDM)

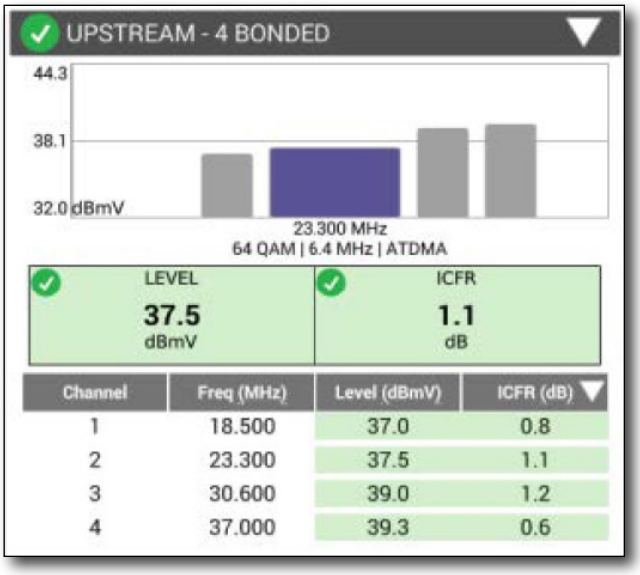
The Profile Analysis shows the profiles and code word errors for the channel.



PROFILE	LOCKED	CWE (Corr)	CWE (Uncorr)	Max Mod
PLC	YES	0.0	0.0	16QAM
NCP	YES	0.0	0.0	16QAM
A	YES	7.6e-3	0.0	256QAM
B	YES	9.9e-1	0.0	1024QAM

DOCSISCheck results

DOCSIS results are updated every time a new channel is selected for test and include the following:



QAM Channels

- Dashboard
- Downstream
- Level Over Time (optional)
- MER Over Time (optional)
- BER Over Time (optional)
- DQI Over Time (optional)
- Upstream
- Transmit Over Time
- Upstream ICFR (optional)
- Upstream EQ Analysis
- Registration
- Throughput (optional)
- PING/Traceroute (over DOCSIS) (optional)
- Packet Quality (optional)

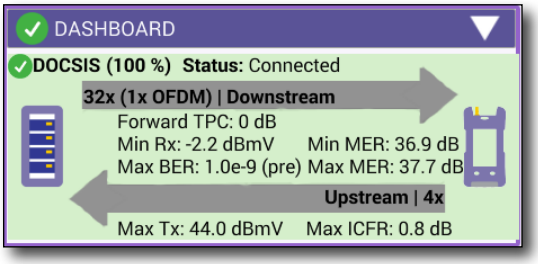
OFDM Channels

Measurements for OFDM channels remove all of the over time measurements mentioned above, and instead include:

- Level Variation
- MER Variation
- Profile Analysis

Dashboard

The Dashboard displays condition, status and upstream and downstream performance data for the selected demarcation point.



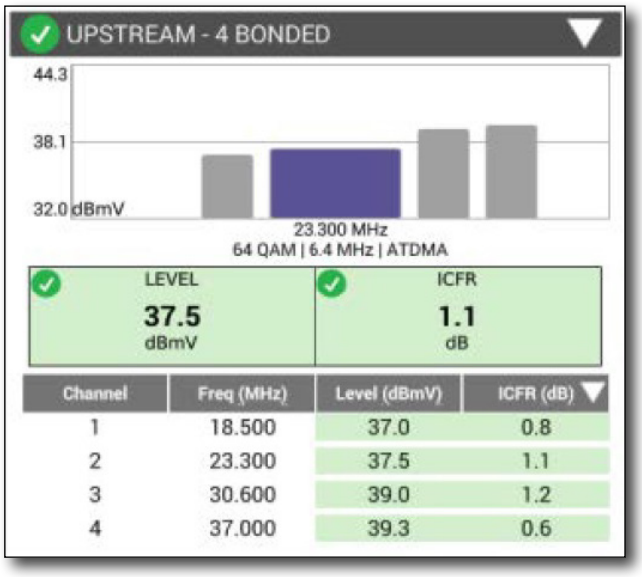
Downstream

The Downstream screen displays the specification and performance data for the currently selected downstream DOCSIS channel.

To change channel selection (updating the results), swipe right or left and click on a new channel.

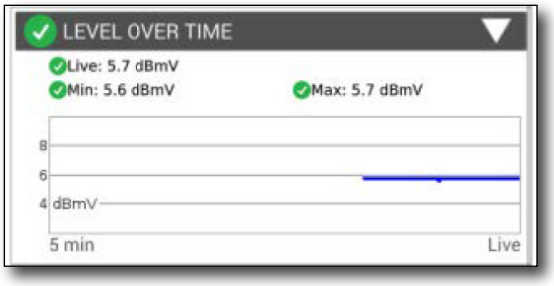
The data displayed is as follows:

- Channel frequency
- QAM level
- Msym/s
- Level
- MER
- BER



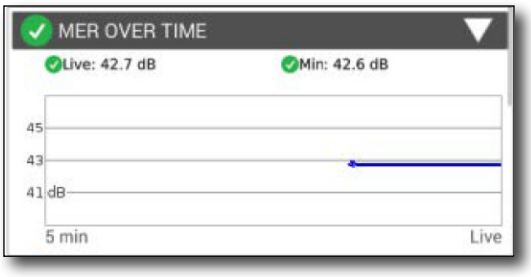
Level Over Time (optional)

The Level Over Time screen displays a graph of the historical Level performance up to the present. This is an optional feature.



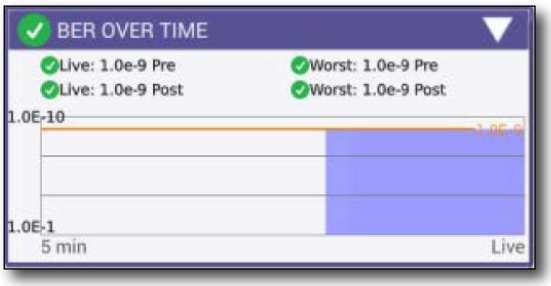
MER Over Time (optional)

The MER Over Time screen displays a graph of the historical MER performance up to the present. This is an optional feature.



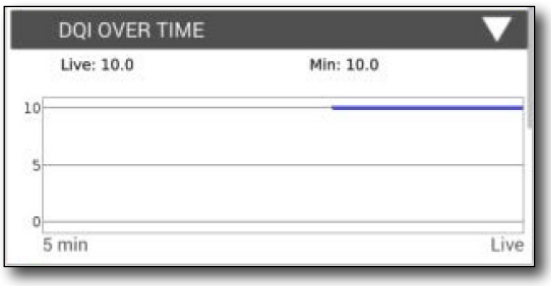
BER Over Time (optional)

The BER Over Time screen displays a graph of the historical BER performance up to the present. This is an optional feature.



DQI Over Time (optional)

The DQI Over Time screen displays a graph of the historical DQI performance up to the present. This is an optional feature.



