

# Keysight Wireless Test Set

E7515A UXM Wireless Test Set

Getting Started  
Guide

# Notices

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2014-2019

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### CAUTION

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### WARNING

A **WARNING** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

## Where to Find the Latest Information

Documentation is updated periodically. For the latest information about these products, including instrument software upgrades, application information, and product information, browse to one of the following URLs, according to the name of your product:

<http://www.keysight.com/find/uxm>

To receive the latest updates by email, subscribe to Keysight Email Updates at the following URL:

<http://www.keysight.com/find/MyKeysight>

Information on preventing instrument damage can be found at:

[www.keysight.com/find/PreventingInstrumentRepair](http://www.keysight.com/find/PreventingInstrumentRepair)

## Is your product software up-to-date?

Periodically, Keysight releases software updates to fix known defects and incorporate product enhancements. To search for software updates for your product, go to the Keysight Technical Support website at:

<http://www.keysight.com/find/techsupport>



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## Contents



# 1 Introduction

The following topics can be found in this section:

[“Overview” on page 10](#)

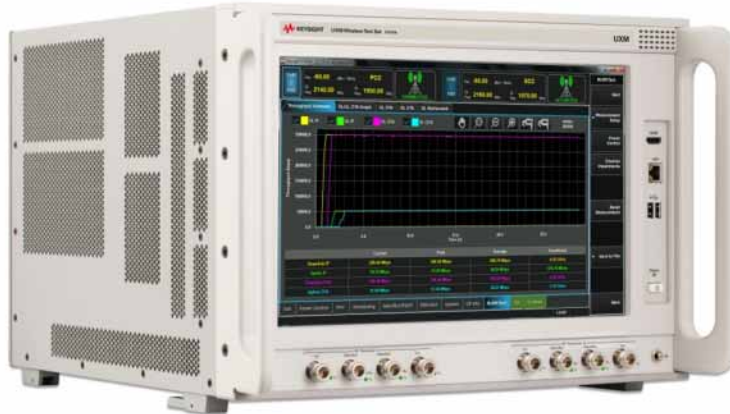
[“Instrument Information and Maintenance” on page 11](#)

[“UXM Software Applications” on page 16](#)

## Overview

The purpose of this guide is to provide you with the basic steps for getting started with the Keysight E7515A UXM Wireless Test Set (UXM), and to tell you where you can go to get additional information. It also provides first-time power on instructions, licensing information, operating system information, and general hardware information.

Figure 1-1 Keysight E7515A UXM Wireless Test Set



## Reference Documents

More detailed information about the test set is available on the Document Library tab of this web page:

<http://www.keysight.com/find/uxm>

Product documents included there include:

- E7515A UXM Wireless Test Set - User's and Programmer's Guide
- E7515A UXM Wireless Test Set - Configuration Guide
- Online documentation (help files) for the various UXM Test Applications.

## Instrument Information and Maintenance

### Size and Weight

Dimensions (H x W x L): 305 mm (321 mm with feet) x 435 mm x 445 mm (504 mm with handles)

Weight: 33 kg (1-cell), 36 kg (2-cells)

### Power Requirements

Voltage & frequency: 100/120/220/240 VAC, 50/60Hz, nominal

Power consumption: 1100 W Max

#### NOTE

Mains supply voltage fluctuates up to +/- 10% of the nominal voltage. Transient over-voltages are typically present on the mains supply.

---

### Electrical Safety

#### WARNING

This is a Safety Class 1 Product (provided with a protective earth ground incorporated in the power cord). The mains plug shall only be inserted in a socket outlet provided with a protective earth contact. Any interruption of the protective conductor inside or outside of the instrument is likely to make the instrument dangerous. Intentional interruption is prohibited. (IEC 348 clauses 17.3.3c & 17.3.4).

---

#### WARNING

If this product is not used as specified, the protection provided by the equipment could be impaired. This product must be used in a normal condition (in which all means for protection are intact) only. Install the instrument so that the detachable power cord is readily identifiable and easily reached by the operator. The detachable power cord is the instrument disconnecting device. It disconnects the mains circuits from the mains supply before other parts of the instrument. The front panel switch is only a standby switch and is not a LINE switch. Alternatively, an externally installed switch or circuit breaker (which is readily identifiable and is easily reached by the operator) may be used as a disconnecting device.

---

#### CAUTION

This instrument has an auto-ranging line voltage input. Ensure the supply voltage is within the specified range and the rating for the service breaker is correct.

When installing the product in a cabinet the convection into and out of the product must not be restricted. The ambient temperature (outside the cabinet) must be less than the maximum operating temperature of the product by 4° C for every 100 watts dissipated in the cabinet. If the total power dissipated in the cabinet is greater than 800 watts, then forced convection must be used. It is your responsibility to ensure the ambient temperature does not exceed the rated ambient temperature stated in the specification.

---

**CAUTION**

The Mains wiring and connectors shall be compatible with the connector used in the premise electrical system. Failure, to ensure adequate earth grounding by not using the correct components may cause product damage, and serious injury.

---

**CAUTION**

Use the Keysight supplied power cord or one with the same or better electrical rating.

---

## Environmental Conditions

### CAUTION

This product is designed for use in Installation Category II and Pollution Degree 2 environment.

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This product is designed for use in the following conditions:

- For indoor use only
- Operating Temperature 5° C to 45° C, 30 g/m<sup>3</sup> absolute humidity (5% to 85% (non-condensing) relative humidity)
- Storage Temperature -20° C to +65° C, 50 g/m<sup>3</sup> absolute humidity (5% to 85% (non-condensing) relative humidity)
- Altitude up to 2000 meters

## EMI and EMC Compliance

Complies with European EMC Directive 2004/108EC

- IEC/EN 61326-1
- CISPR Pub 11 Group 1, class A
- AX/NZS CISPR 11
- ICES/NMB-001  
This ISM device complies with Canadian ICES-001  
Cet appareil ISM est conforme a la norme NMB-001 du Canada.
- South Korean Class A EMC declaration: This equipment is Class A suitable for professional use and is for use in electromagnetic environments outside of the home.  
A 급 기기 ( 업무용 방송통신기 자재 )  
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## Ventilation

### CAUTION

When installing the product in a cabinet the convection into and out of the product must not be restricted. The ambient temperature (outside the cabinet) must be less than the maximum operating temperature of the product by 4° C for every 100 watts dissipated in the cabinet. If the total power dissipated in the cabinet is greater than 800 watts, then forced convection must be used. It is your responsibility to ensure the ambient temperature does not exceed the rated ambient temperature stated in the specification.

---

## Instrument Maintenance

### Protecting Against Overpowering

The input circuitry of the test set can be damaged by applying signals that exceed the maximum safe input level of +27 dBm average total power or +/- 30 VDC. Repairing damage to the input circuitry can be expensive. If the test set will be used to measure signals which might be near the maximum safe input level, use external attenuators and/or limiters to help protect the test set input. Always use the three-prong AC power cord supplied with this product. Failure to ensure adequate earth grounding by not using this cord can cause product damage.

### Cleaning the Instrument

#### WARNING

To prevent electrical shock, disconnect the Keysight Technologies Model E7515A from mains before cleaning. Use a dry cloth or one slightly dampened with water to clean the external case parts. Do not attempt to clean internally.

---

### Cleaning the Connectors

Cleaning connectors with alcohol shall only be done with the instrument power cord removed, and in a well-ventilated area. Allow all residual alcohol moisture to evaporate, and the fumes to dissipate prior to energizing the instrument.

#### WARNING

Keep isopropyl alcohol away from heat, sparks, and flame. Store in a tightly closed container. It is extremely flammable. In case of fire, use alcohol foam, dry chemical, or carbon dioxide; water may be ineffective.

Use isopropyl alcohol with adequate ventilation and avoid contact with eyes, skin, and clothing. It causes skin irritation, may cause eye damage, and is harmful if swallowed or inhaled. It may be harmful if absorbed through the skin. Wash thoroughly after handling. In case of spill, soak up with sand or earth. Flush spill area with water. Dispose of isopropyl alcohol in accordance with all applicable federal, state, and local environmental regulations.

---

## Protecting against electrostatic discharge

Electrostatic discharge (ESD) can damage or destroy electronic components (the possibility of unseen damage caused by ESD is present whenever components are transported, stored, or used).

### Test equipment and ESD

- Before connecting any coaxial cable to a test set connector for the first time each day, momentarily short the center and outer conductors of the cable together.
- Personnel should be grounded with a 1 M $\Omega$  resistor-isolated wrist-strap before touching the center pin of any connector and before removing any assembly from the test set.

Introduction  
Instrument Information and Maintenance

- Be sure that all instruments are properly earth-grounded to prevent build-up of static charge.

### **Additional information about ESD**

For more information about ESD and how to prevent ESD damage, contact the Electrostatic Discharge Association:

<http://www.esda.org>

The ESD standards developed by this agency are sanctioned by the American National Standards Institute (ANSI).

## UXM Software Applications

You must operate the UXM with one of the software applications described below:

### NOTE

You must purchase a Test Application license to use its features in the UXM.

---

## LTE/LTE-A Pro Test Application Software Licenses

### LTE/LTE-Advanced

The E7530A license enables the LTE/LTE-Advanced Test Application software. Some specific features of the software require an optional license, as outlined in the UXM Configuration Guide. (For example, the optional license E7530A-FFP-0H1 is a fixed perpetual license for FDD/TDD handovers).

### NB-IoT

The E7530A-GFP-0NB license enables the NB-IoT Test Application software (see the E7515A UXM Wireless Test Set - User's and Programmer's Guide for further information). Some specific features of the software require an optional license. (For example, the optional license E7530A-FFP-002 is a fixed perpetual license for eDRX).

### eMTC

The E7530A-GFP-0M1 license enables the eMTC Test Application software (see the E7515A UXM Wireless Test Set - User's and Programmer's Guide for further information). Some specific features of the software may require an optional license. eMTC is also known as Cat-M1.

## 2G/3G Test Application Software Licenses

### GSM

The E7521A license enables the GSM/GPRS/EGPRS test application software. Some specific features of the software require an optional license, as outlined in the UXM Configuration Guide. (For example, the optional license E7521A-FFP-0H1 is a fixed perpetual license for handovers.)

### W-CDMA

The E7523A license enables the W-CDMA/HSPA+ test application software. Some specific features of the software require an optional license, as outlined in the UXM Configuration Guide. (For example, the optional license E7523A-FFP-0H1 is a fixed perpetual license for handovers.)



## **TD-SCDMA**

The E7529A license enables the TD-SCDMA/HSPA test application software. Some specific features of the software require an optional license, as outlined in the UXM Configuration Guide. (For example, the optional license E7529A-FFP-0H1 is a fixed perpetual license for handovers.).

## About the Test Applications

The applications run on the embedded Windows controller present in the UXM and use the provided touch-screen based interface, integrated fading, network emulation and measurement capabilities present in the test set to provide you with a simple to use, bench-top design verification tool.

## Installing the Test Applications

This software comes already installed on your UXM. If there is a problem and you need to re-install it, refer to Installing the Software on [“Updating the Keysight E7515A UXM software” on page 88](#).

## 2 Quick Start

This section describes how to set up your UXM, install product licenses, and provide test set maintenance. You can also contact your Keysight representative to obtain on-site start-up assistance to help you with all steps outlined in this section, which is included with your UXM purchase.

The following topics can be found in this section:

[“Initial Inspection” on page 20](#)

[“Turning On the Test Set the First Time” on page 25](#)

[“Licensing” on page 33](#)

[LAN Address Configuration on page 35](#)

[LAN Connectivity on page 36](#)

[Anti-virus Protection and Firewalls on page 42](#)

## Initial Inspection




Inspect the shipping container and the cushioning material for signs of stress. Retain undamaged shipping materials for future use, as you may wish to ship the test set to another location or to Keysight Technologies for service. Verify the contents of the container against the table below.

**WARNING**







This instrument is heavy. Two people are required to lift this instrument.


**WARNING**

Please consult ergonomic guidelines regarding placement of the external keyboard when using it with the instrument. Using the keyboard in an uncomfortable or awkward environment could result in personal injury.

Item	Deliverable	Description
Getting Started Guide (this document)		Provides first-time power on instructions, licensing information, operating system information, and general hardware information.
Keysight E7515A UXM Wireless Test Set		
License entitlement certificate(s)		<p>You must register your instrument purchase using the included entitlement certificate.</p> <p>Follow the instructions on the Certificate. If this is your first visit to the license management website, you will be required to register.</p> <p>Refer to <b>“Licensing” on page 33</b> for more information.</p>

Quick Start  
Initial Inspection

Item	Deliverable	Description
Keysight Test USIM card, Tri-Nano (E7515-10910)	See <a href="http://www.keysight.com/find/usim">www.keysight.com/find/usim</a> for details.	
Keysight Test USIM card Tri-Nano (T1099-10001)		
Mouse (T4010-20001)		A USB mouse to simplify screen navigation
Keyboard (T4010-20002)		A USB keyboard to simplify data input
Power Cable		Connection for Instrument Power
Internal Applications Server (E7515A-S01) <sup>a</sup>		Kontron AM4022-SA-2.1Q8-M-DP-S32
You must have ordered the E7515A-S01 Internal Applications Server, also known as the “Server PC”, in order for this item to be included in your shipment.		Discreet PC installed in the UXM rear-panel to run non-UXM test application software
		Specifications: Intel Core i7-3612QE, 2.1 GHz 8 GB Soldered Memory Mid-Size, 4xGbE, USB, Display Port 64 GB on-board SATA-Flash
Internal Applications Server (E7515A-S01) Installation Guide <sup>a</sup>		
Mini-USB-A plug / USB-A socket adapter <sup>a</sup>		Plug this into the mini-USB to enable connection of the 4-port USB Hub.
4-port USB Hub unpowered <sup>a</sup>		

Item	Deliverable	Description
Display port to VGA adapter <sup>a</sup>		Enables you to view PC output on external display monitor
Rack Mount Flange Kit (E7515A-1CM)		Includes side flanges, necessary attaching components, and installation instructions

- a. You must have ordered the E7515A-S01 Internal Applications Server (also known as the “Server PC”) in order for this item to be included in your shipment.

**CAUTION**

Do not install a powered USB Hub into the Internal Applications Server, as it may prevent this component from shutting down completely which could lead to data corruption. Use the 4-port USB Hub supplied, as described in the table above.

## Shipping Problems?

If the shipping materials are damaged or the contents of the container are incomplete:

- Contact the nearest Keysight Technologies office.
- Keep the shipping materials for the carrier’s inspection.
- If you must return a test set to Keysight Technologies, use the undamaged original or comparable shipping materials. See **“Returning Your Test Set for Service” on page 107**.

## Instrument Location and Rack Mounting Requirements

### Locating the Test Set

Make sure that the left-side panel fan inlet and right-side panel exhaust vent areas are not obstructed. The minimal required clearance is 2.75 inches (7 cm).

#### NOTE

Install the instrument so that the detachable power cord is readily identifiable and is easily reached by the operator. The detachable power cord is the instrument disconnecting device. It disconnects the mains circuits from the mains supply before other parts of the instrument. The front-panel switch is only a standby switch and does not act as a LINE switch. The rear-panel switch is a LINE switch, however it is only to be relied upon as supplementary protection. If needed, an externally installed switch or circuit breaker (which is readily identifiable and is easily reached by the operator) may be used as a disconnecting device.

### Table Top Ambient Temperature

#### CAUTION

Do not exceed an ambient temperature of 45°C when operating the instrument on a table top.

### Rack Mounting: Hardware and Temperature

If you choose to locate your test set in a rack, follow the guidelines provided in this section.

Based on the type of equipment rack you have, you must determine what rack rails you need. If you are using a Keysight System Test Rack, you can find information on what to order by referring to the Rack Mounting Flange Kit (Option E7515A-1CM) Installation Note.

#### CAUTION

When mounting instrument in a rack, do not exceed the level of:

- Outside rack ambient temperature of 35°C, or
- Internal rack air temperature of 45°C

Do not rack mount the test set side-by-side with any other instrument with side ventilation. Make sure the exhaust air from the first instrument is directed away from the inlet of the second unit. If the pre-heated air from the first instrument is directed into the second instrument, it can cause excessive operating temperatures in the second unit and can cause instrument failures. The test set draws air in from the left side and exhausts air from the right side. Do not mount other equipment immediately above the instrument. The minimal required clearance is 2.75 inches (7 cm).

**CAUTION**

VENTILATION REQUIREMENTS: When installing the instrument(s) into a cabinet consideration shall be given to the convection flow into and out of the cabinet. Consideration shall also be given to the individual instruments to avoid having the heated discharge of one instrument, now becoming the cooling intake air for another instrument.

Another area of concern is verification that the maximum ambient operating temperature of the instrument(s) is not exceeded by cabinet installation.

Keysight recommends forced air convection whenever instruments are installed in a cabinet and further recommends that the maximum operating temperature of the cabinet be reduced 10°C from the lowest maximum operating temperature of a single instrument.

If there are any concerns or special requirements a Keysight Field Engineer should be consulted to assure instrument(s) temperature compliance and performance.

---




## Turning On the Test Set the First Time

**CAUTION**

DO NOT remove the AC power during boot-up/shutdown of the operating system or during the process of initializing the software. This can cause damage to the system files and prevent proper operation of the instrument.

**CAUTION**

Before switching on this instrument, make sure the supply voltage is in the specified range.

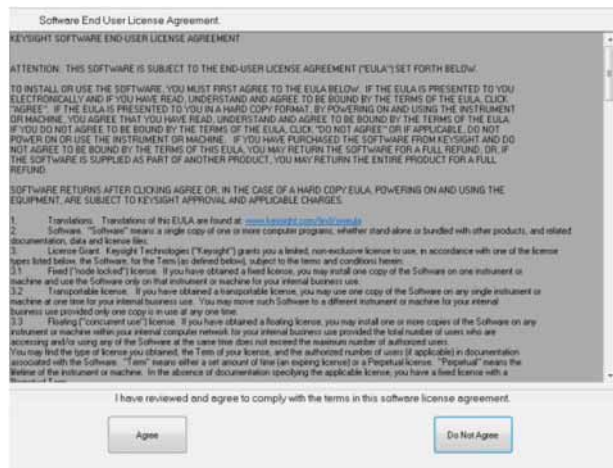
Step	Action	Notes
1. Connect power cable	Install the instrument so that the detachable power cord is easily reached by the operator.	Ensure power outlet is provided with a protective ground as specified.
2. Power on the test set	<p>Position the test set so you have easy access to the power cord and plug it in.</p> <p>Select the On position for the rear-panel AC line power switch.</p> <p>Press the power button (bottom right of instrument front panel) when the LED above the power button illuminates in yellow. (It is best to wait at least 3 seconds after the LED is yellow before pressing the power button.)</p>	<p>See <b>“Instrument Location and Rack Mounting Requirements”</b> on page 23 and <b>“Power Requirements”</b> on page 11.</p> <p>Front-panel power button:</p> 

Quick Start  
Turning On the Test Set the First Time

Step	Action	Notes
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3. You will be prompted to accept the End User License Agreement (EULA).