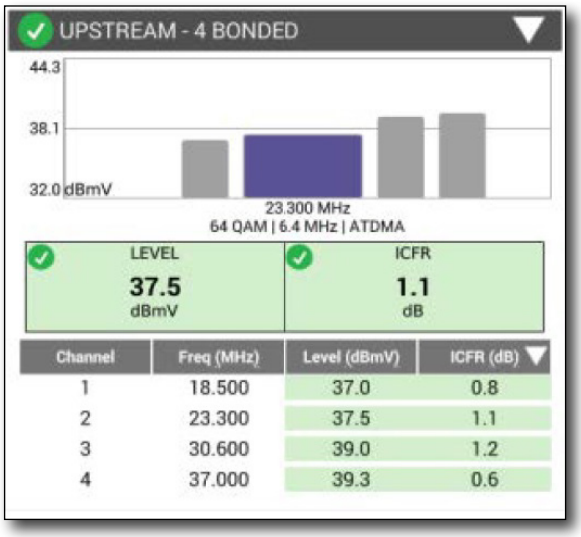
Upstream

The Upstream results screen displays the specification and performance data for the currently selected upstream DOCSIS carrier.

To change active carrier selection, just click on a new carrier.

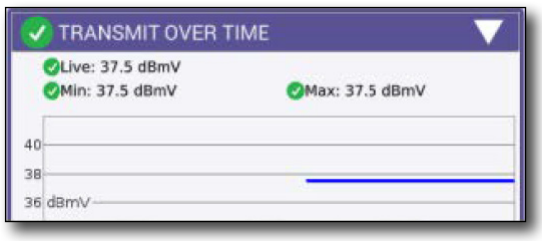
The data displayed is as follows:

- Carrier frequency
- QAM level
- Bandwidth
- ATDMA
- Level (dBmV)
- ICFR (dB)



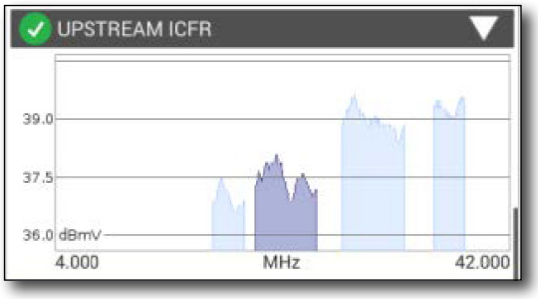
Transmit Over Time (optional)

Displays a graph of the level of the upstream carrier under test as well as minimum and maximum values during the test. This is an optional feature.



Upstream ICFR (optional)

Displays a graph of the In-Channel Frequency Response for all bonded carriers. This is an optional feature.



Upstream EQ Analysis

Displays a graph of the Upstream EQ Analysis with the footage to impedance mismatch.

Data pertaining to the focused signal is displayed at the bottom of the screen.

Registration

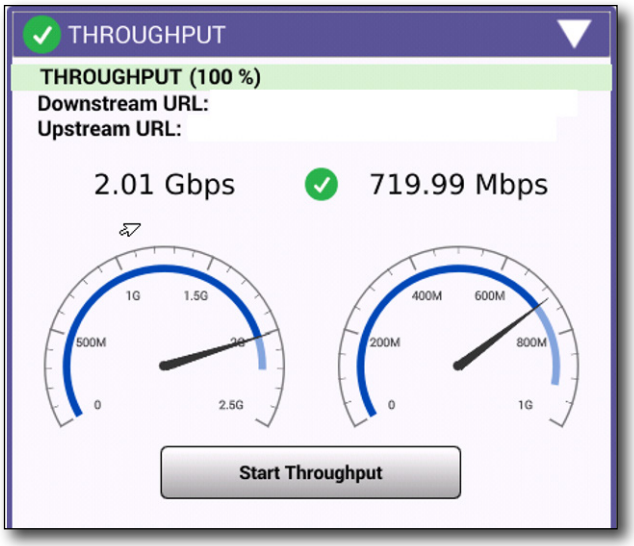
The registration screen displays the registration and configuration information for the modem, CPE and server connections in the current test setup.

Throughput (optional)

The Throughput screen allows for initiating DOCSIS throughput testing (send and receive) and results display. This is an optional feature.

The meter must be provisioned for data service to be able to conduct this test.

For throughput testing, ONX meters are defaulted to public servers that have limited bandwidth capabilities. Other servers are configurable via StrataSync.



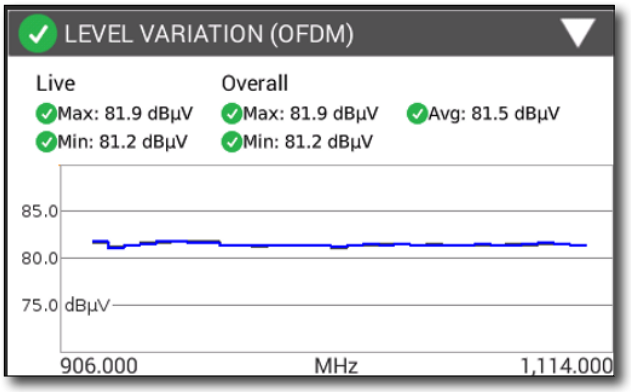
Ping/Traceroute (over DOCSIS) (optional)

The Ping/Traceroute screen allows the technician to conduct Ping testing and display results for Current, Minimum, Maximum and Average results. This is an optional feature.

The meter must be provisioned for data service to be able to conduct this test.

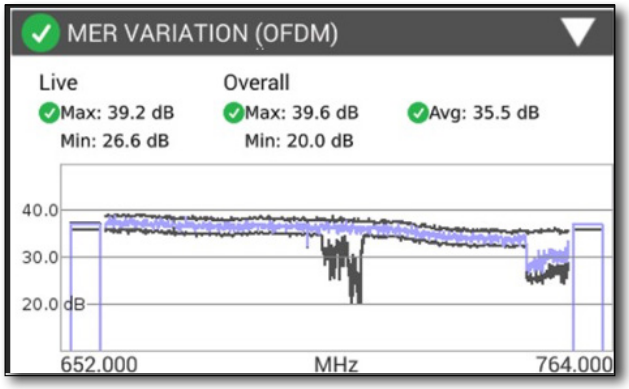
Level Variation (OFDM)

The Level Variation screen shows the live and overall level variation values and graph for the channel.



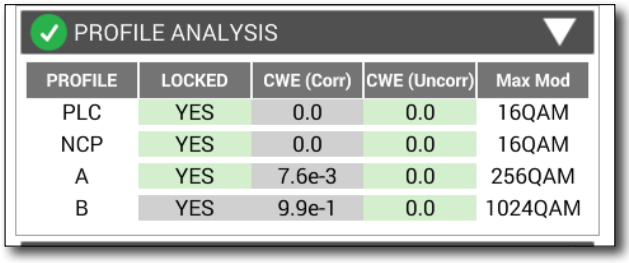
MER Variation (OFDM)

The MER Variation screen shows the live and overall MER variation values and graph for the channel.



Profile Analysis (OFDM)

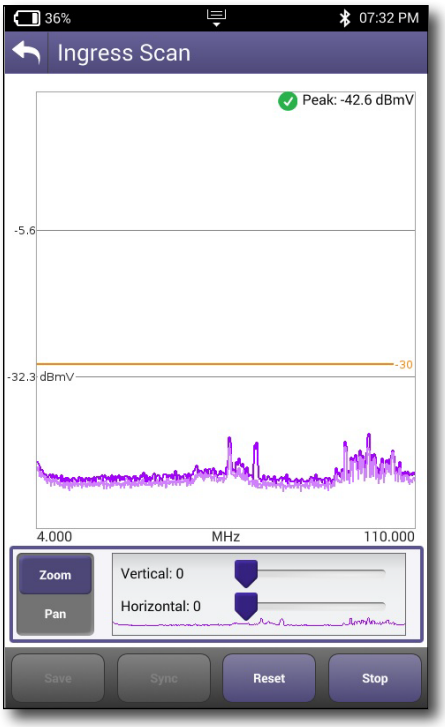
The Profile Analysis shows the profiles and code word errors for the channel.



PROFILE	LOCKED	CWE (Corr)	CWE (Uncorr)	Max Mod
PLC	YES	0.0	0.0	16QAM
NCP	YES	0.0	0.0	16QAM
A	YES	7.6e-3	0.0	256QAM
B	YES	9.9e-1	0.0	1024QAM

Ingress Scan results

Ingress Scan results screen displays a graph of the interference detected and the preset threshold level.



Changing the display

The controls at the bottom of the screen are used to more closely analyze the detected interference by expanding or panning to a particular portion of the detected signal.

Zooming

To activate the Zoom feature, select the **Zoom** button.

The signal can now be expanded in the vertical and/or horizontal axes using the sliders.

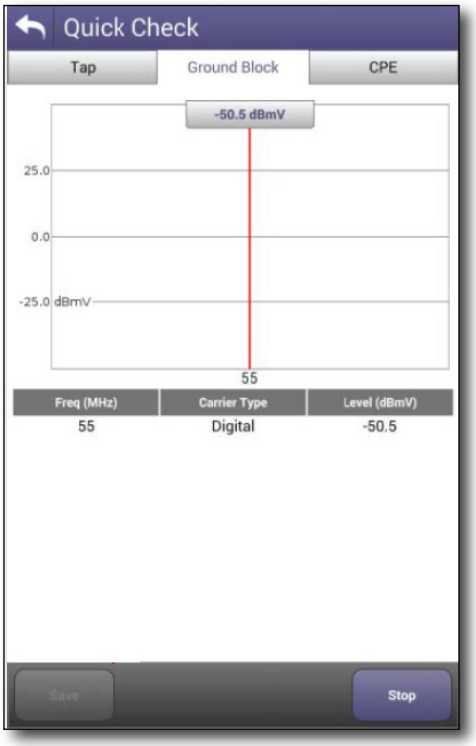
Panning

To activate the Pan feature, select the **Pan** button.

Adjusting the sliders will cause the display to move in the horizontal or vertical direction without changing the level of magnification.

Quick Check results

Quick Check results screen displays a graph of the specified channel's signal strength at the selected demarcation point along with its type.



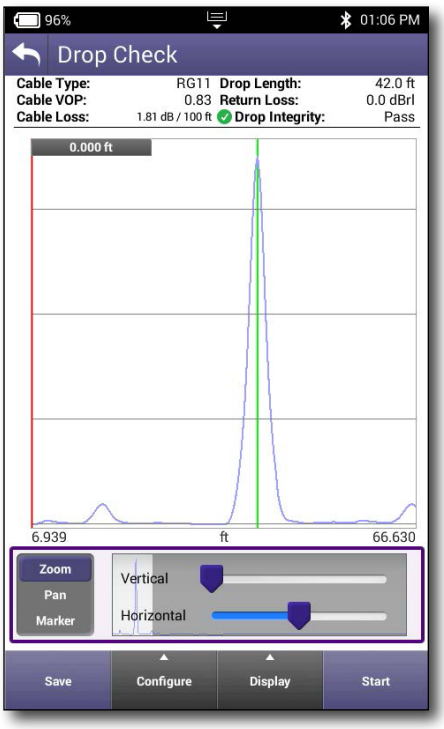
Cable Fault Finder results

Drop Check

The Cable Fault Finder, Drop Check results screen displays a graph of the maximum reflection detected and will continuously update to show any adjustments as they are performed.

The Cable Fault Finder is intended to troubleshoot home coax networks and automatically identifies any reflections greater than -25dBrl

- If only 1 reflection is > -25dBrl, then Cable integrity passes
- If 2 or more reflections are > -25dBrl, then Cable integrity fails

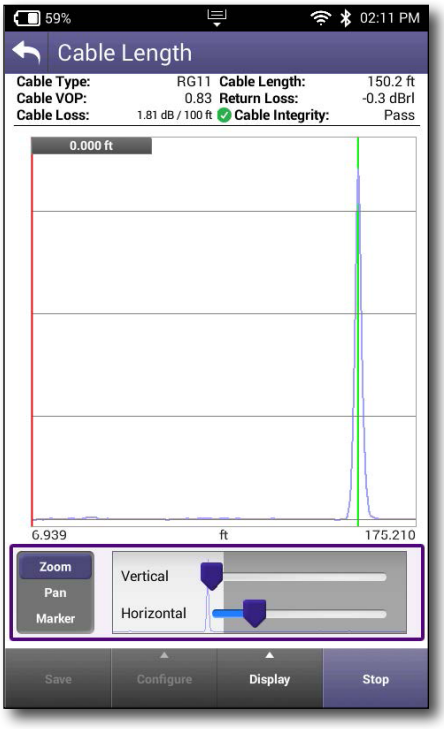


Cable Length

The Cable Length screen shows the distance of any coax cable.

The cable length measurement is determined by:

- First, identifying the amplitude and distance to the largest reflection
- When additional reflections are found beyond the distance to the largest reflection and their amplitude;
  - **IS NOT** within 7.5 dB of the largest reflection, the distance to the largest reflection will be marked as the end of the cable
  - **IS** within 7.5 dB of the largest reflection, the distance to the furthest reflection that meets this criteria will be marked as the length to the end of the cable



Changing the display

The controls at the bottom of the screen are used to more closely analyze the detected reflection by expanding or panning to a particular portion of the detected signal.

Select the **Display** button to rotate to landscape or portrait view, highlight reflections, and show delta markers.

Zooming

To activate the Zoom feature, select the **Zoom** button.

The signal can now be expanded in the vertical and/or horizontal axes using the sliders.

Panning

To activate the Pan feature, select the **Pan** button.

Adjusting the sliders will cause the display to move in the horizontal or vertical direction without changing the level of magnification.

Changing Cable Type

Select the **Configure** button to change the cable type or create your own.