Select the **Agree** button to indicate that you accept the license agreement.









After you agree to the EULA, the operating system boots-up and you see a black background with Keysight Technologies logo displayed on the screen. The E7515A Control Panel (shown below) is overlaid on top of this Keysight screen and remains visible while the internal hardware boards of the UXM are booted-up.





If you have purchased the E7515A-S01 Internal Applications Server (Server PC), the above UXM icon will include a Server PC icon to indicate it is present in your UXM. (Upon the first boot-up, it will be displayed in red to indicate you have not accepted the two license agreements discussed in the steps, below.)



Quick Start  
Turning On the Test Set the First Time

Step	Action	Notes
<p>4. Wait until you see the green or red color displayed in the UXM pictorial graphic, located in the upper left corner of the E7515A Control Panel.</p>	<p>The changing colors of the E7515A Control Panel pictorial graphic indicate the “ready-state” of the UXM.</p>	<p>NOTE: If you have purchased the E7515A-S01 Internal Applications Server (Server PC or SPC), the above UXM icon in the previous Step will include a Server PC icon to indicate it is present in your UXM. This is also true for the 3 UXM icons shown left in the “Action” column of this step.</p>
	 <p>Yellow indicates the UXM is in the process of becoming ready for operation.</p>	 <p>Green SPC icon on Green UXM icon means UXM and Server PC are both ready for operation.</p>
	 <p>Green indicates the UXM is ready for operation.</p>	 <p>Yellow SPC icon on yellow UXM icon means UXM and Server PC are both in the process of becoming ready for operation.</p>
	 <p>Red indicates an error has occurred in the system and the unit is not ready for operation. This requires troubleshooting, as the problem is not expected to resolve on its own.</p>	 <p>Red Server PC icon on green UXM icon means UXM is ready, but Server PC is not ready for operation. It may mean you have not accepted the two license agreements discussed in the step, below or it may mean there is another problem.</p>

Quick Start  
Turning On the Test Set the First Time

Step	Action	Notes
<p>5. If you have purchased the E7515A-S01 Internal Applications Server, accept the license agreements for both the Instrument and Administrator Logins. If you have not, continue to the step below where you connect the mouse and keyboard.</p>	<p>Go to the UXM desktop and locate the Instrument and Administrator links to the Server PC.</p> <p>You can easily access the desktop by pulling down the Application Switch Tool and selecting “Desktop”.</p>	 <p>Desktop icon for “Instrument” login of Internal Applications Server (Server PC).</p>  <p>Desktop icon for “Administrator” login of Internal Applications Server (Server PC).</p> <p>These two icons are automatically populated on your UXM desktop upon boot-up, if you have purchased the E7515A-S01 upgrade.</p>
<p>6. Select the “Instrument” login icon as shown in previous step.</p>	<p>If prompted, enter the password: “measure4u”.</p>	
<p>7. You will be prompted to accept the End User License Agreement.</p>	<p>Select the ‘Agree’ button to indicate that you accept the license agreement.</p>	
<p>8. Repeat steps 6 and 7 above, except this time for the “Administrator” login.</p>	<p>If prompted, enter the password: “Keysight4u”.</p>	
<p>9. Make sure all required Windows updates are made.</p>	<p>Windows must be configured properly on your instrument to ensure this.</p>	<p>Windows updates are necessary to protect your E7515A instrument against the latest malware and viruses. See <b>“Windows Updates” on page 40.</b></p>

Quick Start  
Turning On the Test Set the First Time

Step	Action	Notes
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10. Reboot the UXM Platform boards

Select the “Restart” icon on the UXM Control Panel.



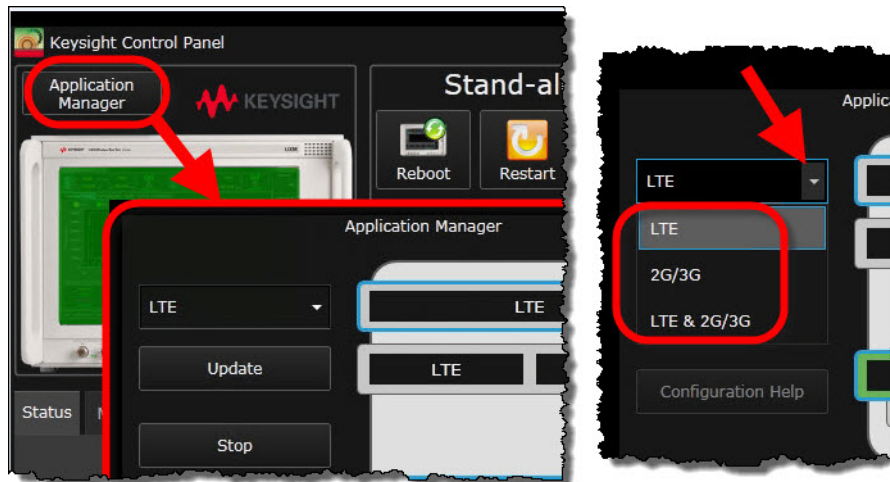
After restarting the UXM by selecting icon above, the UXM icon and SPC icon will be displayed as green, as shown above. Before restarting, the SPC icon is displayed as red.

11. Connect the mouse and the keyboard (Optional).

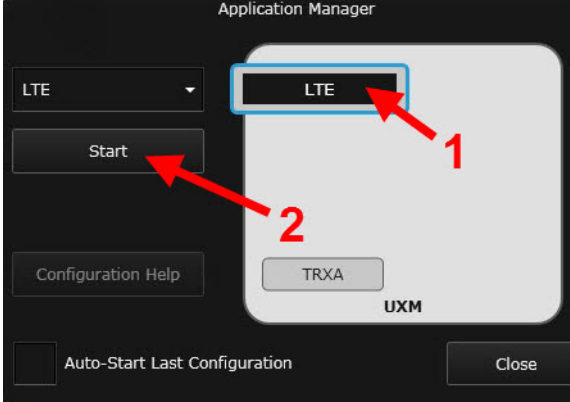

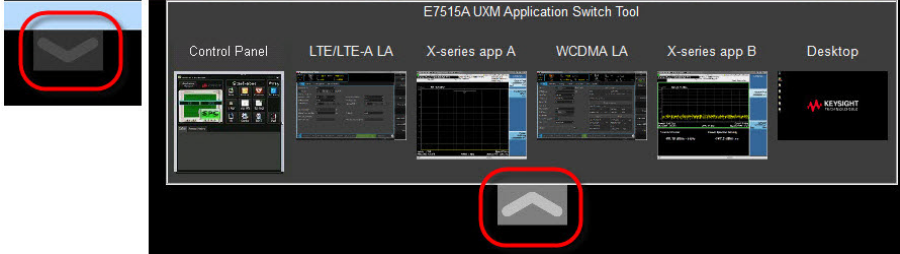
Connect the mouse and the keyboard to the test set's USB ports.

12. Click **Application Manager** in the control panel, to open the Application Manager window and select the applications you want to run.


From the pulldown menu, select LTE or 2G/3G.






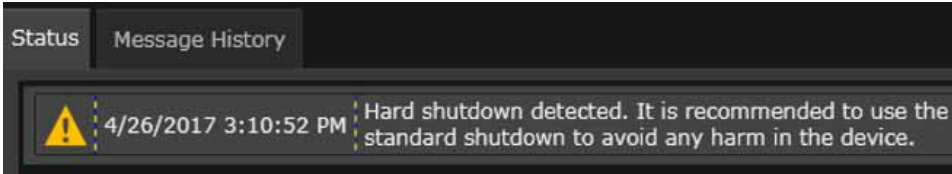
Quick Start  
Turning On the Test Set the First Time

Step	Action	Notes
<p><b>13.</b> The configuration (that is, the application or combination of applications which you selected) is displayed on the right, but still needs to be launched.</p>	<p>To launch the configuration, click on the configuration (1) and then click <b>Start</b> (2).</p>	
<p><b>14.</b> Wait for the applications to load.</p>	<p>While applications are loading, splash-screens for those programs are displayed (with a progress indicator).</p> <p>All loaded applications appear on the screen together; some "hiding" others. Use the next step to make one application visible.</p>	
<p><b>15.</b> Click on the down-arrow at the top of the screen, and pull it down to reveal the <b>Application Switch Tool</b>. Click on the relevant application to bring it forward on the screen.</p>	<p>When you don't need the Application Switch Tool, you can hide it by dragging the arrow symbol upward.</p>	

Quick Start  
Turning On the Test Set the First Time

Step	Action	Notes
<p><b>16.</b> Begin using your new software after the splash screen disappears.</p>	<p>For detailed information on how to use the software, refer to the online help for each application.</p>	 <p>The screenshot displays a software interface with a top status bar showing two active calls: PCC and SCC. Below this, there are several configuration sections including 'MSE Multi Selection', 'Frequency / Duplex Mode', 'Carrier Aggregation', and 'TDD Specific Config'. The interface is dark-themed with white text and various input fields and dropdown menus.</p>

## Shutting Down the Test Set

Step	Action	Notes
<p>1. Close the test application by clicking on the "X" button at the upper right.</p>		
<p>2. It is recommended that you press the front-panel power button. You can also select <b>Shutdown</b> from the MS Windows Start menu or select the <b>Shutdown</b> icon on the E7515A Control Panel.</p>	<p>The display will show the windows shut-down screen.</p>	 <p>Front-panel power button</p>  <p>Control Panel shutdown icon</p>
<p>To force power off: press and hold the front-panel power button for more than 5 seconds.</p>	<p style="text-align: center;"><b>CAUTION</b></p>	<p>Do not force power off in this way unless the normal procedure fails (a forced shutdown carries a risk of corrupting hard-drive data). If the last power shutdown was done in that way, the message shown below will be displayed on power-up as a reminder.</p>
		



## Licensing

All licenses required to operate your UXM have been installed at the factory (except transportable licenses – see below) and can be recovered using one of the procedures outlined in **Chapter 6, “Test Set Operating System”, on page 75**. Complete these steps if you need to add licensing to your UXM:

1. Follow the directions located on the license entitlement certificate that you received with the delivery of your UXM.

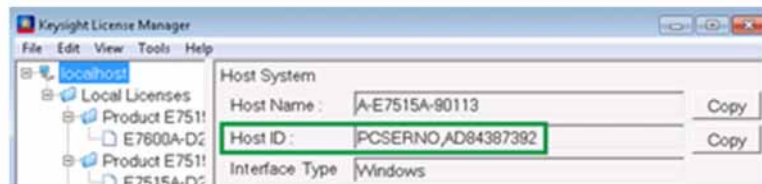
### NOTE

You may register or sign in with your profile at:

[www.keysight.com/find/softwaremanager](http://www.keysight.com/find/softwaremanager)

in order to obtain any software updates and/or new licenses using your entitlement details.

2. In order to generate a license unique to your UXM, you will need to enter the “Host ID”. To determine the Host ID of your UXM, select the License Manager icon located on the E7515A Control Panel (see **“Control Panel Icons” on page 48**.) The Keysight License Manager (KLM) window opens and displays your Host ID:



3. After the registration/sign-in/filling in information, an e-mail with the generated license file will be sent to you. You need to copy the license file to the root directory of a USB memory stick and then insert the USB memory stick into the UXM. It will automatically install any licenses that it finds on the USB memory stick for the test set.

## Transportable Licenses

Transportable licenses are identifiable by the “T” included in their license number such as: E7530A-1TP-FDD or E7523A-1TP. This type of license enables you to move the license from one host instrument or PC to another, without the need to contact Keysight. Follow the steps above to install the transportable license for the first time.

To transport a license after that installation, run Keysight License Manager on the host that currently has the license, and transport the license. (Select **Help > Keysight License Manager Help** and search for “transport” to find detailed instructions.)

### NOTE

Transportable licenses for the E7515A UXM allow you to transport licenses up to 30 times within the previous 10 days.

You can also save a transportable license to Keysight Software Manager (KSM) for later assignment to a host. To do so, review the Transporting Licenses section (found as described above) in the Keysight License Manager Help. When you are asked to choose a destination for the license, select **Save the license to Keysight Software Manager**.

When you are ready to assign the license to a host, come back to KSM and look for the action bubble entitled **You can request new licenses**. Click the bubble and follow the instructions given.

Other related topics for managing your software and licenses can be found by reviewing the Keysight License Manager Help available from the **Help** drop-down menu of the KSM software.

## LAN Address Configuration

The UXM has two network interface cards (NICs) that connect the instrument Host PC (embedded PC module) to external LAN outputs. If you ordered the E7515A-S01, you also have a separate PC (Server PC) installed in the top-right slot of the rear panel. This PC also has two external LAN outputs (see **Chapter 5, “Front and Rear Panel Functions”, on page 63**). Both static and dynamic IP address assignments are supported.

If your site network supports Dynamic Host Configuration Protocol (DHCP), these front and rear LAN ports are assigned IP addresses automatically when they are connected to the LAN (provided you have checked the DHCP box when you configured the LAN port, using the interface illustrated below).

In order to identify or change these external LAN port IP addresses configured in your UXM, it is best to use the Config button on the E7515A Control Panel.

Figure 2-1 LAN Address Configuration



Use *only* the control panel to set/identify the LAN IP addresses for communication with external PCs and/or DUTs.

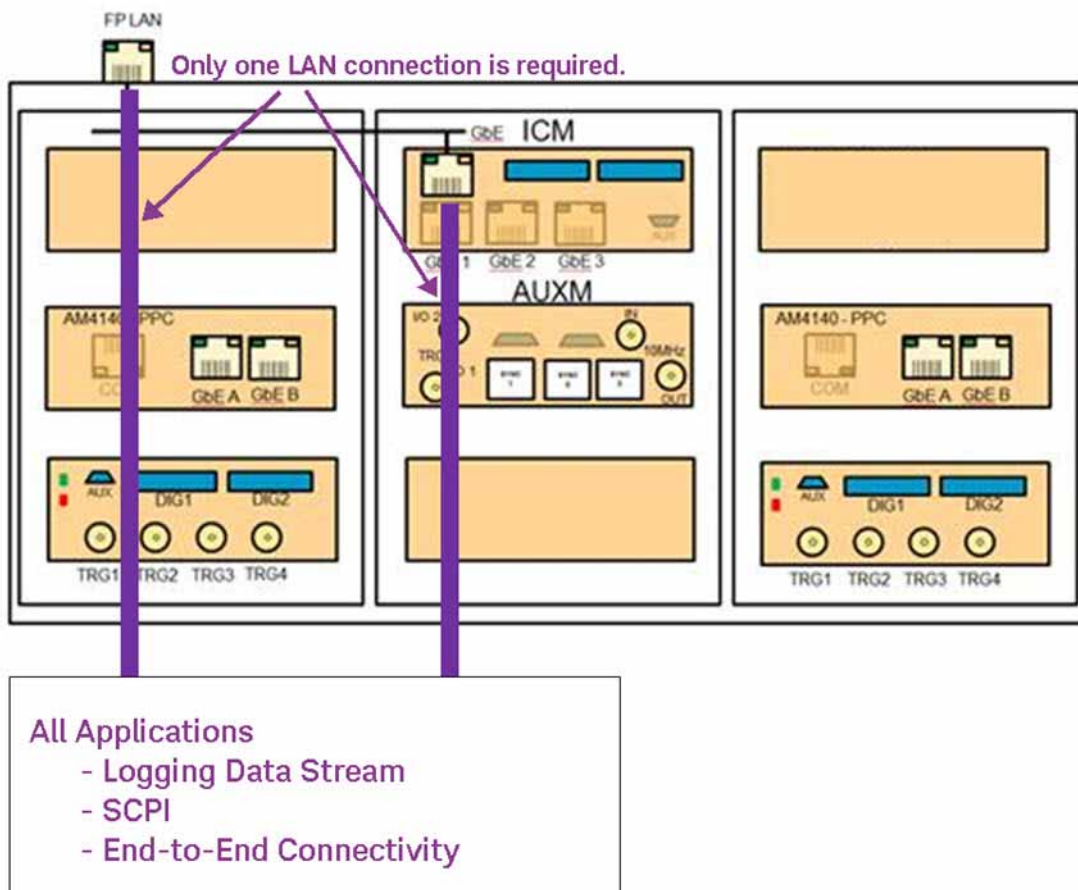
## LAN Connectivity

There are two configurations to make LAN connections on the UXM, depending upon whether you have purchased the E7515A-S01 Internal Applications Server or not. See Chapter 4 for more information.

### Without Internal Applications Server

For this configuration, connect the LAN lines as shown below. You need only one connection from the UXM Host PC: either the front-panel LAN (FP LAN) or the Rear-Panel LAN.

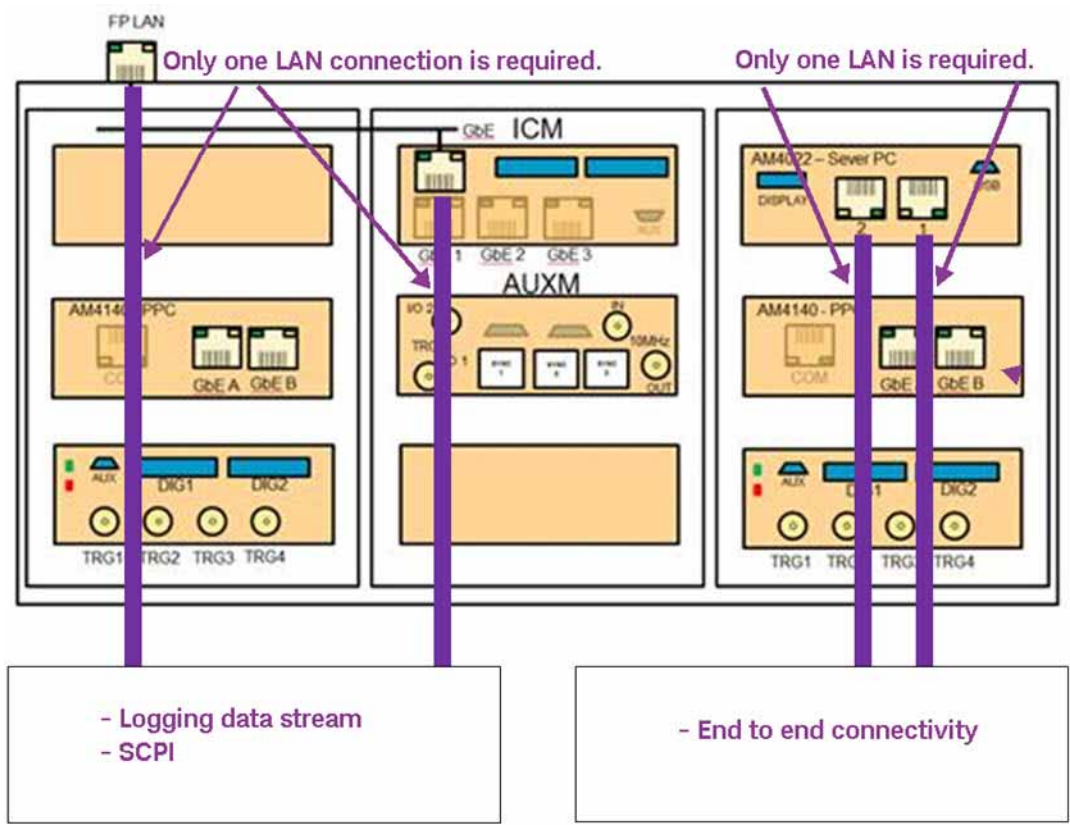
Figure 2-2 LAN configuration without Internal Applications Server



### With Internal Applications Server (E7515A-S01)

For this configuration, connect the LAN lines as shown below. You need only one connection from the UXM Host PC: either the front-panel LAN (FP LAN) or the Rear-Panel LAN. (This is also true for the Server PC: only one LAN connection is required.)

Figure 2-3 LAN configuration with Internal Applications Server



### UE Communication with PC

When you need to have network connectivity between the UE and the UXM Host PC or Application Server PC, use the IP address: 11.0.0.2. This is associated with a dedicated network adapter within the UXM which has no external connections. The external network adapters provide full data rate connectivity to external servers.

**NOTE**

The external network adapters will not provide full data rates for locally hosted applications, so these should not be used as the UE IP endpoints.

## Corporate Domains

**CAUTION**

It is strongly recommended that neither the UXM Host PC nor the Application Server PC are added to any corporate domain. Doing so may result in undesirable operation procedures, or first-time test application software launch failures.

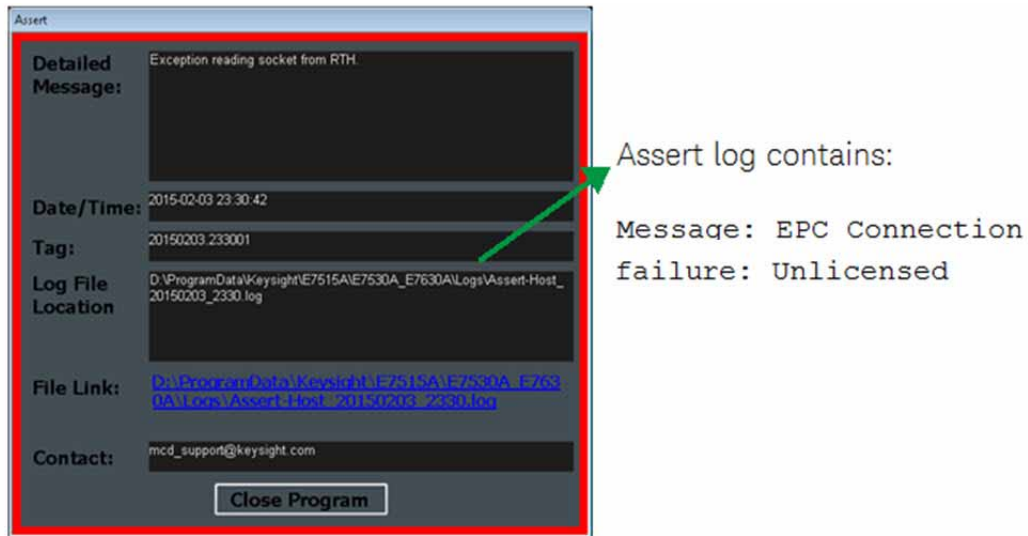
---

If you require to add either the UXM Host PC or the Application Server PC to a domain, the following procedures must be followed:

- Both the Host PC and Application Server should be added to the same domain.
- The Application Server PC must be able to communicate with the domain controller at system boot.
- The Application Server PC must have the user instrument logged in prior to the test application software being launched.
- The Host PC and Application Server PC should have their system clocks synchronized. Windows will perform this step if it can communicate with the domain controller at system boot.

If the test application software fails to launch and you see error messages such as shown below, verify that the system clocks on both the Application Server PC and Host PC are the same:

Figure 2-4 EPC connection failure



**CAUTION**

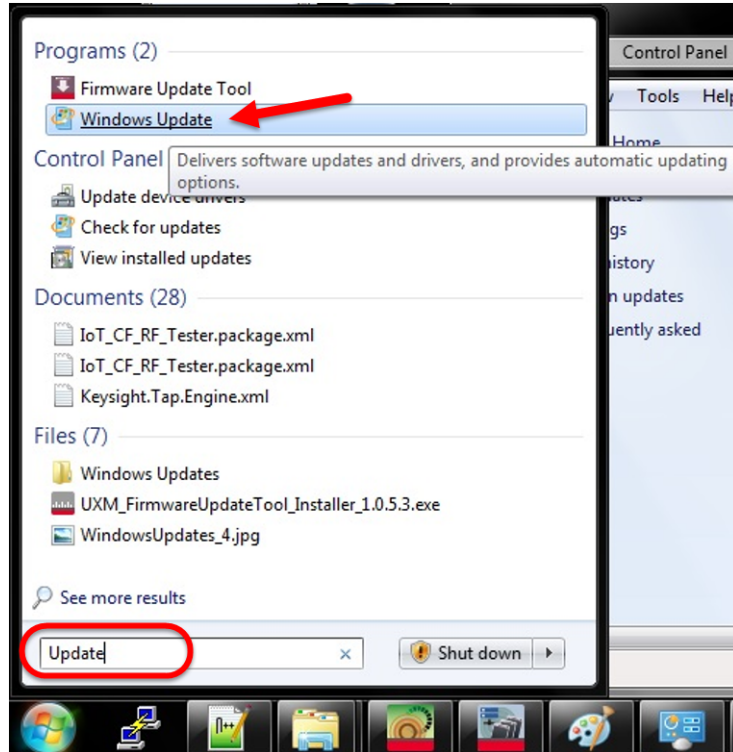
Adding either the Host PC or the Application Server PC to a domain may force installation of conflicting software (for example: firewalls or anti-virus software). In such cases adding to a domain must be avoided.

Once either PC has been added to a domain, the domain may enforce certain Windows security or user policies. If this occurs, it is not sufficient to remove the PC from the domain – a system recovery is required, to fully restore the settings to a known working condition. (See “**Disk Drive Recovery Process**” on page 98.)

## Windows Updates

To ensure that your E7515A instrument is protected against the latest malware and viruses, it is recommended to install all the Windows critical updates.

1. Go to **Windows/Start** and type "Update"; click on the displayed **Windows Update** link:



2. Select **Check for updates** in the left side menu, and follow the on-screen instructions to download and install the Windows updates.

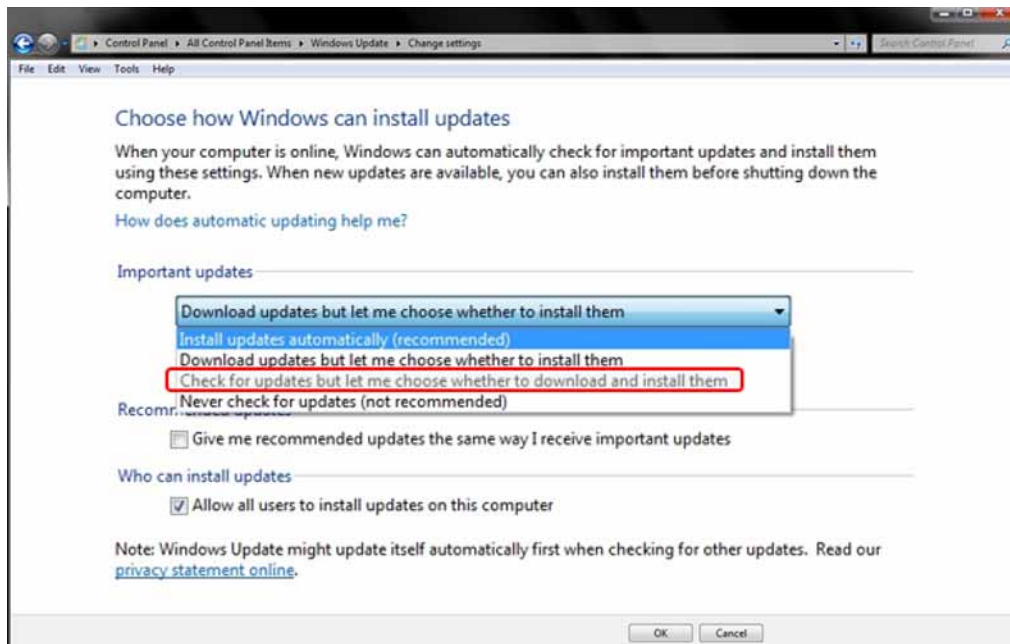




3. In order to keep your instrument protected, select **Change settings** in the left side menu:



4. Under **Important updates**, select the option **Check for updates but let me choose whether to download and install them**.



**NOTE**

Current Keysight policy sets the Windows Update settings to “Check for updates but let me choose whether to download and install them” in “Important updates”. If your UXM is not configured per the current Keysight policy, please set the Windows Update settings accordingly.

## Anti-virus Protection and Firewalls

The instrument is shipped with the Windows 7.0 firewall disabled. No anti-virus software is shipped with the instrument. It is recommended that you do not enable anti-virus protection for normal operation.

### CAUTION

Take care to verify that USB memory devices used with the UXM are virus-free before using with the instrument.

---

Connecting the test set directly to the public LAN is potentially insecure, because the test set does not provide anti-virus protection. It is preferred that you connect the test set to the public LAN by way of a PC with antivirus protection.

The instrument internally operates using fixed IP addresses for the following NICs. Do not modify the default network settings for the following connections, as this will cause problems with the operating system of the test set:

- Application Server PC:
  - Internal NIC #1
  - Internal NIC #2
  - Local Area Connection
- Host PC:
  - Internal\_NIC
  - Local Area Connection 4

### NOTE

When communicating between the Application Server PC and the UE, use the fixed IP address: 11.0.0.2. This routes data via a dedicated NIC.

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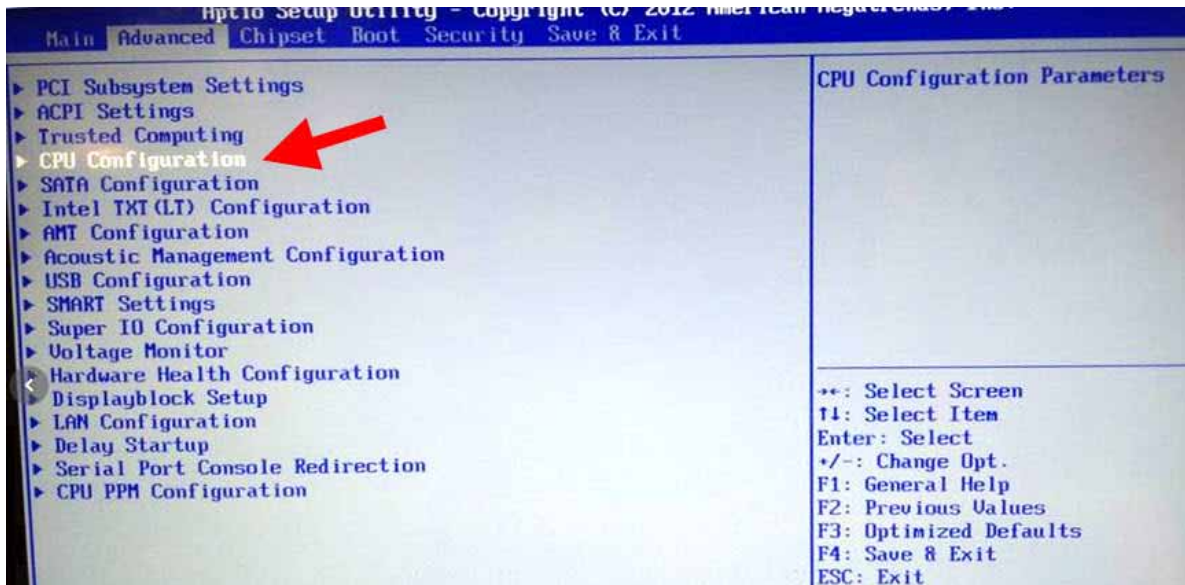
## BIOS Setting for ePDG (WiFi Calling)

If you install ePDG (WiFi calling) software on the UXM, you need to ensure that the BIOS settings have virtualization enabled. If the Server PC (the Internal Applications Server) is installed, virtualization is enabled by default; otherwise, it is necessary to check this setting and correct it if necessary (this only needs to be done once). The procedure for checking the BIOS virtualization setting is as follows:

1. Apply power to the UXM and, as soon as the American Megatrends BIOS screen appears, immediately press the **Delete** key to access the BIOS menu.

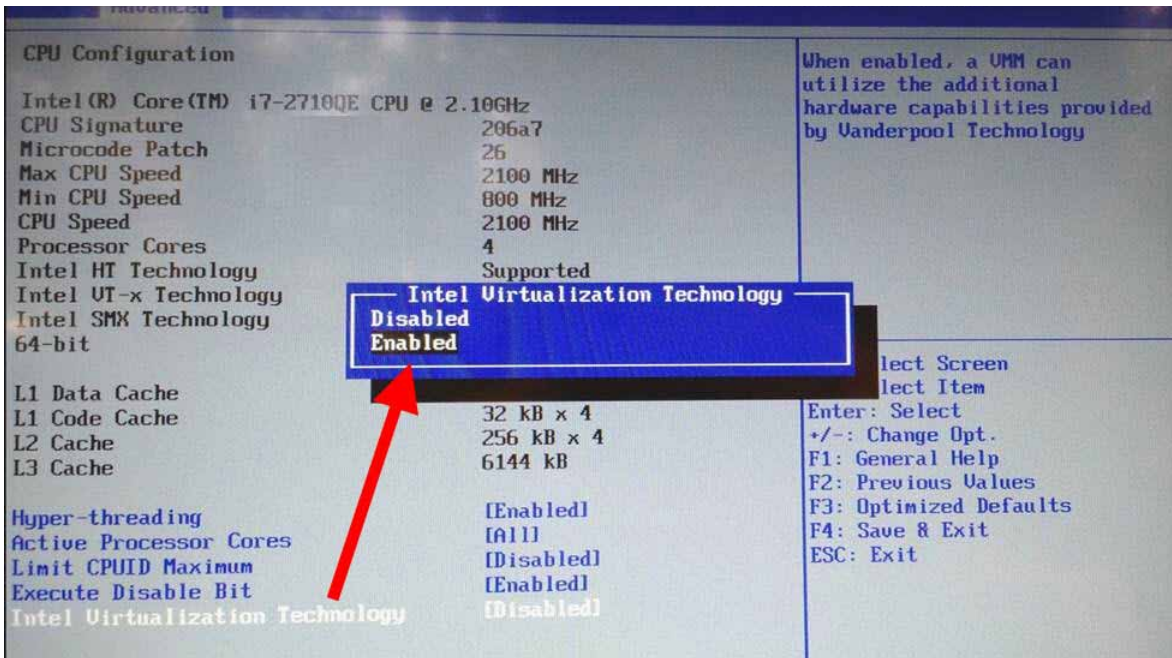


2. On the **Advanced** tab of the BIOS screen, select **CPU Configuration**.



Quick Start  
BIOS Setting for ePDG (WiFi Calling)

3. **Intel Virtualization Technology** should be **Enabled**; if not, select **Enabled** and then press **Enter**.



## 3 Control Panel Functions

The following topics can be found in this section:

**“The Control Panel” on page 46**

**“BIST (Built-In Self Tests)” on page 51**

## The Control Panel

Figure 3-1 The UXM Control Panel



The E7515A Control Panel enables you to interact with and manage the hardware components of the UXM. It is always running if the test set is turned on. If it is not displayed on the screen, it is minimized in either the lower left or right area of the Windows task bar.

If you purchased the E7515A-S01 Internal Applications Server, the UXM icon on the Control Panel will include three variations of the Server PC icon: yellow, green, or red, as explained under **“Turning On the Test Set the First Time”** on [page 25](#).

Figure 3-2 SPC Icon Colors



## Viewing the Control Panel

Right-click on the E7515A Control Panel icon



from the task bar and select **Open Control Panel**.

## Control Panel Functions

### The Control Panel

#### NOTE

To access the Windows task bar from inside the test application, you can use the Application Switch tool to switch to the desktop and find the task bar, or you can connect the USB keyboard to the UXM using one of the USB ports located on the front and rear panels of the UXM. Press the key showing the windows icon



, which is usually located in the lower-left corner of the keyboard.

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#### NOTE




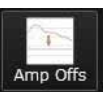
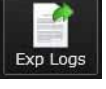
If the E7515A Control Panel icon is not present in the task bar or on the desktop, it can be opened by selecting the Windows **Start** Menu, **All Programs**, **Keysight E7515A Platform**, **E7515A Control Panel**.