- **Velocity of Propagation (Vop)** – Affects the calculated distance value
- **Cable Loss** – Affects the calculated return loss value

Moving the markers

To move the onscreen markers, simply drag or use the directional arrow buttons.

- Any reflection that has been automatically detected, including the end of the cable will be shown graphically with a green vertical line.
- Placing a single or delta marker at any automatically detected event location will show the distance and the return loss amplitude of the fault.
- Use a single marker to see the distance to any point on the graph.
- Delta markers can also be used to see distance differences between any 2 points on the graph.
- Return loss will also be displayed for any automatically detected events that are selected by the markers.

Adding a second marker

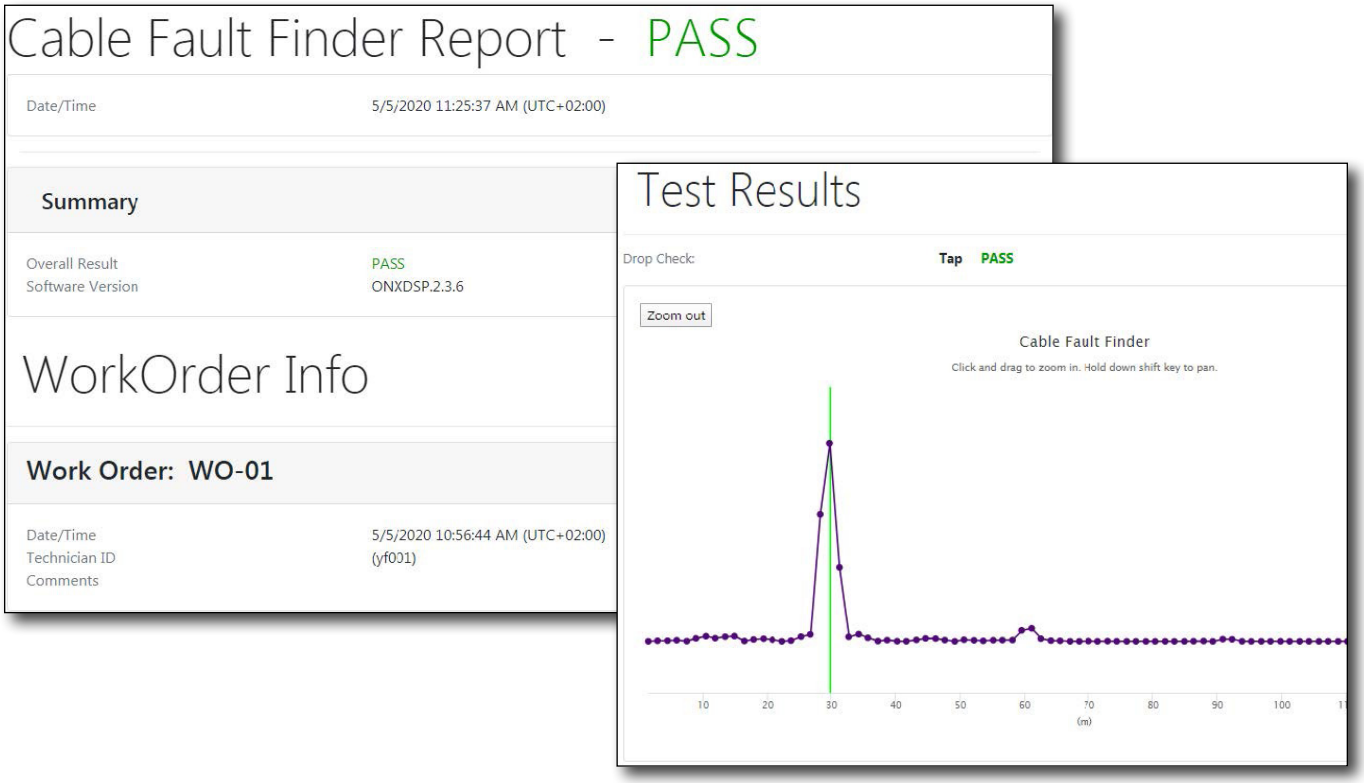
To add a second marker for delta measurements, just double tap the screen and it will appear. Drag to the desired location and the displayed measurements will automatically update to delta intervals.

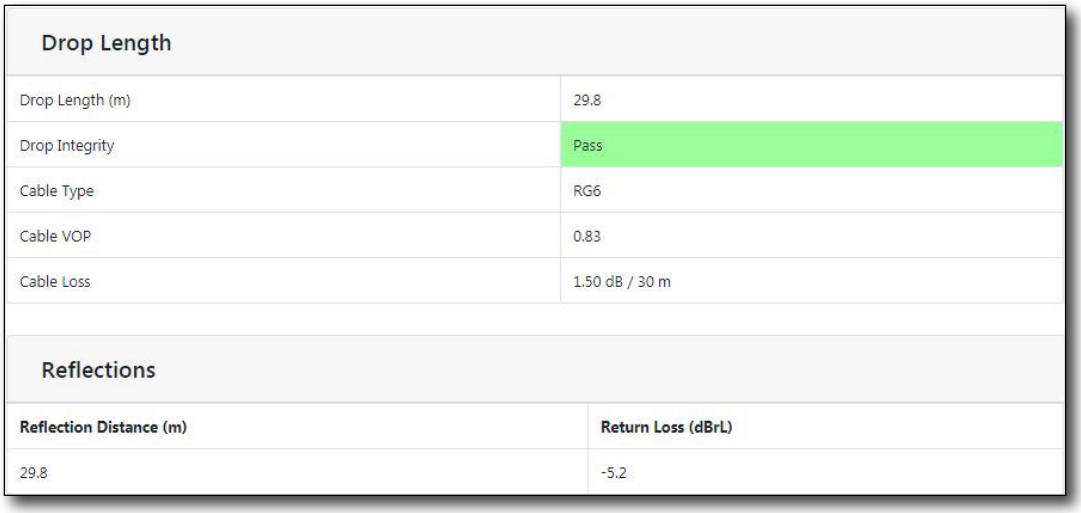
Stopping the test

Select the **Stop** button to prevent the meter from taking any more readings and updating the results.

StrataSync reports

You can see more detailed reports for the Cabel Fault Finder tests you associated to each work order in StrataSync.





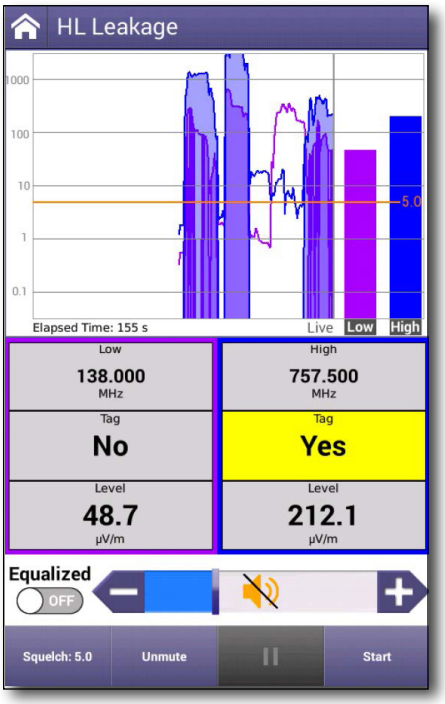
Drop Length

Drop Length (m)	29.8
Drop Integrity	Pass
Cable Type	RG6
Cable VOP	0.83
Cable Loss	1.50 dB / 30 m

Reflections

Reflection Distance (m)	Return Loss (dBrL)
29.8	-5.2

HL Leakage results



Hl Leakage results screen displays a graph of the leakage detected and the preset threshold level.