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## Control Panel Icons


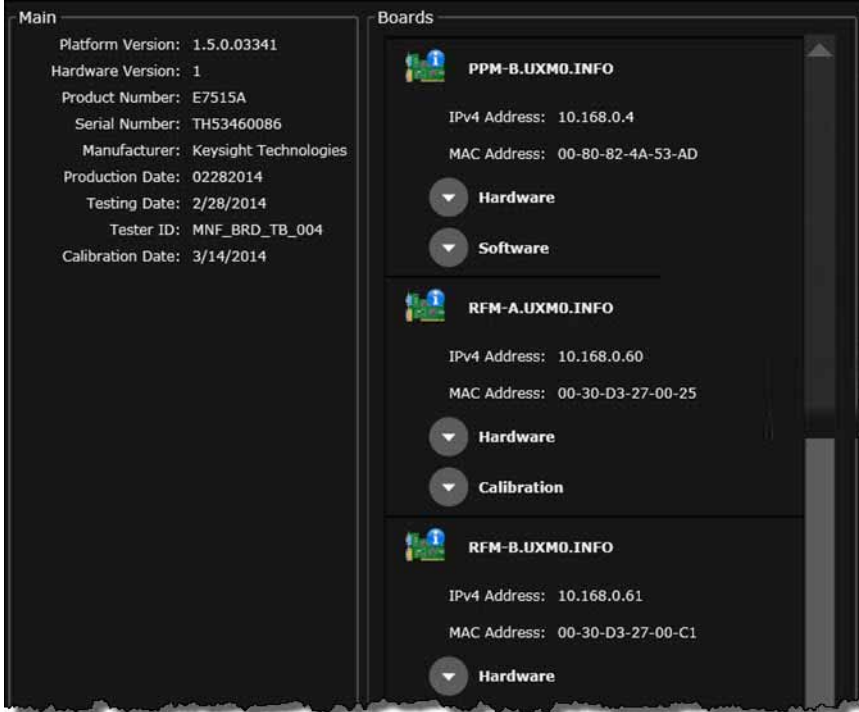




The functions listed in the table below are available by selecting the various E7515A Control Panel icons. For more information about these functions, see the "E7515A UXM Wireless Test Set - User's and Programmer's Guide", which is available in the Document Library tab of this site:

<http://www.keysight.com/find/uxm>

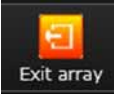
Icon	Description
	Performs a reboot of the UXM hardware boards and their firmware. This may be required if you are seeing anomalies in the test application software or cannot get <b>Cell ON</b> to activate.  Close the test application before selecting this action.
	Restarts the UXM to the initial platform operational state and ends by launching the applications. You can also restart the UXM from the Window <b>Start</b> menu.
	Shuts down the UXM hardware and software. It is recommended that you close all application software before selecting this E7515A Control Panel option.
	Opens the Keysight License Manager. Displays all licenses installed in your UXM. Also, enables you to drag and drop any license files you need to install. Refer to " <b>Licensing</b> " on page 33 for more information. (Using this feature may not be necessary, if licenses have already been installed at the factory.)
	Enables you to input compensation for loss due to cabling. Refer to the UXM Help, located in the instrument software, for more information.
	Opens a browser window at <b>D:\Users\Administrator\AppData\Roaming\Keysight\E7515A</b> which enables you to browse to a different location or to designate this location to save a zipped set of encrypted log files from the instrument. These files are useful to assist Keysight with remote diagnosis of instrument problems.



## Control Panel Functions The Control Panel

Icon	Description
	<p>Opens window with two options for obtaining instrument traceability information. Use this information when you need to discuss your test set with an authorized Keysight representative. Below is a sample of what you might see in your instrument.</p> 
	<p>Enables you to set the instrument synchronization options and LAN Address Configuration. (Refer to section entitled LAN Address Configuration for information on setting the IP addresses.) For the synchronization option, the default is Automatic which means that the instrument automatically synchronizes with an external clock if detected; otherwise it uses the internal clock. If Internal is selected, the instrument ignores any external reference and always uses the internal one. Important: Changing any settings on this dialog should only be attempted when the UXM has no software applications running. (For example: when no DL/UL cells are in use.)</p>
	<p>Enables you to perform Built-In Self Tests for the UXM. Refer to <b>“BIST (Built-In Self Tests)” on page 51</b> for details of this function.</p>
	<p>To integrate a stand-alone UXM into an array, click the Enter Array icon. The Role in Array window asks you to choose between Main and Auxiliary:</p> <ul style="list-style-type: none"><li>- The Main unit provides synchronizing signals to the other unit in the array.</li><li>- The Auxiliary unit receives synchronizing signals from the Main unit.</li></ul>
	<p>Opens the iPerf tool (an integrated traffic generator).</p>

Control Panel Functions  
The Control Panel


Icon	Description
 The icon consists of a black square with a white border. Inside the square is a yellow square containing a white 'X' with a small white arrow pointing to the right. Below the square, the text 'Exit array' is written in white.	To remove the UXM from an array, and operate it as a stand-alone unit, click the Exit Array icon. A warning window asks you to make sure all measurement applications are closed first.

## BIST (Built-In Self Tests)

These tests provide you with the ability to diagnose which areas of the UXM hardware and firmware are not functioning properly and are primarily useful when speaking with a Keysight technical support representative.

### When to Perform a Test

Perform the BIST whenever you are experiencing a possible UXM malfunction. Base this decision when any of the following occurs:

- After rebooting the hardware boards (by selecting  , the Reboot icon), the E7515A Control Panel pictorial graphic displays a red screen.
- It appears that either the UL or DL is not communicating properly.

## Available Tests

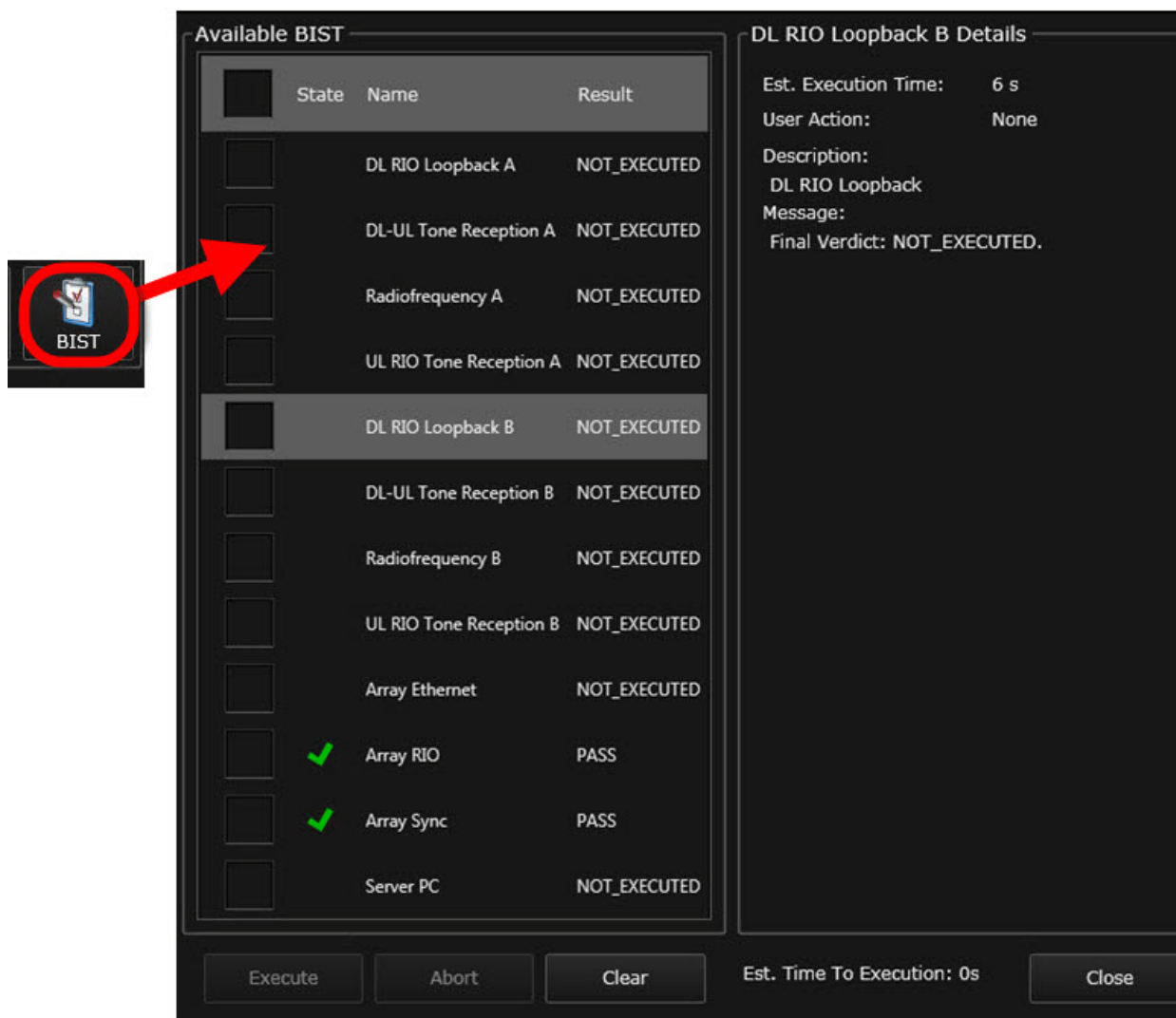
Test	Description	Requisites
Radiofrequency A	This BIST carries out a frequency sweep in both connectors of Transceiver A, both in split and join modes, varying the output power for each frequency and checking the input power to detect differences over a specified limit.	A cable for connecting Tx1 to Rx1 and another one from Tx2 to Rx2 in Transceiver A.
Radiofrequency B	Same as in Radiofrequency A, but applied to Transceiver B.	Same than in Radiofrequency A, but applied to Transceiver B.
DL-UL Tone Reception A	This BIST performs a loop between the SPM-A DL FPGA (where a tone is generated) and the PPM-A (where the tone is received), checking that the received tone matches the transmitted one.	None
DL-UL Tone Reception B	Same than in DL-UL Tone Reception A, but in RFM-B and PPM-B.	None
DL RIO Loopback A	This BIST performs a loop between the PPM-A (from where data are sent) and the SPM-A DL FPGA (where the data are received).	None
DL RIO Loopback B	Same than in DL RIO Loopback A, but in PPM-B and SPM-B.	None
UL RIO Tone Reception A	This BIST performs two tests: (1) A loop between the SPM-A DL FPGA and the PPM-A, checking that the received tone waveform matches the transmitted one. (2) The reception in the PPM-A of a tone generated in SPM-A UL FPGA.	None
UL RIO Tone Reception B	Same than in UL RIO Tone Reception A, but in SPM-B and PPM-B.	None
Server PC	This BIST verifies that the Server PC (SPC) board is alive.	This BIST will be executed only if the board is detected at AMC level.
Array Ethernet	This test checks the Ethernet interconnection between UXMs in an array.	None
Array RIO	This test checks the RIO interconnection between UXMs in an array.	None

Test	Description	Requisites
Array Sync	This test checks the synchronization signals interconnection between UXMs in an array.	None

## Running a Test

When you select the BIST icon, a window with the list of available BIST is displayed:

Figure 3-3 BIST Icon & Window



You can select the BIST you would like to execute individually or select all of them selecting the top checkbox.

Information about a BIST is displayed in the right panel when you click on the BIST name in the left panel. This information includes:

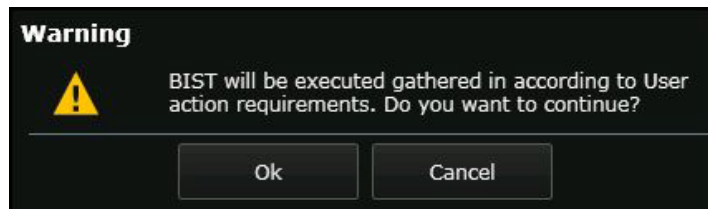
- An estimation of the execution time.
- Any required user action before executing the BIST.
- A short BIST description.
- The result of the last BIST execution, if any.

Once you select the desired BIST, click **Execute** to launch the test process.

Please ensure that no applications are launched before executing any BIST.

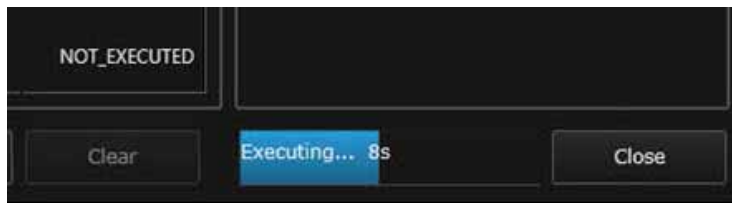
BIST execution is not sequential. Some BIST require user actions: in order to minimize user intervention, BIST are grouped by user actions, that is, all BIST requiring a specific user action will be executed together. This is why the you might see that BIST results do not appear in the same order as BIST in the list. When this grouping is activated, following pop-up will be displayed:

Figure 3-4 BIST Grouping Activation Notification



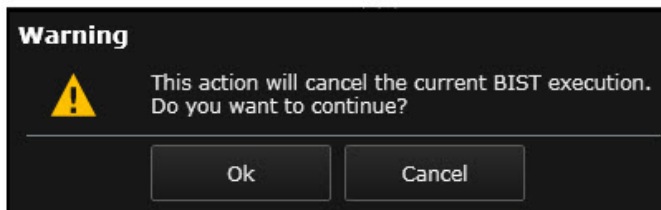
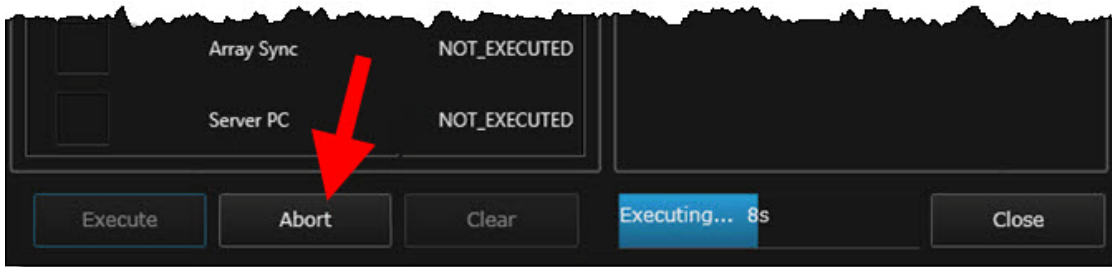
During BIST execution, a progress bar is displayed:

Figure 3-5 BIST Execution Status Indicator



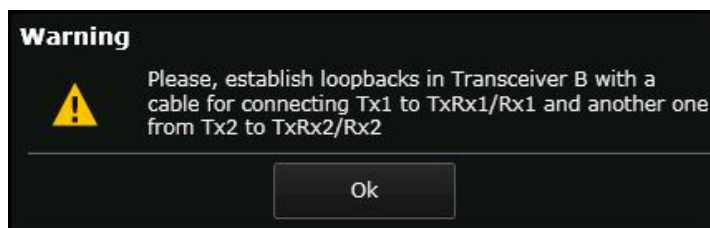
Once started, BIST execution can be aborted by clicking the "Abort" button. A pop-up warning about this operation is displayed:

Figure 3-6 BIST Abort Warning



When a user action is required, the corresponding pop-up is displayed:

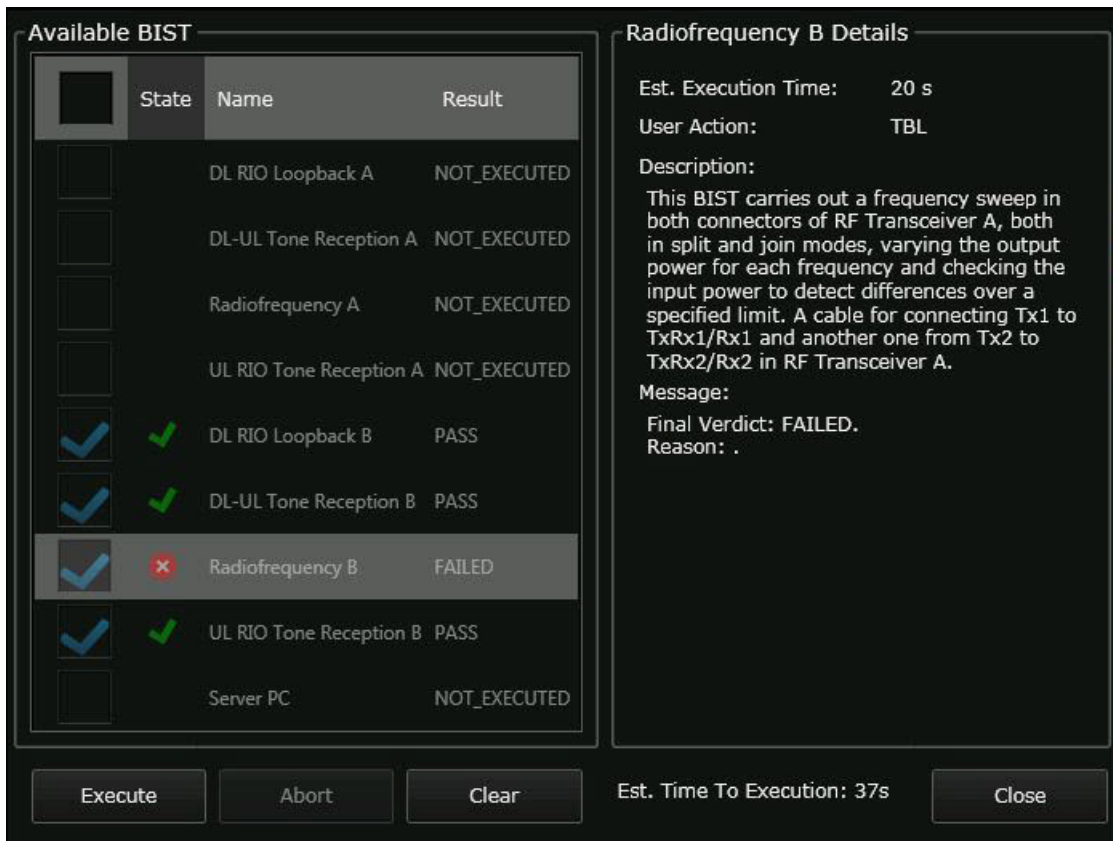
Figure 3-7 User Action Required Notification



Control Panel Functions  
BIST (Built-In Self Tests)

When the BIST are completed, the following image is shown, with the pass/fail results of each test.

Figure 3-8 BIST execution finished (with results)



The pass/fail diagnostic information provided by the BIST is valuable information to have when discussing any problems you may be having with your UXM. If any of the tests do not pass, it is best that you contact your Keysight representative. Refer to **“Calling Keysight Technologies” on page 107**.