In HL test mode and walking around subscriber premises, the ONX measures signals off the air looking specifically for the HL Transmitter's two leakage signals.

Each HL Tx signal has a special identification modulation called a "Tag." When either of these two signals are measured, the signal level and Tag are displayed.

If the signal's Tag is detected and its measured level exceeds the configured squelch level, then the ONX emits an audible tone and the "Tag" box changes to yellow.

For example, if squelch was set to 5µV/m, the signal level must exceed 5µV/m and the Tag must be detected (Yes) to turn the box yellow and to emit an audible tone (mute on).

As you approach the leak, a higher signal level will be measured. The audio sound, the bar graph, and history chart are updated to show these level variations.

Equalizing the signal

When equalization is on, the ONX reads a level that compensates for the high levels injected by the HL transmitter. This reflects levels that would be read assuming expected service carrier levels.

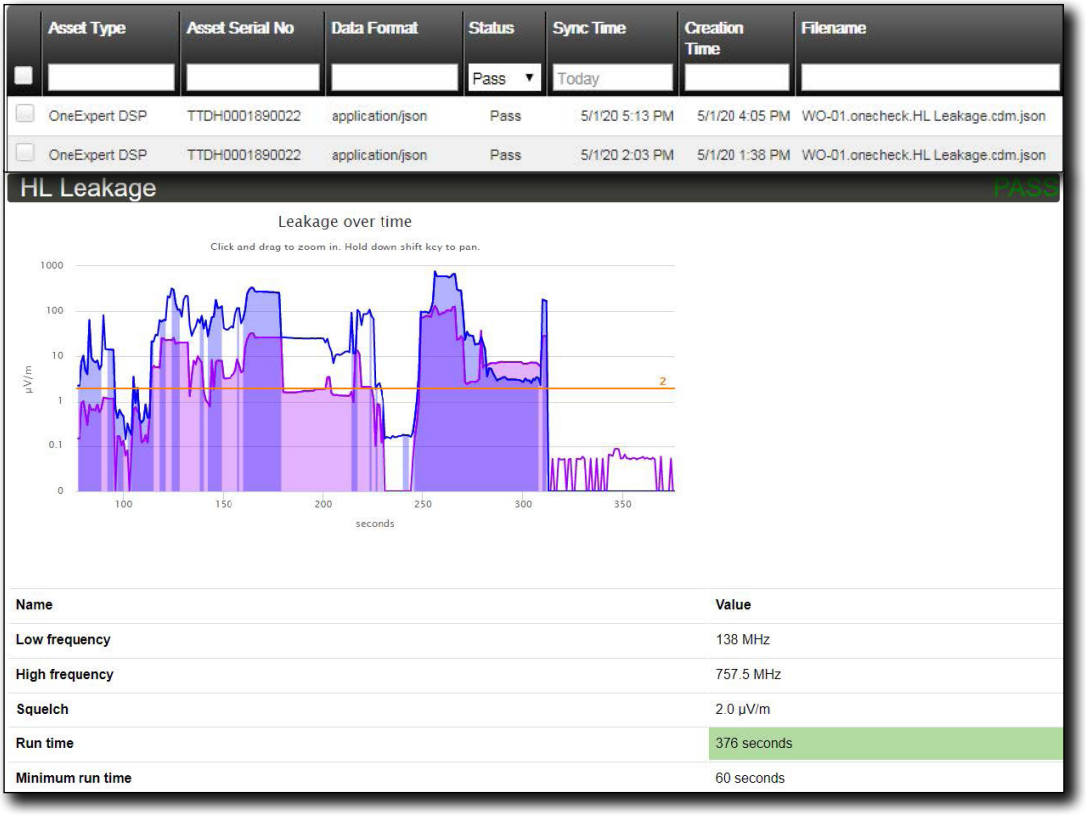
When off, the ONX reads the uncorrected value of the leak. This level is likely to be high, as the HL transmitter injects high level tagged signals.

Adjusting the volume and mute

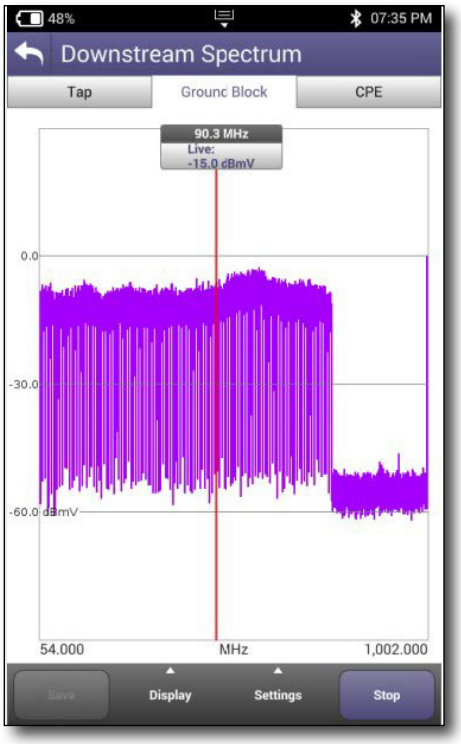
Audio sound volume can be adjusted using the volume bar at the bottom of the screen, or the **Mute** button can be enabled to fully mute the audible tone when desired.

StrataSync reports

You can see more detailed reports for the leakage tests you associated to each work order in StrataSync.



Spectrum results



The Spectrum results display screen contains controls for changing the frequency spectrum display from the selected demarcation point, change RBW and AGC settings and stopping the test.

The onscreen markers specifying the point or interval to be measured can also be adjusted.

Moving the markers

To move the on-screen markers, simply drag or use the directional arrow buttons.

Adding a second marker

To add a second marker for delta measurements, just double tap the screen and it will appear. Drag to the desired location and the displayed measurements will automatically update to delta intervals.

Changing the Display

Select the **Display** button to rotate to landscape or portrait view, change division size, change span or toggle Live/Max and Min traces.

Changing RBW and AGC

Select the **Settings** button to change the RBW or AGC settings.

Stopping the test

Select the **Stop** button to prevent the meter from taking any more readings and updating the results.