## 4 Internal Applications Server

The following topics can be found in this section:

[“Purpose of the Server” on page 58](#)

[“Software Application Location Recommendations” on page 59](#)

[“Loading Application Software to the Internal Applications Server” on page 61](#)

## Purpose of the Server

The Internal Applications Server (also known as the Server PC or SPC) is an additional personal computer that is easily installed in the rear-panel of the UXM. With this increased processor and disc-space functionality available to you outside the Host PC of the UXM, you are able to utilize maximum speed and efficiency when performing User Equipment (UE) capability testing via the UXM.

This component is an upgrade to the E7515A UXM Wireless Test Set and is available to order as part-number: E7515AU-S01. If you ordered this component, refer to **“Initial Inspection” on page 20** to ensure your order is complete. Refer to the E7515AU-S01 Installation Guide to for proper installation.

### NOTE

When you are setting up multiple UXMs for testing purposes, the Internal Applications Server must be installed on the Main UXM (not the Auxiliary UXM) in order for all functions to work properly.

---

## Software Application Location Recommendations

After you have installed this component in the UXM, you need to determine which applications you wish to run on the Internal Applications Server. Below is the table of some software applications available for the UXM and upon which PC they are recommended to be installed and executed for optimal use of the UXM.

When referencing the table below, note these clarifications:


- The UXM software version number is shown in the appropriate column, denoting the appropriate location for the software to be executed.
- "Not recommended": location should work, but there is no guarantee provided of its reliability or of technical support.
- The UXM Embedded (Host) PC is not intended for customer use.

<b>Application</b>	<b>UXM Embedded (Host) PC</b>	<b>Internal Applications Server (SPC)</b>	<b>External PC</b>	<b>Notes</b>
E7630A-MTP: Message Editor Software	≥ 1.2.1.x	≥ 1.2.3.x	≥ 1.2.1.x	This application has low CPU & network loads. Typically used when UE is not connected.
E7515A-L01: Protocol Logging and Analysis Software	Do not locate on Host PC.	≥ 1.2.3.x (Load here only if application is NOT also serving data from this PC)	≥ 1.2.1.x (Load here only if application is NOT also serving data from this PC)	
E6966B: IMS-SIP Server – Registration only	≥ 1.2.1.x	≥ 1.2.3.x		This application is handled automatically by the UXM. No customer action is required.
E6966B: IMS-SIP Server	Not recommended	≥ 1.2.3.x	≥ 1.2.1.x	
E6966B: IMS-SIP Client	Not recommended	≥ 1.2.3.x	≥ 1.2.1.x	
E6966B: IMS-SIP Client	Not recommended	≥ 1.2.3.x	≥ 1.2.1.x	
E6966B: IMS-SIP Conference Server	Do not locate on Host PC.	≥ 1.2.3.x	≥ 1.2.1.x	

Internal Applications Server  
 Software Application Location Recommendations

<b>Application</b>	<b>UXM Embedded (Host) PC</b>	<b>Internal Applications Server (SPC)</b>	<b>External PC</b>	<b>Notes</b>
Wireless Test Manager (WTM): E6567E, E6568E, E6569Eorted	Not supported	Not supported	Not supported	
Ping	Not recommended	≥ 1.2.3.x	≥ 1.2.1.x	
iPerf	Do not locate on Host PC.	≥ 1.2.3.x	≥ 1.2.1.x	

## Loading Application Software to the Internal Applications Server

Step	Action	Notes
1. Connect the LAN lines differently when the E7515A-S01 is installed.	Use the LAN connectivity diagram shown in the section <b>“With Internal Applications Server (E7515A-S01)”</b> on <b>page 37</b> to configure the LANs for the Server PC.	This is only required if external network access is required. Connect the UE to 11.0.0.2 for all network services being provided by the Server PC.
2. Log into the Internal Application Server as Administrator.	Use the Administrator access desktop link, provided to you on the desktop of the UXM. The Administrator password is: <b>Keysight4u!</b>	 The icon shows a computer monitor with a blue screen, a mouse, and a green checkmark, with the text "Server PC" below it.
3. Load the required application software.	Use the Server PC serial number when licensing software applications loaded to the Server PC.	Refer to <b>“Rear Panel Features”</b> on <b>page 69</b> to locate the Server PC mini-USB port. Use the Mini-USB port Adaptor to enable USB connection to the Server PC.
4. Configure the UE to connect to 11.0.0.2		Network access from the UE to the network services you install on the Server PC should be realized via the Server PC dedicated network adapter with fixed IP 11.0.0.2.

Internal Applications Server  
Loading Application Software to the Internal Applications Server

## 5 Front and Rear Panel Functions

The following topics can be found in this section:

[“Front Panel Features” on page 64](#)

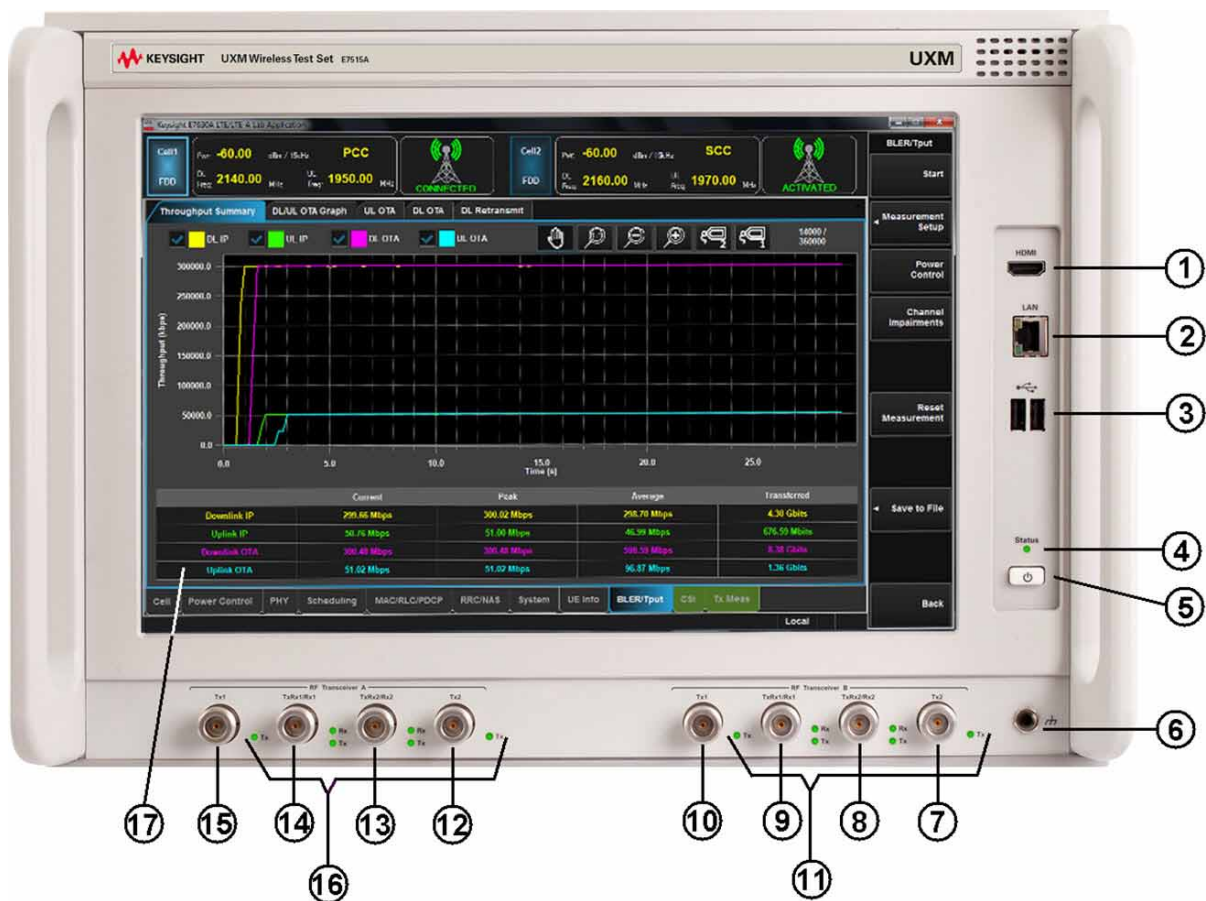
[“Rear Panel Features” on page 69](#)

[“Front and Rear Panel Symbols” on page 72](#)

## Front Panel Features

Begin using the UXM by becoming familiar with the layout of the Front Panel and the displayed user interface.

Figure 5-1 UXM Front Panel





Front and Rear Panel Functions  
Front Panel Features

Number	Item Name	Description
1	HDMI Output	This is a High Definition Multimedia Interface output. This output transfers uncompressed video data and compressed or uncompressed audio data to an external display (for example: projector or other type of video/audio display. It is a standard HDMI v1.3.
2	Front LAN Connection	This RJ-45 connector provides front-panel access from the UXM Host PC enabling a maximum Ethernet data rate of 1 Gigabit. This connector is used for downloading firmware upgrades, new test set applications, saving data to an external memory drive and other reasons for which you may wish to connect to a local area network and/or to the internet. See <b>“LAN Connectivity” on page 36</b> . The IP address for this input is labeled “Front” and can be viewed by using the CONFIG button on the E7515A Control Panel; see <b>“LAN Address Configuration” on page 35</b> .
3	2 - USB Inputs	Universal Serial Bus inputs for peripheral devices (mouse, keyboard, flash drives). These are USB version 2.0.
4	UXM Power Status Light <sup>a</sup>	Displays the power status of the instrument. <sup>a</sup> The rear-panel switch must be turned On and line power must be connected in order for this light to illuminate.
5	Power	This is the On/Off button for AC power. Pressing this button when the instrument is powered off turns it on. Pressing this button briefly will shut down the UXM and Windows Operating System safely. (Pressing and holding this button down for more than 5 seconds forces a complete instrument shut-down, but this is not recommended, as it triggers an uncontrolled Windows shutdown).
6	Earth Ground	Available for those situations where earth ground is required.
7-10	R ports for Transceiver B <sup>b</sup> (RFM2)	These ports transmit and receive using the Transceiver B <sup>b</sup> base station emulator of the UXM.
7	Tx2	This provides the secondary RF output port for Transceiver B <sup>b</sup> . The maximum safe input level is 0.5W (+27 dBm), -15 to 0 VDC.
8	TxRx2/Rx2	This secondary Transceiver B <sup>b</sup> port acts in duplex mode, when it transmits and receives RF signals or in simplex mode when it only receives RF input. The maximum safe input level is 1W (+30 dBm), ±10 VDC.
9	TxRx1/Rx1	This primary Transceiver B <sup>b</sup> port acts in duplex mode, when it transmits and receives RF signals or in simplex mode when it only receives RF input. The maximum safe input level is 1W (+30 dBm). The Absolute Maximum Power is 2W (+33dBm), 0V DC input voltage.
10	Tx1	This provides the primary RF output port for Transceiver B <sup>b</sup> . The maximum safe input level is 0.5W (+27 dBm). The Absolute Maximum Power is 1 W (+30dBm), 0V DC input voltage.

Front and Rear Panel Functions  
Front Panel Features

Number	Item Name	Description
11	Indicator Lights for RF Transceiver B <sup>D</sup> ports	These lights indicate the status of the connectors, not whether they are connected to a device or not. <sup>c</sup> Each antenna has 3 indicator lights: one for the transmitter and two for the transmitter/receiver.
12-15	RF ports for Transceiver A (RFM1)	These ports transmit and receive using the Transceiver A base station emulator of the UXM.
12	Tx2	This provides the secondary RF output port for Transceiver A. The maximum safe input level is 0.5W (+27 dBm), -15 to 0 VDC.
13	TxRx2/Rx2	This secondary Transceiver A port acts in duplex mode, when it transmits and receives RF signals or in simplex mode when it only receives RF input. The maximum safe input level is 1W (+30 dBm), ±10 VDC.
14	TxRx1/Rx1	This primary Transceiver A port acts in duplex mode, when it transmits and receives RF signals or in simplex mode when it only receives RF input. The maximum safe input level is 1W (+30 dBm), ±10 VDC.
15	Tx1	This provides the primary RF output port for Transceiver A. The maximum safe input level is 0.5W (+27 dBm), -15 to 0 VDC.
16	Indicator Lights for RF Transceiver A ports	These lights indicate the status of the connectors, not whether they are connected to a device or not. <sup>c</sup> Each antenna has 3 indicator lights: one for the transmitter and two for the transmitter/receiver.
17	Touch-screen	LCD Flat-Panel Display with single touch 15" capacitive touch-screen.

- a. See **“Power Status Indicator”** on page 67.
- b. See **“Second Transceiver”** on page 67.
- c. See **“RF Transceiver Status Indicator”** on page 68.

## Power Status Indicator

### UXM Power Status

- **Off:** Back-panel power switch is off.
- **Yellow:** The rear power switch is on, but the UXM is powered down. The first time the back-panel power switch is turned on (UXM (front-panel switch is off). It may display as green when the Micro-Controller Unit is loading (~3 seconds) after which it remains yellow.
- **Green blinking:** The UXM is booting up.
- **Green:** UXM is available for use or in use.
- **Green/Yellow blinking:** Instrument Control Module (ICM) for the Micro-Controller Unit is downloading firmware. (Not the FPGA ICM.) When the FPGA-ICM is downloading firmware, the LED is green.
- **Yellow blinking:** UXM is shutting down and the boards shutdown process has begun.
- **Yellow/Orange blinking:** UXM is off after an abnormal shutdown.

## Second Transceiver

You need to purchase option E7515A-RB1 (RF up-down converter B) and E7515A-BB1 (Digital baseband transceiver B) in order to have a 2nd transceiver.

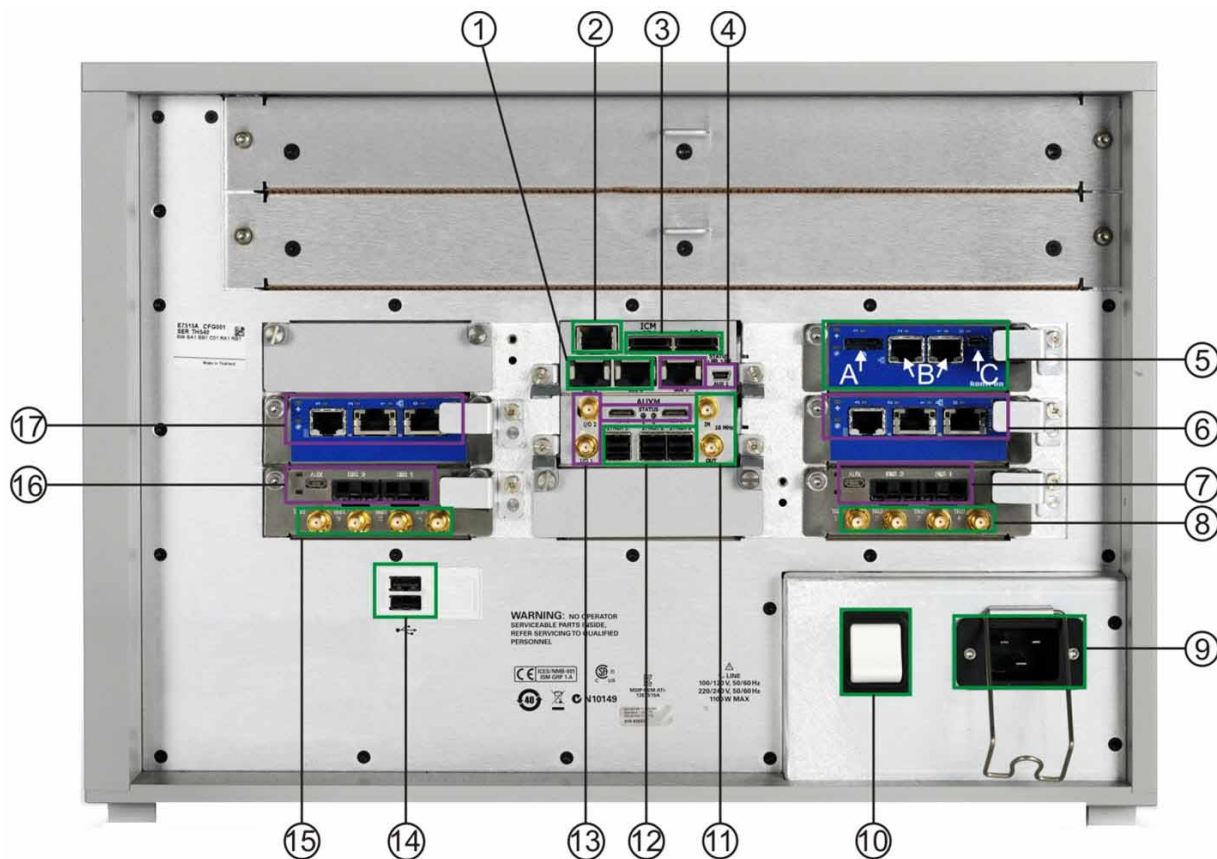
## RF Transceiver Status Indicator

RF Transceiver A/B Status Indicator Light settings:

1. The LEDs display meaningful information to you only after you have launched the test application. At this time the LEDs displayed are the result of your selection or de-selection of duplex mode of the RF Output 1/2 (A) box on the System tab of the Application.
2. When RF Duplex mode is de-selected, channel 1 is configured in simplex mode. (Tx1 connector is used for transmission.) The following LEDs are lit in this mode:
  - LED - Tx1
  - LED - Rx1
  - LED - Rx2 - This receiver connection is not used by the test application.
  - LED - Tx2 - This transmitter connection is not used by the test application in 1x1 antenna configuration.
3. When RF Duplex mode is selected:
  - In this mode, channel 1 is configured in duplex mode (Tx1Rx1/Rx1 connector is used for transmission). The following LEDs are lit in this mode:
    - LED - Rx1
    - LED - Tx1Rx1
    - LED - Rx2 - This receiver connection is not used by the test application.
    - LED - Tx2 - This transmitter connection is not used by the test application in 1x1 antenna configuration.
  - Channel 2 cannot be configured in duplex mode from the test application and, in consequence, is always working in simplex mode; therefore, channel 2 LEDs will never change once the test application is running.
4. As receptions are not configurable (there is only one possible connector for reception on each channel), all receiver LEDs in both RF Transceivers are always be On.

## Rear Panel Features

Figure 5-2 UXM Rear Panel



Number	Item Name	Description
1	Ethernet GbE 1 and GbE 2	Connected to the ICM's Ethernet switch. Used to connect UXM arrays requiring either the GbE 1 or GbE 2 connector on the main UXM to be connected to either the GbE 1 or GbE 2 connector on the auxiliary UXM. The Ethernet traffic local to a UXM is isolated from these connectors precluding Ethernet traffic between units.
2	LAN1	This is the Ethernet port that is connected internally to the UXM Host PC. Use this port to connect the UXM to the LAN.  The IP address for this input is labeled "Rear GbE4" and can be viewed by using the CONFIG button on the E7515A Control Panel; see <b>"LAN Address Configuration" on page 35</b> .
3	RIO I/O 1 and I/O 2	RIO ports are connected to the ICM's RIO switch: UXM arrays require the I/O 2 connector on the main UXM to be connected to the I/O 1 connector on the auxiliary UXM.
4	Various inputs/outputs	All ports outlined in purple in this area are not available for use.

Front and Rear Panel Functions  
Rear Panel Features

Number	Item Name	Description
5	Internal Applications Server <sup>a</sup>	E7515A-S01: Refer to <b>“Internal Applications Server” on page 57</b> for a detailed description.
5 A	Display Port	This is a “Display” type port. Use the cable supplied if a VGA output is required.
5 B	LAN1 & LAN2 <sup>b</sup>	These are the Network Interface Card ports for the Internal Applications Server. The IP addresses for both of the LANs are dynamically assigned by Windows and are labeled: External NIC#1 and External NIC#2.
5 C	Mini-USB Port	Plug the mini-USB-A plug / USB-A socket adapter in here to enable connection to the 4-port USB Hub.
6	PPM-A	The connectors of these modules are for factory use only. Do not remove.
7	SPM-A	The connectors of these modules are for factory use only. Do not remove.
8	SPM Triggers	TRG1: time-based triggers: immediate, based on system counter, based on technology counters  TRG2: gating signals  TRG3 and TRG4: time-based triggers: immediate, based on system counter, based on technology counters  You can define any trigger connector (from TRG1 to TRG4) to be of any kind of trigger or to define it as unused
9	Power Cord Input	C14 physical connector for AC Power Entry.
10	Switch	This is the AC line power switch. It is not to be relied upon as supplementary protection. Top side depressed = On. If line power is connected and this switch is On, the front-panel switch light should be lit.
11	SMA Input/Output 10 MHz Reference <sup>c</sup>	The top coaxial SMA connector is a 10 MHz clock reference input.  The bottom coaxial SMA connector is a 10 MHz clock reference output.
12	Synchronization ports	SYNCH 1, SYNCH 2, and SYNCH 3  UXM arrays require: - SYNCH 1 connector on the main UXM to be connected to SYNCH 3 connector on the auxiliary UXM. - SYNCH 2 connector on the main UXM to be connected to SYNCH 3 connector on the main UXM.
13	Various inputs/outputs	All ports outlined in purple in this area are not available for use.
14	2 - USB ports	Universal Serial Bus inputs for peripheral devices (mouse, keyboard, flash drives). These are USB version 2.0.

Front and Rear Panel Functions  
Rear Panel Features

Number	Item Name	Description
15	SPM Triggers	TRG1: time-based triggers: immediate, based on system counter, based on technology counters.  TRG2: gating signals.  TRG3 and TRG4: time-based triggers: immediate, based on system counter, based on technology counters.  You can define any trigger connector (from TRG1 to TRG4) to be of any kind of trigger or you can define it as unused.
16	SPM-B (bottom)	The connectors of these modules are for factory use only. Do not remove.
17	PPM-B	The connectors of these modules are for factory use only. Do not remove.

- a. When you are setting up multiple UXMs for testing purposes, the Internal Applications Server must be installed on the Main UXM (not the Auxiliary UXM) in order for all functions to work properly.
- b. Do not modify any LAN connections or IP configurations while the test application is running.
- c. Do not modify connections to the internal and/or external references while cells are active on a test application.













**CAUTION**

Do not cover or block the air flow vents. The test set draws air in from the left side and exhausts air from the right side.

**NOTE**



The main power cord can be used as the system disconnecting device. It disconnects the mains circuits from the mains supply.

## Front and Rear Panel Symbols

Symbol	Description
	This symbol is used to indicate power ON.
	This symbol is used to indicate power OFF.
	This symbol is used to indicate power STANDBY mode (yellow in standby, green when instrument is ON).
	This symbol indicates the input power required is AC.
	This symbol indicates earth ground.
	The instruction documentation symbol. The product is marked with this symbol when it is necessary for the user to refer to instructions in the documentation.
	The CE mark is a registered trademark of the European Community.
	The RCM Mark is a Compliance Mark according to the ACMA Labeling Requirement.
	South Korean Certification (KC) mark; includes the marking's identifier code which follows this format: MSIP-REM-YYY- <u>ZZZZZZZZZZZZZZ</u>
	ICES / NMB-001 Cet appareil ISM est conforme a la norme NMB du Canada. This is a marking to indicate product compliance with the Industry Canadian Interference-Causing Equipment Standard (ICES-001). This is also a symbol of an Industrial Scientific and Medical Group 1 Class A product (CISPR 11, Clause 4).
	The CSA mark is a registered trademark of the CSA International.
	This symbol indicates separate collection for electrical and electronic equipment mandated under EU law as of August 13, 2005. All electric and electronic equipment are required to be separated from normal waste for disposal (Reference WEEE Directive 2002/96/EC).



Front and Rear Panel Functions  
Front and Rear Panel Symbols

Symbol	Description
 A circular symbol with the number '40' in the center, surrounded by a circular arrow indicating a cycle or duration.	Indicates the time period during which no hazardous or toxic substance elements are expected to leak or deteriorate during normal use. Forty years is the expected useful life of the product.
 A standard recycling symbol consisting of three chasing arrows forming a triangle.	This symbol on all primary and secondary packaging indicates compliance to China standard GB 18455-2001.

Front and Rear Panel Functions  
Front and Rear Panel Symbols

## 6 Test Set Operating System

The following topics can be found in this section:

[“Keysight Software Installed” on page 76](#)

[“User Accounts” on page 77](#)

[“System Maintenance” on page 82](#)

[Updating the Keysight E7515A UXM software on page 88](#)

[Updating the Keysight E7515A NB-IoT Application on page 91](#)

[Customer Installation of Software on page 94](#)

## Keysight Software Installed

Your test set has a number of software applications already installed: the E7515A Platform, the E7530A LTE/LTE-A application, the E7521A/E7523A/E7529A 2G/3G applications, the X-Series Measurement Applications, the IMS-SIP Server, and the Application Switch Tool.

### Customer Installation of Software

If for some reason you need to re-install any software you purchased, go to [www.keysight.com/find/softwaremanager](http://www.keysight.com/find/softwaremanager) to obtain the latest version.

Refer to **Chapter , “Updating the Keysight E7515A UXM software”, on page 88** for software installation instructions.

#### **Uninstalling the Control Panel and Test Application Server Software**

Uninstallation is a dialog driven process. You can access the uninstall dialog of the Keysight Test Application software within the Windows **Start** menu, or by using the **Start > Control Panel\All Control Panel Items\Programs and Features** dialog within Windows.

#### **Installation of Third Party Software**

It is recommended that you do not install any non-approved software on the UXM. Installation of third party software on the UXM may render the system inoperative and is not supported by Keysight Technologies.

## User Accounts

The instrument ships with a number of different accounts already set up. In addition you can create your own accounts if you desire. The privileges associated with each account determine what you can and cannot do from that account.

### Administrator Account

Using the Administrator account you can perform the following operations:

- Install software
- Configure network and printer access
- Access all files on the instrument
- Add or change user accounts and passwords (see **“Changing Account Passwords” on page 78**).
- Change Firewall settings
- Change Windows settings (e.g., using Device Manager)
- Change the time and date

For instruments with a Keysight Technologies disk image, the Administrator account ships from the factory with the password set as:

**Keysight4u!**

### Instrument Account

The default user account that ships from the factory is “Instrument” with the password set as:

**measure4u**

This user is a member of the standard Users group. Using the Instrument account, you may perform the following operations:

- Configure network and printer access (although not local printer access)
- Access files on the instrument that are accessible to the Users group
- Run applications that are accessible to the Users group

### Customer Creation of Accounts



You can create additional user accounts and decide on the level of security granted to any new user accounts created. For example, the level of security can be assigned as administrator, or standard user. User names are not case sensitive but passwords are case sensitive.

It is Keysight’s expectation that each user’s My Documents folder is mapped to the D: drive. This is to avoid overwriting the user’s data in the event the Instrument Recovery must be performed. Also, this facilitates convenient

backup by copying the contents of the D: drive to external media. All user accounts created by the factory already have My Documents mapped to the D: drive. It is recommended to map all new users' My Documents folders to the D: drive.

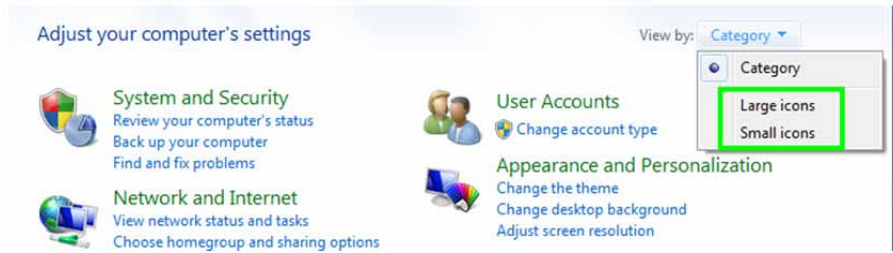
## Changing Account Passwords

In order to minimize an “unnoticed” or “involuntary” change of Administrator and Instrument accounts password, the account properties have been set to restrict password change. If you need to change the password for either of these accounts, proceed as follows:

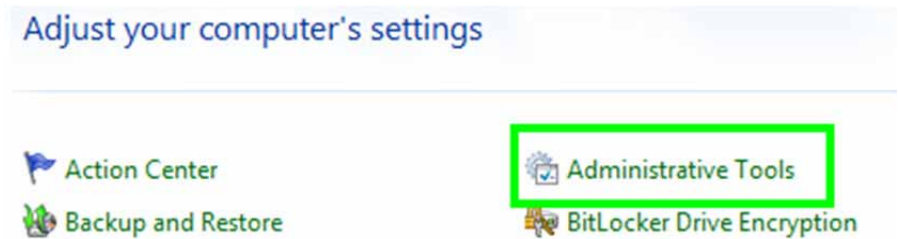
Step	Notes
1. Log in to the instrument as Administrator.	
2. Select the Windows <b>Start</b> button.	
3. Select <b>Control Panel</b> . The Control Panel appears.	

Step	Notes
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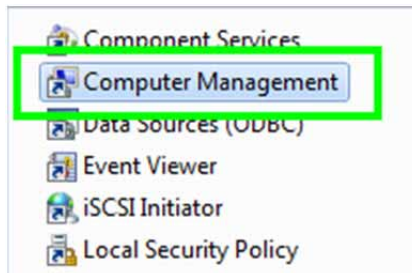
4. Select **Large icons** or **Small icons** on the right-hand side under the **View by** menu (if you are not already in the icons view).



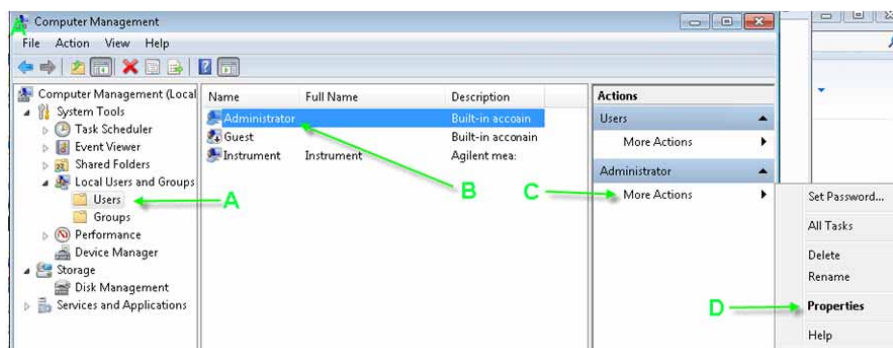
5. Locate and select **Administrative Tools**.



6. Locate and select **Computer Management**.



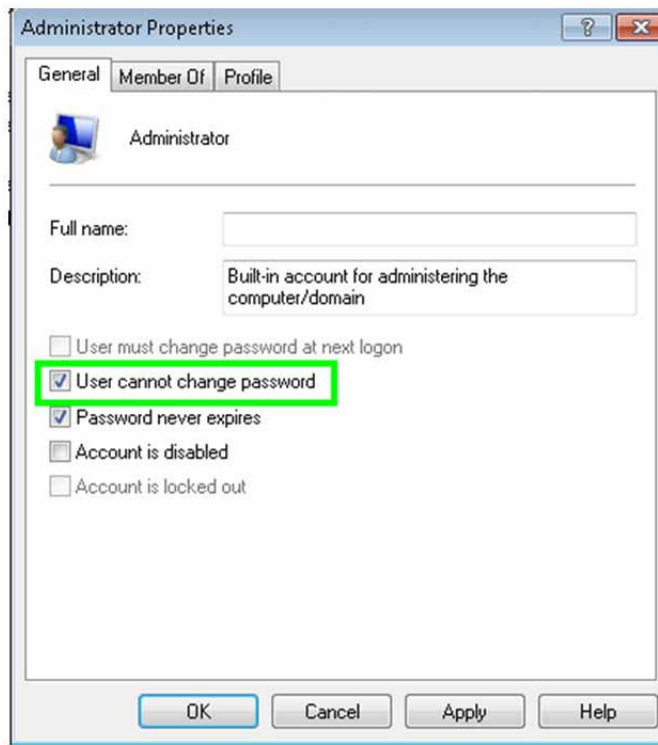
7. Locate and select  
a. **Users**  
b. **Administrator**  
c. **More Actions**  
d. **Properties**



**Step**

**Notes**

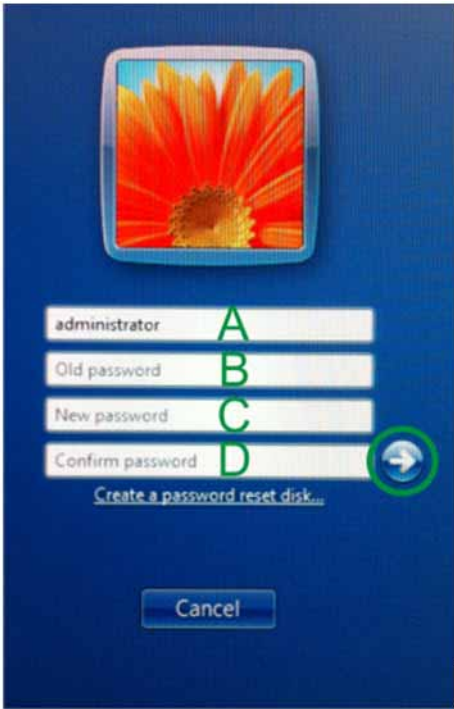
8. Clear the check box next to “User cannot change password” and then select **OK**.



9. After you have changed the Administrator Properties, change your password by pressing **Ctrl+Alt+Del** then **Change Password**.





Step	Notes
<p><b>10.</b> Enter the password change information.</p> <ul style="list-style-type: none"><li>a. The account to be changed.</li><li>b. The old password</li><li>c. The new password.</li><li>d. Re-enter the new password to confirm.</li></ul> <p>(Complete the operation by pressing Enter or clicking the arrow icon.)</p>	
<p><b>11.</b> After changing the password(s), repeat steps 2 through 8.</p>	<p>After changing the password(s), it is recommended that you restore the "User cannot change password" Administrator property (see step 8).</p>

## System Maintenance

### Back-up

It is recommended that you have a regular back-up strategy. Your IT department may already have a back-up strategy in place which is suitable for the test set and its data.

The Windows 7 operating system has a Backup utility that you can use to archive files and folders in case of a hard disk drive failure. See the Microsoft Windows Help and Support Center for more information on this utility.

When performing back-ups, we recommend that you back-up the data to an external storage device connected to your company's internal network or one of the test set's USB connectors. Also, you should perform back-ups at times when the Server PC is not being used for normal operations as it may impact the test set's overall performance.

### System Restore

Windows 7 contains the capability to restore the system to a previous point in time. System Restore is enabled with default settings as provided by Microsoft. However, System Restore is not 100% successful. Therefore, it is not the recommended method to back-up the instrument. System Restore has not been tested to verify successful restoring. It is best to use the procedure described in **“Disk Drive Recovery Process” on page 84.**

## Hard Drive Partitioning and Use

The drive is partitioned into 3 sections: C:, D: and E:

- The **C:** partition contains the Windows 7 operating system and software installed by Keysight. This is an Open System which means you can install additional software. However it is recommended that you use an external PC to host all additional software applications that you wish to use in conjunction with the UXM. The installation and/or use of other software is not warranted and could interfere with the operation of the test set software. If instrument repair is ever needed, the Keysight version of the C: drive is the only part of the instrument software that is restored by the Instrument Image Recovery System. You must reload any other software that you have added in the instrument.

### NOTE

It is recommended that you use an external PC or purchase the E7515A-S01 Internal Application Server to host software applications you wish to use in conjunction with the UXM. Installing applications on the instrument Host PC may result in a compromised performance of the UXM including decreased throughput and/or measurement performance.

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- The **D:** partition is reserved for data storage. The User Accounts that are configured by Keysight have their Users folder mapped to the D: drive. This is for the convenience of backing-up the test set measurement data. You should always back-up the data on the D: drive to an external device. This enables you to restore the data should the hard drive need to be replaced.

### NOTE

Data on the desktop will be deleted during system recovery. Therefore it is recommended that you always store your data in another folder on the D: drive, for example **D:\Users\Instrument\Documents**

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- The **E:** partition is reserved for Keysight's use. The primary use of the E: drive is for storing the Calibration and Alignment data, the configuration files for the Platform Boards and Host PC. Do not change or overwrite the files on this drive. This could cause your instrument to not meet specifications, or even to stop functioning correctly. Do not use this drive for data storage. It is also recommended that you back-up the contents of this drive by using an external device.