WiFi Scan results

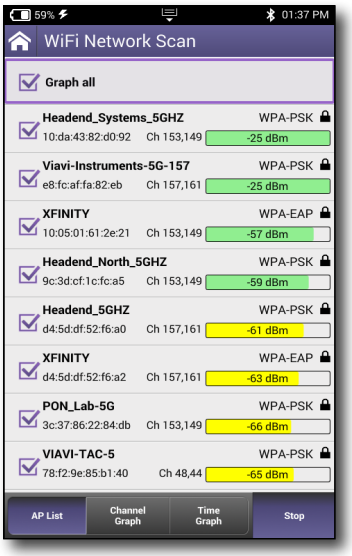
WiFi Scan results are available in three different formats:

- Access Point (AP) List
- Channel Graph
- Time Graph

AP List

To view the list of available APs, select the **AP List** button at the bottom of the screen.

The list of all detected WiFi networks is shown here.



List Data

The AP List provides the following data on each WiFi network:

- Network Name
- Network MAC Address
- Security Type
- Channel
- Signal Strength (Colored Bar Graph)
- Signal Strength (dBm)

Choosing APs to graph

To select those APs that you would like to be include in the graphs, select the checkbox in front of its entry.

To include all APs in the list, select he **Graph all** checkbox in the header.

Channel Graph

To view a graph of the selected APs, select the **Channel Graph** button at the bottom of the screen.

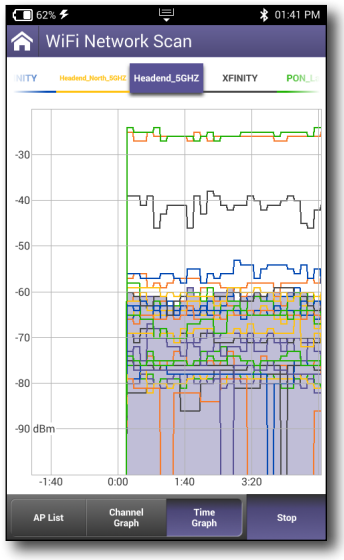
To select which view you would prefer to be graphed, select the **2.5MHz** or the **5.0MHz** tab at the top of the screen.

To stop the graphing of the selected network signals, select the **Stop** button.

Time Graph

To view a color-coded graph of the selected APs signal level over time, select the **Time Graph** button at the bottom of the screen.

To stop the graphing of the selected network signals, select the **Stop** button.



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Appendix

This appendix includes troubleshooting and supplemental information, including the following:

Cleaning the instrument

The instrument itself does not require any specialized cleaning. An occasional wipe with a damp cloth is sufficient.

NOTE:

When cleaning the instrument, use a damp cloth and water only. Cleaning with chemicals could cause damage to the plastic case, buttons, or removal of markings.

Resolving problems

If you are having trouble with the OneExpert, the following sections describe common problems and solutions. You should verify whether your problem is listed here before contacting technical assistance.

General testing

- **Inconsistent test results** – Verify that your test leads are good and are connected properly for the test you are performing.

Data testing

- **The IP ping menu says pings are being sent, but the network statistics are not incrementing**

  Verify the IP address and netmask.

  Make sure you are not behind a firewall; they can block ping responses from reaching the host.

  The IP ping function only *attempts* to send a ping every second. Depending on certain conditions, a physical ping packet may not be sent.

  If IPoE standards require that the device has to ARP the address first. If this fails eventually you will see a ARP HOST UNREACHABLE message.

  Check to see that the destination IP address and your configured IP parameters are correct.

  Make sure that the Ethernet interface cabling is correct. If the Ethernet cable is not hooked up, or is hooked up incorrectly, a packet will not be sent. Thus the Ethernet statistics will not increment.

Limited warranty

For the latest warranty information, visit

https://www.viavisolutions.com/literature/viavi-solutions-inc-general-terms-en.pdf

https://www.viavisolutions.com/en-us/literature/viavi-manufacturer-warranty-nse-products-en.pdf

Technical assistance

If you require technical assistance, call 1-844-GO-VIAVI / 1.844.468.4284.

Outside US: +1-855-275-5378

Email: **CATVsupport@viavisolutions.com**

For the latest TAC information, visit

https://support.viavisolutions.com

https://www.viavisolutions.com/en/services-and-support/support/technical-assistance

Additional information

For more detailed information, contact us at **TAC@viavisolutions.com** for these additional documents.

ONX-220 Quick Start Guide

Specifications

Frequency			
Range	**Diplexer**	**Upstream**	**Downstream**
Automatically Switching Diplexer	42/85	5 - 42 MHz and 5 - 85 MHz	54 - 1,004 MHz and 108 - 1,218 MHz
	65/204	5 - 65 MHz and 5 - 204 MHz	83 - 1,218 MHz and 258 MHz - 1,218 MHz
Accuracy	±10 ppm typical @25°C		

Downstream Analysis	
AutoChannel plan builder	Auto detection of channel parameters (analog/digital, symbols, QAM)
Max input power	38 dBmV total integrated power
Return loss	>6 dB

Upstream Analysis	
Ingress spectrum scan	5.0 – 204 MHz
Sensitivity	–38 dBmV
RBW	100 kHz
Min detectable level upstream	–38 dBmV
Accuracy	±2 dB typical at 25°C
Return loss	>6 dB

Analog Channel Measurement	
Video and audio levels (dual)	
Standards	NTSC , PAL
Min detectable signal	–50 dBmV (single channel)
Level accuracy	±1.5 dB from –20 dBmV to +15 dBmV typical at 25°C; ±2.0 dB, –10°C to +50°C
RBW	300 kHz
Carrier to Noise	
Channel types	NTSC , PAL, non-scrambled
Range	30 to 51 dB (NTSC, 4 MHz measurement bandwidth)
Required input level	0 to +15 dBmV with 77 analog channels present, maximum ±15 dB tilt 50 to 1,000 MHz
Accuracy	±2.0 dB within specified measurement range ≤ 600 MHz

Downstream Digital Channel Analysis	
Calibrated power levels	-20 dBmV to +15 dBmV
Level accuracy	±1.5 dB from -20 dBmV to +15 dBmV typical at 25°C; ±2.0 dB, -10°C to +50°C
Modulation(s)	64, 128, and 256 QAM, OFDM
Annex A: 5.057 to 6.952 MSPS Annex B: 5.057 for 64 QAM and 5.361 MSPS for 256 QAM Annex C: 5.274 MSPS for 64 QAM and 5.361 MSPS for 256 QAM	
Full span MER	
Ingress under carrier — full span ingress noise trace	
Group delay and in-channel frequency response (ICFR)	
Digital quality index (DQI) over time	
Errored/severely errored seconds	
Level, measured symbol rate, carrier frequency, modulation, interleaver depth (data log only)	

Specifications (continued)

OFDM Signal Performance Metrics	
OFDM Channels	24 - 192 MHz wide - up to 3 active OFDM channels
Level — max, min, average, standard deviation	relative to a 6 MHz carrier per CableLabs©
MER — max, min, average, standard deviation, percentile	16 to 44 dB
MER channel band graph	max, min, avg across entire OFDM carrier
Noise	max
Echo	dBc
ICFR	in-carrier frequency response (dB)
Spectrum/IUC	spectrum display, including carrier and ingress under carrier
OFDM Profile Analysis	
Profiles A, B, C, D, NCP, and PLC (more profiles as implemented) Lock status, codeword errors (corrected and uncorrected)	
DOCSIS Testing	
Supports DOCSIS 3.1 bonding up to 32 SC-QAM + 2 OFDM downstream channels, 8 SC-QAM + 2 OFDMA upstream channels	
Compliant with CableLabs® specifications for DOCSIS 3.1	
Compliant with CableLabs® specifications for DOCSIS 3.0 (32x8 bonding)	

Displayed DOCSIS Results	
Top level	Number of bonded channels, min receive level, max BER (pre-FEC), min and max MER, max transmit level, max ICFR (in-channel frequency response)
Details	Downstream SC-QAM (over time charts: level, MER, BER, DQI), Upstream (charts: transmit over time, upstream ICFR, upstream EQ taps
Service tests	Registration, Throughput, Ping/ Traceroute, Packet Quality; cable modem pass-through
OFDM	OFDM selected in scan, number of subcarriers, PLC lock status, frequency, level, and MER, CWE (corr, uncorr); OFDM channel(s) - Level variation (max, min, avg), MER variation (max, min, avg), ICFR, profile analysis (locked, CWE corr, CWE uncorr)
Downstream	
Frequency range	42/65/85/204 to 1,218 MHz (dependent on currently active diplexer frequency)
Upstream	
Frequency range	5 to 204 MHz (dependent on currently active diplexer frequency)
OFDMA channels	≥2, per DOCSIS specification
Transmit level range (max)	+61 to +48 dBmV depending on modulation format and number of bonded carriers, per DOCSIS specification
SC-QAM channels	up to 8 per DOCSIS specification

Specifications (continued)

MER		
Specified range[1] (with input level -5 to +15 dBmV)	21 to 40 dB, 64 QAM; 28 to 40 dB, 256 QAM; 16 to 44 dB OFDM	
Max displayable range	50 dB	
Resolution	0.1 dB	
Accuracy	±2 dB typical at 25°C	
Minimum lock level	–15 dBmV	
BER — ChannelCheck and DOCSISCheck mode	Down to 1E-9 (pre and post FEC)	
BER — OneCheck mode	Down to 1E-8 (pre and post FEC) default; 1E-9 user selectable	
Interleaver depth	128, 8 max	
Display/Interface/Usability		
High-brightness color LCD (800 x 480)	5 inch diagonal	
Touch screen	Capacitive	
Boot time	Approximately 20 sec	
Environmental		
For indoor/outdoor use	IP 54 light rain (0.5 in/hr; 1.27 cm/hr)	
Pollution	2°	
Drop	1 m (3.3 ft) onto concrete	
Temp range	Operating	–10 to 50° C (14 to 122° F)
	Storage temp	–20 to 60° C (-4 to 140° F)
Humidity	10 – 90% RH non-condensing	
RF immunity	8.5 V/m (for CATV measurements)	
Maximum altitude	4000 m (13,123 ft)	

Input/Outputs	
RF	F connector replaceable
Charge Port	USB-C
USB Port	USB 3.0 (Type A)
Ethernet	RJ45 10/100/1000T
Power	USB-C
Remote Access/Connectivity	
VNC accessible via IP address	
HTTPS file access via IP address	
Mobile application via Bluetooth	
Smart Access Anywhere (option) via IP network or the Internet, which can be via Ethernet, WiFi or mobile hot-spot	
Battery	
Field replaceable 48 WHr 7.4 V, 6-cell LiIon	
Typical battery life	8 hr typical usage
Battery charge time	2 Hrs (90%) 3 Hrs 100% (included USB-C charger)
StrataSync Reporting Capability	
Session based (job/work order) file saving of results gathered at TAP, GB, and CPE	
Measurement screen capture save and recall	
StrataSync Core	Asset and data management
StrataSync Plus	Optional extended data management (6 years)
Warranty	
Instrument	1-year warranty (See http://www.viavisolutions.com/services-and-support/support/warranty-terms-and-conditions for warranty details)
Accessories and battery	One-year warranty

1. MER range declines as input levels decrease. Expected MER range at MIN LOCK level of –15 dBmV

Specifications (continued)

Dimensions	
Width	5.27 in (133.88 mm)
Height	9.96 in (252.89 mm)
Depth	2.23 in (57.33 mm)
Weight	
Device (without protective case)	3.10 lb (1.41 kg)
Protective case and shoulder strap	1.10 lb (0.50 kg)
WiFi (Plus & Pro Models Only)	
Test interface	802.11 a/b/g/n/ac (2.4/5 GHz)
Tests	WiFi scan
Antennas	3x3
Scan results	SSID (secure set identification); Channel; Security setting; Power level; MAC address
Scan modes	Channel graph; Time graph

Advanced WiFi Option		
Test Results	WiFi Expert (Passive Mode)	Up to 802.11 a/b/g/n/ac/ax (WiFi 6 8x8) Signal strength (RSSI), Channel, Standard, Width, Channel Noise, Total Airtime, Noise Airtime, Estimated Throughput, Recommendations
	OneCheck WiFi (Connected Mode)	Up to 802.11 a/b/g/n/ac/ax (WiFi 6 8x8 with ONX connected as WiFi 5 3x3) Signal strength (RSSI), Standard, Width, Max Router PHY Rate Up to 802.11 a/b/g/n/ac (WiFi 5 3x3) Adds IP/Web connectivity, Throughput Tests

Return Signal Generator Option	
Number of signals generated simultaneously	From 1 to 8
Signal types	Signals either all CW or all modulated
Modulation supported	QPSK, 16 QAM, and 64 QAM
Symbol rates supported	5.12, 2.56, 1.28, 0.64, 0.32, and 0.16 Msym/s
Fiber Test	
Optical Fiber Power Meter	
USB optical power meter	MP-60, MP-80
Measurement units	dBm, mW, dB
Connector input	Universal 2.5 and 1.25 mm connectors
Power source	USB port

Optical Fiber Scope	
USB optical fiber scope	P5000i
Results for zone defects	Pass/fail
Results for zone scratches	Pass/fail
Low mag field-of-view (FOV)	Horizontal 740 µm, vertical 550 µm
High mag field-of-view (FOV)	Horizontal 370 µm, vertical 275 µm
Particle size detection	<1 µm
Power source	USB port
Setting for profile, tip, focus meter, button action	
Actions for live mode, test mode, high magnification	
Probe model, serial, firmware	

Standard Accessories
Protective case with hand strap and detachable shoulder strap
AC power supply with choice of country-specific adaptor plug (USA, UK, Euro, Australia, China)
Quick start guide
StrataSync Core support