## Disk Drive Recovery Process

The Instrument Image Recovery System can be used to repair errors on the Internal Applications Server's C: drive or to restore the original factory configuration of the system software. Repairing errors on the hard disk drive may result in loss of data or files. If you need more information about the Windows "chkdsk" error repair process, see the chkdsk documentation in the Microsoft Windows 7 Help and Support Center.

### NOTE

This recovery process should only be used for the repair/restoration purposes described above. It is **not** suitable for performing an instrument software update; see [“Updating the Keysight E7515A UXM software” on page 88](#) for the appropriate procedure.

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Restoring the original factory system software does not restore any of the following items:

- Windows system configurations that were made after the instrument was shipped from the factory. For example, Windows and Service Pack updates, user accounts, and windows configuration settings. After an Instrument Image Recovery System, these configurations need to be redone.
- Additional software that was installed after the instrument was shipped from the factory. After an Instrument Image Recovery System, that software needs to be re-installed.
- Any upgrades that were made to the Keysight Test Application software.

### NOTE

It is recommended that you use a regular back-up strategy. Your IT department may already have a back-up strategy in place which is suitable for the Internal Applications Server and its data. See [“User Accounts” on page 77](#). Using the Instrument Image Recovery System in conjunction with a regular back-up strategy should allow you to fully recover the Internal Applications Server software and data.

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It is recommended that routine back-ups of the instrument information be performed to keep current archives of the instrument information. This allows a full recovery of the instrument information after the instrument recovery system operations are performed. See [“Back-up” on page 82](#) for more details.

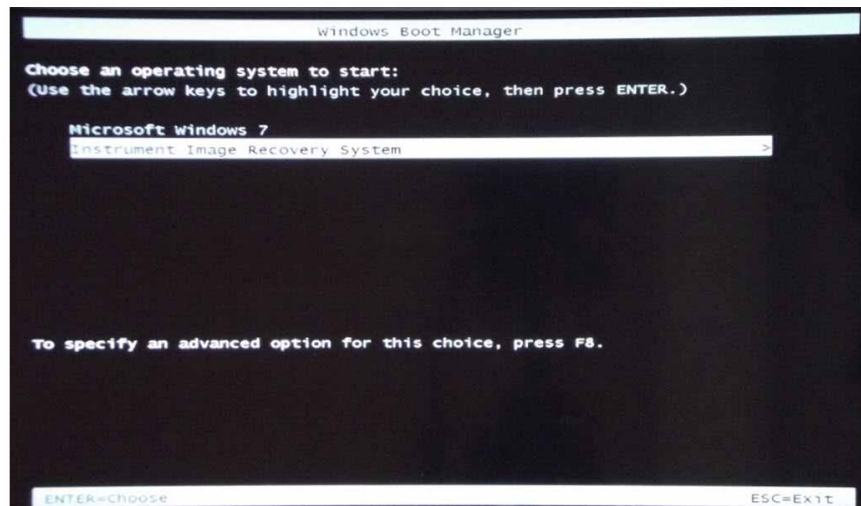
## Using the Instrument Image Recovery System - Test Set Operating System

Step	Notes
1. Check the size of D:\Users\Administrator and D:\Users\Instrument. The size must be smaller than the half the free space in the D: drive.	If the used space is bigger than half the free space in the D: drive, proceed as follows: (a) Remove the contents of D:\Users\Administrator\AppData\Local\Temp (b) Move the contents of Desktop, Documents, Images, and Music to D:\Administrator (c) Verify that the size of D:\Users\Administrator is smaller now. (d) Repeat the process for D:\Users\Instrument, moving the folders into D:\Instrument.

2. Turn on the instrument.

Press the down arrow key to move the highlight to **Instrument Image Recovery System**, and then press **Enter**.

The Windows Boot Manager Screen is displayed.

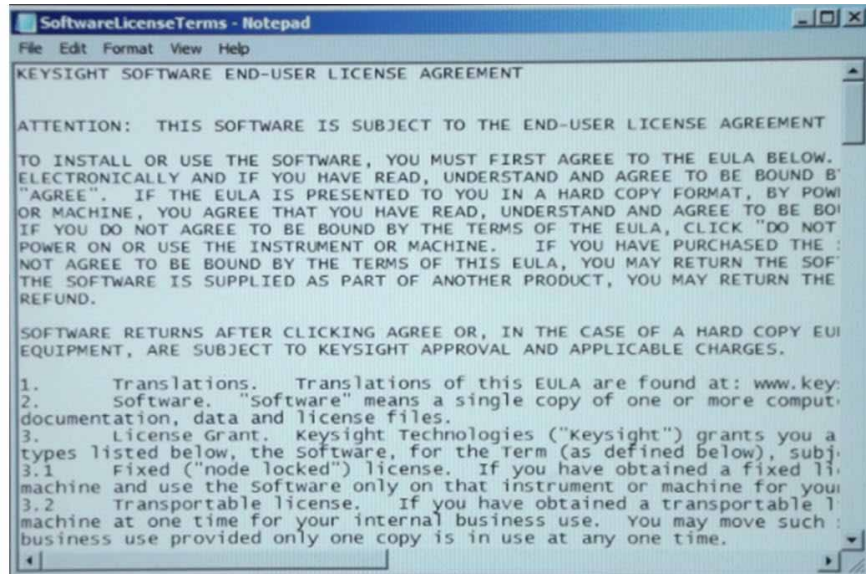


3. After selecting the **Instrument Image Recovery System**, the instrument boots the **Instrument Image Recovery System** for 2 or 3 minutes. Finally, the instrument displays a message asking if you would like to review the Keysight license agreement. Select **Yes**.

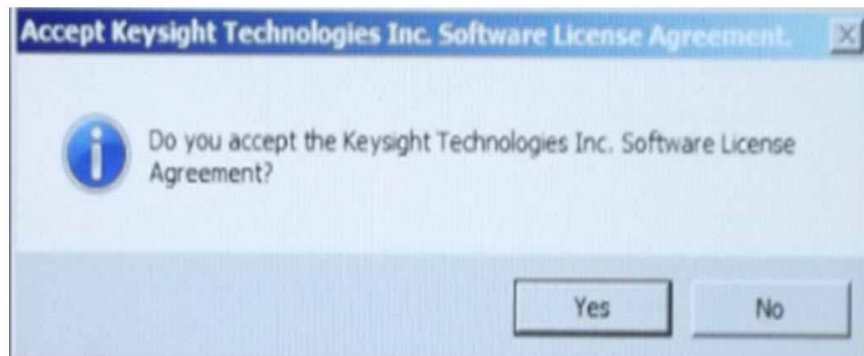


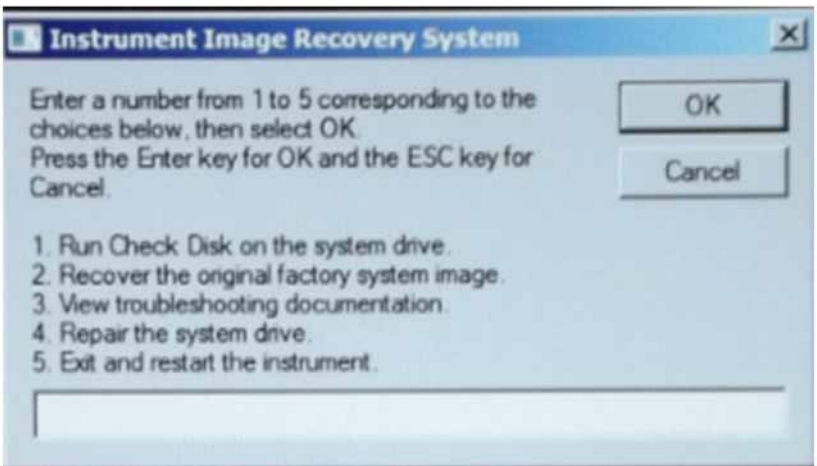
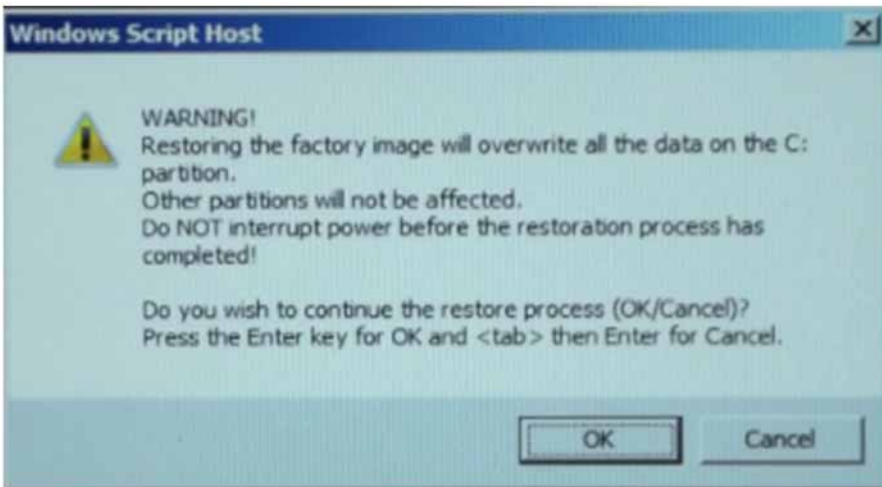
Step	Notes
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4. Review the terms.  
Select the "X" in the upper right corner to close this window.



5. Accept the license agreement by selecting **Yes**.



Step	Notes
<p>6. When the <b>Instrument Image Recovery System</b> has booted, follow the on-screen instructions to recover the image of the C: drive.</p> <p>Type in the number <b>2</b>, then press <b>OK</b> to select “Recovery of the original factory system image”.</p>	
<p>7. A warning message appears. Press <b>OK</b> to start the recovery, which may take up to 45 minutes to complete.</p>	
<p>8. The instrument then re-executes the process described under: <b>“Turning On the Test Set the First Time”</b> on <b>page 25</b>.</p>	

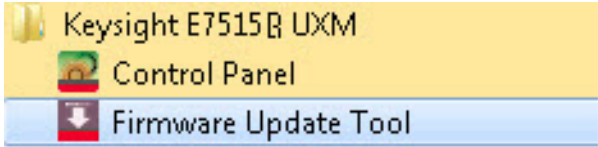
## Updating the Keysight E7515A UXM software

The following steps are required to update your Keysight E7515A UXM if you are migrating to any software version greater than 1.4.1.0 (for migrating to earlier software versions, contact the Support Team) that is available at: [www.keysight.com/find/softwaremanager](http://www.keysight.com/find/softwaremanager)

### Using the Firmware Upgrade Tool

**NOTE**

This upgrade tool can only be used for software versions 1.4.1.0 or greater.

Step	Notes
1. Connect a USB keyboard and mouse to the instrument	
2. Log out of the default user (instrument): Select <b>Start, Log Off</b>	
3. At the log in prompt enter: User Name: administrator Password: Keysight4u!	
4. Obtain the latest version of software installer.	Download it from the site: <a href="http://www.keysight.com/find/softwaremanager">www.keysight.com/find/softwaremanager</a>
5. Launch <b>Firmware Upgrade Tool</b> from <b>Start &gt; All Programs &gt; Keysight E7515A UXM</b> .	 <p>If this application is not installed, download the latest recommended version of "Keysight E7515A UXM FirmwareUpdateTool" from the site: <a href="http://www.keysight.com/find/softwaremanager">www.keysight.com/find/softwaremanager</a></p>
6. In the "Firmware Upgrade Tool" add the software installer program obtained in the step 4.	Right-click on the Windows "Select firmware version:" and Add it.
7. Select the desired software installer and click the <b>Update</b> button	If the instrument belongs to an Array, the instrument is exited from Array.
8. When prompted to continue with the Firmware update, select <b>Yes</b> .	The Firmware Update Tool will warn if a system restart is required for completing the uninstallation/installation.



Test Set Operating System  
Updating the Keysight E7515A UXM software

Step	Notes
<b>9.</b> If a system restart is required, a confirmation message will appear when restart is needed. In that case, when prompted to continue with the restart, select <b>Yes</b> .	This typically happens when Microsoft .NET Framework must be updated.
<b>10.</b> The “Firmware Update Tool” will continue by itself after the instrument restarts, and will finish the update. Then a confirmation button will be shown.	If the instrument belonged to an Array, the instrument is not entered into the Array.
<b>11.</b> In case of an error during upgrade, the “Firmware Upgrade Tool” will inform the user. In that case, you can try to repair it manually or contact Support team.	To manually repair the software upgrade, go to “Control Panel\Programs\Programs and Features” and: (a) Uninstall Keysight E7515A Application (b) Uninstall Keysight E7515A UXM (c) Repeat the upgrade from step 5 above. If this is not successful, you must contact the Support team.

## Downgrading the Keysight E7515A UXM Software

If you need to downgrade your UXM software to version 1.5.x.x, 1.6.x.x or an earlier version of 1.7.x.x, you must follow the instructions below:

Step	Notes
1. Uninstall the later software version.	If the UXM is in an array, exit both UXMs from the array and perform this process on both test sets, as it is required that all units in an array have the same version.
2. Install the earlier software version (1.5.x.x, 1.6.x.x, or an earlier version of 1.7.x.x) on all UXMs.	Again, in case of an existing array, this operation needs to be performed on both test sets.
3. Verify all downgraded UXMs are now operational.	<p>If the Control Panel shows a Faulty state, reboot the Platform (<b>Reboot</b> button on Control Panel) or power cycle the UXM as follows:</p> <ol style="list-style-type: none"> <li>Power off the UXM and disconnect the power cord for 15 seconds.</li> <li>Power on the UXM</li> </ol> <p>Finally, the array can be established again, if wanted.</p>

If you need to downgrade your UXM software to version 1.3.x.x or 1.4.x.x, you must follow the instructions below:

Step	Notes
1. Uninstall the following components, in order: (a) Keysight E7515A UXM Release 1.7 (b) Keysight E7515A Platform Release 1.7 (c) Keysight License Manager (5.0.x.x) (d) Keysight License Service (5.0.x.x) (e) Keysight Host Processor Platform (4.5.x.x) (f) Keysight Instrument IO Config (5.0.x.x) (g) Keysight IO Libraries Suite 17.2 (h) Microsoft .NET Framework 4.5.2	If the UXM is in an array, exit both UXMs from the array and perform this process on both test sets, as it is required that all units in an array have the same version.
2. Perform a Windows Restart.	Again, in case of an existing array, this operation needs to be performed on both test sets.
3. Install software version 1.3.x.x or 1.4.x.x on all UXMs.	Again, in case of an existing array, this operation needs to be performed on both test sets.
4. Verify all downgraded UXMs are now operational.	<p>If the Control Panel shows a Faulty state, reboot the Platform (<b>Reboot</b> button on Control Panel) or power cycle the UXM as follows:</p> <ol style="list-style-type: none"> <li>Power off the UXM and disconnect the power cord for 15 seconds.</li> <li>Power on the UXM</li> </ol> <p>Finally, the array can be established again, if wanted.</p>

## Updating the Keysight E7515A NB-IoT Application

The following steps are required to update your Keysight E7515A UXM software with the Keysight E7515A NB-IoT Application. This software is licensed.

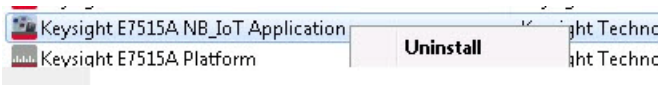
Look for latest software versions at:

<http://www.keysight.com/find/softwaremanager>

### NOTE

This section only applies to software versions 1.8.x.x and earlier. Skip this section for software versions 1.9.x.x and later.

## Removing the Keysight E7515A NB-IoT Application

Step	Notes
1. Connect a USB keyboard and mouse to the instrument	
2. Log out of the default user (instrument): Select <b>Start, Log Off</b>	
3. At the log in prompt enter: User Name: administrator Password: Keysight4u!	
4. Uninstall the Keysight E7515A NB_IoT Application by performing the following:  Select <b>Start, Control Panel, All Control Panel Items, Programs and Features</b> .  Find the <b>Keysight E7515A NB_IoT Application</b> . Right-click on the application and select <b>Uninstall</b> .	
5. Close the UXM Control Panel.	Use the "Exit" option in UXM Control Panel pop-up menu located in Notification Taskbar.
6. When prompted to completely remove the selected application and all of its features, select <b>Yes</b> .  When the software uninstall is complete, select <b>Finish</b> .	The UXM Control Panel should be closed at the beginning of the uninstallation. You must launch it manually at the end of this process.

## Installing the Keysight NB-IoT Application

Step	Notes									
1. If you have just completed uninstalling the Keysight E7515A NB_IoT Application, then you may be able to skip steps 2 through 4, below.										
2. Connect a USB keyboard and mouse to the instrument.										
3. Log out of the default user (instrument): Select <b>Start, Log Off</b> .										
4. At the log in prompt enter: User Name: administrator Password: Keysight4u!										
5. Confirm that Keysight E7515 UXM software is installed and its version is 1.7.1.0 or later.  Select <b>Start, Control Panel, All Control Panel Items, Programs and Features</b> .  Find <b>Keysight E7515A UXM</b> .	<table border="1"><thead><tr><th>Name</th><th>Publisher</th><th>Version</th></tr></thead><tbody><tr><td>Keysight E7515A Platform</td><td>Keysight Technologies</td><td>1.6.26.0</td></tr><tr><td>Keysight E7515A UXM</td><td>Keysight Technologies</td><td>1.7.1.0</td></tr></tbody></table> <p>If the Keysight E7515A UXM version is earlier than 1.7.1.0, see <b>“Updating the Keysight E7515A UXM software” on page 88</b> for information on how to install a later compatible software version.</p>	Name	Publisher	Version	Keysight E7515A Platform	Keysight Technologies	1.6.26.0	Keysight E7515A UXM	Keysight Technologies	1.7.1.0
Name	Publisher	Version								
Keysight E7515A Platform	Keysight Technologies	1.6.26.0								
Keysight E7515A UXM	Keysight Technologies	1.7.1.0								
6. Obtain the latest version of software installer.	Download it from the site: <a href="http://www.keysight.com/find/softwaremanager">www.keysight.com/find/softwaremanager</a>									
7. Locate the software installer program obtained in the step above.										
8. Follow the on-screen prompts to continue the installation.	<div style="background-color: yellow; padding: 2px; display: inline-block;"><b>CAUTION</b></div> The installation process takes about 2 minutes. Do not turn the instrument power off or serious damage may occur. If any pop-up windows appear, click OK or Ignore to proceed.									
9. When the installation has finished, you must manually launch the UXM Control Panel (from <b>Desktop</b> or <b>Windows &gt; Start</b> ).										
10. Verify the UXM is operational.	If the Control Panel shows a Faulty state, restart the UXM or power cycle the UXM as follows: a. Power off the UXM and disconnect the power cord for 15 seconds. b. Power on the UXM.									