Ordering information

Description		Part Number
SW Pkg	***Dual Diplexer***	***Model***
Base	42/85 MHz	ONX-220-42-85-D31-BASE
	65/204 MHz	ONX-220-65-204-D31-BASE
Plus	42/85 MHz	ONX-220-42-85-D31-PLUS
	65/204 MHz	ONX-220-65-204-D31-PLUS
Pro	42/85 MHz	ONX-220-42-85-D31-PRO
	65/204 MHz	ONX-220-65-204-D31-PRO
Options		
Home Leakage Software Option		ONX-2XX-SW-OPT-HL-LKG
Cable Fault Finder		ONX-2XX-SW-OPT-XDR
Advanced WiFi Option (w/unit purchase)		ONX-2XX-SW-OPT-ADV-WIFI
Smart Access Anywhere (w/unit purchase)		ONX-2XX-SW-OPT-SAA
Upstream Source Transmitter		ONX-2XX-SW-OPT-SRC
Field Upgrades		
Home Leakage Software Option		UPG-ONX-DSP-SW-HL-LKG
Cable Fault Finder		UPG-ONX-DSP-SW-XDR
Advanced WiFi Option		UPG-ONX-DSP-SW-ADV-WIFI
Smart Access Anywhere		UPG-ONX-DSP-SW-SAA
Upstream Source Transmitter		UPG-ONX-DSP-SW-SRC
Bronze and Silver Warranty Extensions		
Three-Year Warranty		BRONZE-3
Five-Year Warranty		BRONZE-5
Three-Year Warranty and One Calibration		SILVER-3
Five-Year Warranty and Two Calibrations		SILVER-5
General Accessories		
ONX-220 Vehicle Charger with Integrated Cable		ONX-2XX-PWR-ADPT-VEH
Strand Hook for OneExpert & DSP Meters		1019-00-1366
ONX-220 Soft-Sided Case with Shoulder Strap		ONX-2XX-CASE-BASIC
Test Accessories		
Home Leakage Test Kit with Antenna		TRI-LKG-HL-METER-KIT
P5000i USB Fiber Scope		FBP-P5000I
MP-80 USB optical power meter		MP-80A
MP-60 USB optical power meter		MP-60A
Replacement Parts		
ONX-220 Wall Charger with Integrated Cable		ONX-2XX-PWR-ADPT-WALL
ONX-220 Field Replaceable Battery (48 WHR)		ONX-2XX-BATT-48WHR
OneExpert Field Replaceable F-Connectors (25 pack)		ONX-CATV-FCON-25PK
ONX-220 Form-Fitted Case with Shoulder Strap		ONX-2XX-CASE-DELUXE
Replacement Screen Protector (5 pack)		ONX-SCREEN-PROTECTION

Feature matrix

OneCheck – Dashboard

Measurement Feature	BASE	PLUS	PRO
Ingress Scan	■	■	■
Downstream Summary	■	■	■
DOCSIS Summary	■	■	■

OneCheck – Downstream Details

Measurement Feature	BASE	PLUS	PRO
Full Channel Scan	■	■	■
Basic Channel Details – Level, MER, BER, C/N, DQI	■	■	■
Advanced Channel Details – Echo, GD, ICFR			■
System View – Max dB Delta, Max Video Delta	■	■	■
Favorites (up to 32 Channels)	■	■	■
Tilt	■	■	■
Off-Air Ingress Detection (Downstream IUC)	■	■	■
MER & BER Graph (All Channels)			■
Smart Scan			■

OneCheck – DOCSIS Details

Measurement Feature	BASE	PLUS	PRO
Downstream DOCSIS Channel Scan	■	■	■
Basic Downstream Channel Details – Level, MER, BER, C/N, DQI	■	■	■
Advanced Downstream Channel Details – Echo, GD, ICFR			■
Upstream DOCSIS Channel Scan	■	■	■
Basic Upstream Channel Details – Tx Level, Modulation Type	■	■	■
Advanced Upstream Channel Details – ICFR			■
DOCSIS Throughput		■	■
DOCSIS Packet Quality		■	■

Feature matrix (continued)

ChannelCheck

Measurement Feature	BASE	PLUS	PRO
Full Channel Scan	■	■	■
Basic Channel Details – Level, MER, BER, C/N, DQI	■	■	■
Advanced Channel Details – Echo, GD, ICFR			■
System View – Max dB Delta, Max Video Delta	■	■	■
Favorites (up to 32 Channels)	■	■	■
Tilt	■	■	■
DQI Over Time			■
Level Over Time			■
MER Over Time			■
BER Over Time			■
Downstream ICFR			■
Downstream IUC			■
SmartScan			■
Constellation	■	■	■

DOCSISCheck

Measurement Feature	BASE	PLUS	PRO
Downstream DOCSIS Channel Scan	■	■	■
Basic Downstream Channel Details – Level, MER, BER, C/N, DQI	■	■	■
Advanced Downstream Channel Details – Echo, GD, ICFR			■
DQI Over Time			■
Level Over Time			■
MER Over Time			■
BER Over Time with ES/SES			■
Downstream ICFR			■
Downstream IUC			■
Upstream DOCSIS Channel Scan	■	■	■
Basic Upstream Channel Details – Tx Level, Modulation Type	■	■	■
Advanced Upstream Channel Details – ICFR			■
Transmit Over Time			■
Upstream ICFR			■
Speed Check – Throughput		■	■
Packet Quality – Packet Loss, Round Trip Delay, Jitter		■	■
Ping & Traceroute		■	■
Pass Through Modem RJ-45 Port		■	■

Feature matrix (continued)

Network Connectivity Modes

Measurement Feature	BASE	PLUS	PRO
DOCSIS Cable Modem	■	■	■
Pass Through Modem RJ-45 Port		■	■
Ethernet	■	■	■
WiFi	■*	■	■
Bluetooth	■	■	■
Mobile App Integration	■	■	■

DOCSIS 3.1 Testing

Measurement Feature	BASE	PLUS	PRO
Automatic SC QAM Signal Detection, Identification, and Measurement in Scan	■	■	■
Bonding Verification SC QAM (32 x 8) and OFDM (2 x 2)	■	■	■
OFDM Signal Level Variation – Min/Avg/Max	■	■	■
PLC – Detection, Lock Status, Level, MER, and CWE	■	■	■
NCP – Lock Status and CWE	■	■	■
Profile Analysis – Lock Status and CWE	■	■	■
OFDM Ingress Under Carrier Analysis	■	■	■
Web Browser	■	■	■
Ping & Trace Route		■	■
Speed Check – Throughput		■	■

* Base model has WiFi connectivity only (no testing)

Ethernet Testing

Measurement Feature	BASE	PLUS	PRO
Web Browser	■	■	■
Ping & Trace Route		■	■
Speed Check – Throughput		■	■
Ookla Speed Test		■	■

Feature matrix (continued)

WiFi Testing

Measurement Feature	BASE	PLUS	PRO
2.4 & 5 GHz Network Scan		■	■
Web Browser	■	■	■

Fiber Optic Modes

Measurement Feature	BASE	PLUS	PRO
OneCheck Fiber	■	■	■
Optical Fiber Scope Support – P5000i	■	■	■
Optical Power Measurement Support – MP60/MP80	■	■	■
Optical Time Domain Reflectometer Support – Smart OTDR	■	■	■

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