Once the NB-IoT Application software has been installed, you must follow the instructions provided in the E7515A User's and Programmer's Guide in order to install the license required (if not previously installed), and select and start up the NB-IoT Application, using the Application Manager.

## Downgrading the Keysight NB-IoT Application

Step	Notes
1. Uninstall the later software version.	
2. Install the earlier software version.	The earliest backwards compatible NB-IoT version is 1.7.50.0.
3. When the installation has finished, you must manually launch the UXM Control Panel (from <b>Desktop</b> or <b>Windows &gt; Start</b> ).	
4. Verify all downgraded UXMs are now operational.	If the Control Panel shows a Faulty state, restart the UXM or power cycle the UXM as follows: a. Power off the UXM and disconnect the power cord for 15 seconds. b. Power on the UXM.

## Customer Installation of Software

If for some reason you need to re-install any software you purchased, go to [www.keysight.com/find/softwaremanager](http://www.keysight.com/find/softwaremanager) to obtain the latest version.

Refer to **Chapter , “Updating the Keysight E7515A UXM software”, on page 88** for software installation instructions.

### Uninstalling the Control Panel and Test Application Server Software

Uninstallation is a dialog driven process. You can access the uninstall dialog of the Keysight Test Application software within the Windows **Start** menu, or by using the **Start > Control Panel\All Control Panel Items\Programs and Features** dialog within Windows.

### Installation of Third Party Software

It is recommended that you do not install any non-approved software on the UXM. Installation of third party software on the UXM may render the system inoperative and is not supported by Keysight Technologies.

## 7 Internal Application Server Operating System

The following topics can be found in this section:

**“Keysight Software Installed” on page 96**

**“System Maintenance” on page 97**

## Keysight Software Installed

Your Internal Applications Server has no software applications already installed. Refer to **Chapter 4, “Internal Applications Server”, on page 57** for more information.

### Customer Installation of Software

If for some reason you need to re-install any software you purchased, go to [www.keysight.com/find/softwaremanager](http://www.keysight.com/find/softwaremanager) to obtain the latest version.

Refer to **Chapter 4, “Internal Applications Server”, on page 57** for software installation instructions that apply to the Internal Applications Server.

### Uninstalling the Internal Applications Server Software

Use the Windows dialog driven uninstall process (within the Internal Applications Server), which is accessed by selecting **Start > Control Panel\All Control Panel Items\Programs and Features**.

### Installation of Third Party Software

The Internal Applications Server is an Open System which means you can install additional software on it. Any network services which are required by the UE should be configured to listen to (at least) 11.0.0.2, which is the dedicated NIC for UE communications.



## System Maintenance

### Back-up

It is recommended that you have a regular back-up strategy. Your IT department may already have a back-up strategy in place which is suitable for the Internal Applications Server and its data.

The Windows 7 operating system has a Backup utility that you can use to archive files and folders in case of a hard disk drive failure. See the Microsoft Windows Help and Support Center for more information on this utility.

When performing back-ups, we recommend that you back-up the data to an external storage device connected to your company's internal network or one of the Internal Applications Server's USB connectors. Also, you should perform back-ups at times when the Server PC is not being used for normal operations as it may impact the Server PC's overall performance.

### System Restore

Windows 7 contains the capability to restore the system to a previous point in time. System Restore is enabled with default settings as provided by Microsoft. However, System Restore is not 100% successful. Therefore, it is not the recommended method to back-up the instrument. System Restore has not been tested to verify successful restoring. It is best to use the procedure described in **“Disk Drive Recovery Process” on page 98.**

## Hard Drive Partitioning and Use

The drive is partitioned into 3 sections: C:, D: and E:

- The **C:** partition contains the Windows 7 operating system and software installed by Keysight. This is an Open System which means you can install additional software.
- The **D:** partition is reserved for data storage. The User Accounts that are configured by Keysight have their Users folder mapped to the D: drive. This is for the convenience of backing-up the test set measurement data. You should always back-up the data on the D: drive to an external device. This enables you to restore the data should the hard drive need to be replaced.

### NOTE

Data on the desktop will be deleted during system recovery. Therefore it is recommended that you always store your data in another folder on the D: drive, for example **D:\Users\Instrument\Documents**

- The **E:** partition is reserved for Keysight's use. The primary use of the E: drive is for storing the Calibration and Alignment data, the configuration files for the Platform Boards and Host PC. Do not change or overwrite the files on this drive. This could cause your instrument to not meet specifications, or even to stop functioning correctly. Do not use this drive for data storage. It is also recommended that you back-up the contents of this drive by using an external device.

## Disk Drive Recovery Process

The Instrument Image Recovery System can be used to repair errors on the Internal Applications Server's C: drive or to restore the original factory configuration of the system software. Repairing errors on the hard disk drive may result in loss of data or files. If you need more information about the Windows "chkdsk" error repair process, see the chkdsk documentation in the Microsoft Windows 7 Help and Support Center. Restoring the original factory system software does not restore any of the following items:

- Windows system configurations that were made after the instrument was shipped from the factory. For example, Windows and Service Pack updates, user accounts, and windows configuration settings. After an Instrument Image Recovery System, these configurations need to be redone.
- Additional software that was installed after the instrument was shipped from the factory. After an Instrument Image Recovery System, that software needs to be re-installed.

- Any upgrades that were made to the Keysight Test Application software.

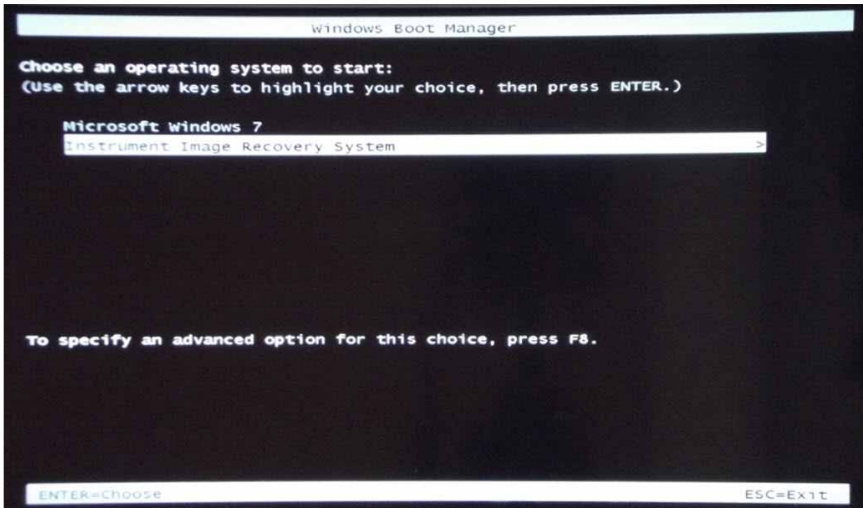
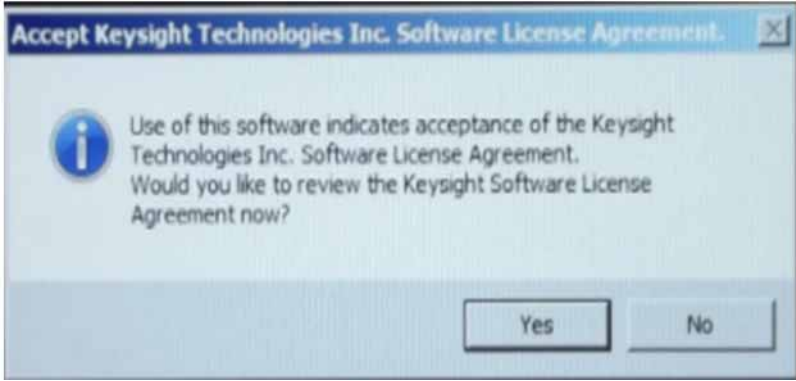
**NOTE**

It is recommended that you use a regular back-up strategy. Your IT department may already have a back-up strategy in place which is suitable for the Internal Applications Server and its data. See **“System Maintenance” on page 97**. Using the Instrument Image Recovery System in conjunction with a regular back-up strategy should allow you to fully recover the Internal Applications Server software and data.

It is recommended that routine back-ups of the instrument information be performed to keep current archives of the instrument information. This allows a full recovery of the instrument information after the instrument recovery system operations are performed. See **“Back-up” on page 97** for more details.

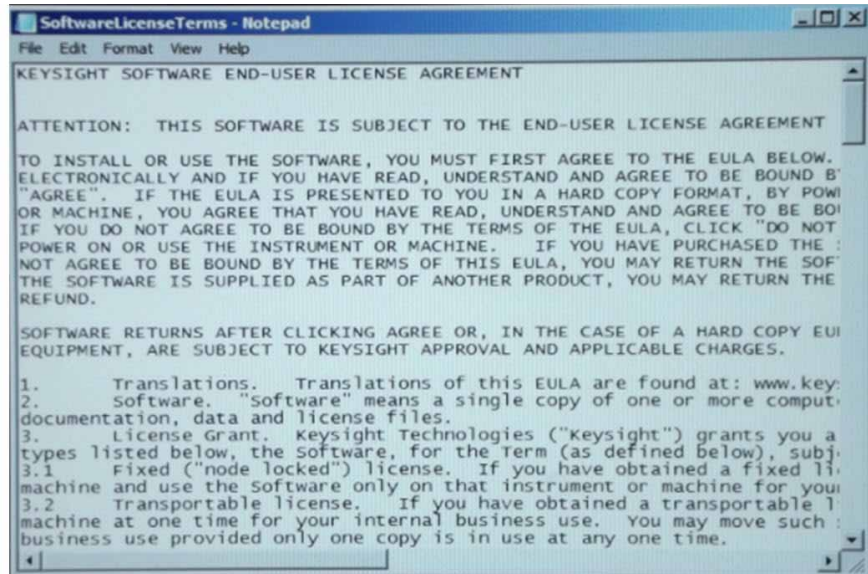
### Using the Instrument Image Recovery System - Internal Application Server Operating System

Step	Notes
<b>1. Check the size of D:\Users\Administrator and D:\Users\Instrument. The size must be smaller than the half the free space in the D: drive.</b>	<p>If the used space is bigger than half the free space in the D: drive, proceed as follows:</p> <ul style="list-style-type: none"><li>(a) Remove the contents of <b>D:\Users\Administrator\AppData\Local\Temp</b></li><li>(b) Move the contents of Desktop, Documents, Images, and Music to <b>D:\Administrator</b></li><li>(c) Verify that the size of <b>D:\Users\Administrator</b> is smaller now.</li><li>(d) Repeat the process for <b>D:\Users\Instrument</b>, moving the folders into <b>D:\Instrument</b>.</li></ul>
<b>2. Turn the instrument off and make sure there are no Ethernet cables connected to the instrument.</b>	
<b>3. Connect an external mouse, keyboard, and display to the Internal Application Server.</b>	

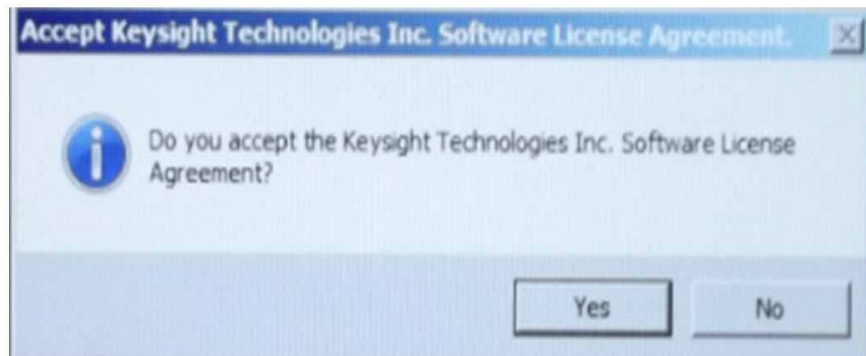
Step	Notes
<p>4. Turn on the instrument. Wait about 1 minute while the UXM Control Panel detects and powers-up the Internal Applications Server PC.</p> <p>Press the down arrow key to move the highlight to <b>Instrument Image Recovery System</b>, and then press <b>Enter</b>.</p>	<p>The Windows Boot Manager Screen is displayed.</p> 
<p>5. After selecting the <b>Instrument Image Recovery System</b>, the instrument boots the <b>Instrument Image Recovery System</b> for 2 or 3 minutes. Finally, the instrument displays a message asking if you would like to review the Keysight license agreement. Select <b>Yes</b>.</p>	

Step	Notes
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6. Review the terms.  
Select the "X" in the upper right corner to close this window.



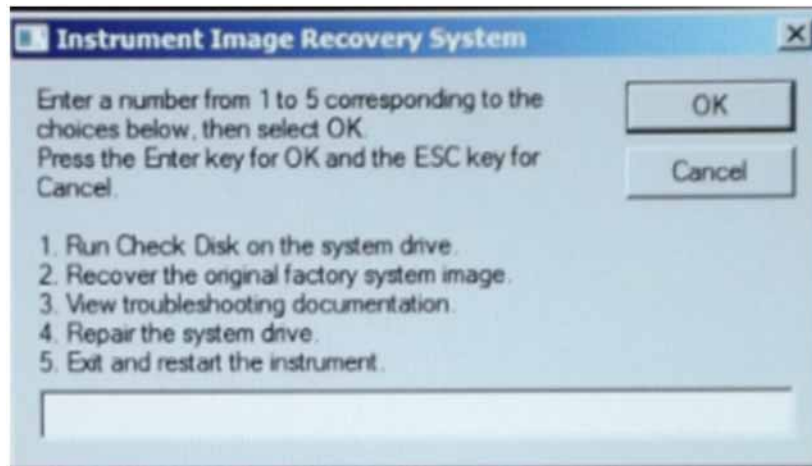
7. Accept the license agreement by selecting **Yes**.



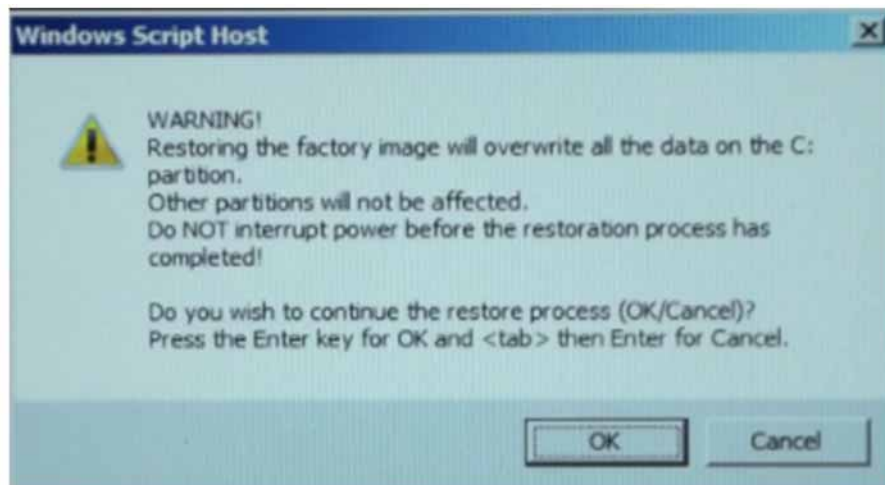
Step	Notes
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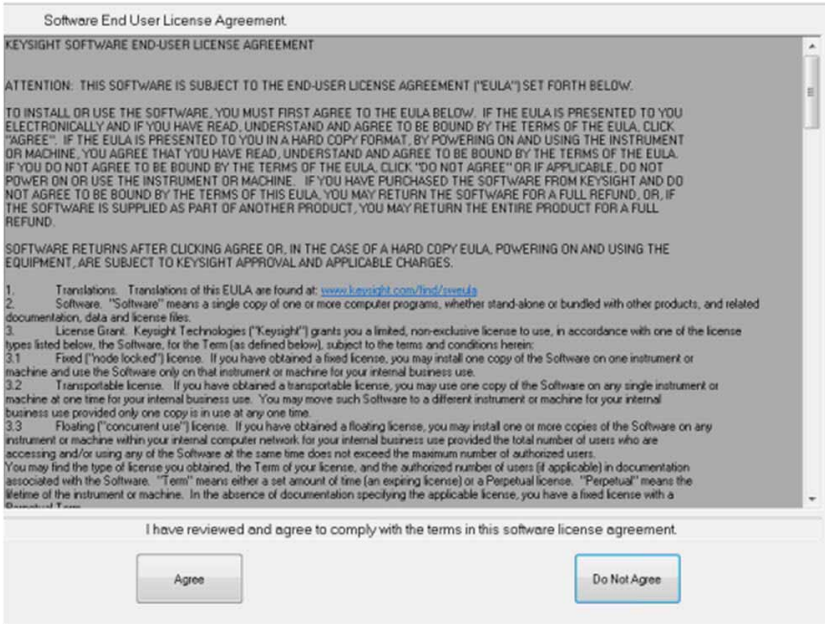

8. When the **Instrument Image Recovery System** has booted, follow the on-screen instructions to recover the image of the C: drive.

Type in the number **2**, then press **OK** to select “Recovery of the original factory system image”.



9. A warning message appears. Press **OK** to start the recovery, which may take up to 45 minutes to complete.



Step	Notes
<p>10. The License Agreement for the Server PC “Instrument” login is displayed. Carefully review the terms and select <b>Accept</b> if you agree with them.</p>	
<p>11. Select "Change User" from the Windows Start menu. Login as “Administrator”.</p>	<p>Password for Administrator: Keysight4u!</p>
<p>12. The License Agreement for the Server PC “Administrator” login is displayed. Carefully review the terms and select Accept if you agree with them.</p>	
<p>13. Power cycle the UXM or select “Restart” from the UXM Control Panel.</p>	

Step	Notes
14.	The instrument then re-executes the process described under: <b>“Turning On the Test Set the First Time”</b> on <b>page 25</b> , except this time you will not need to accept the EULA for the Host PC.



## 8 Troubleshooting

The following topics can be found in this section:

[“Identifying Problems” on page 106](#)

[“Returning Your Test Set for Service” on page 107](#)


## Identifying Problems

**WARNING**

No operator serviceable parts inside. Refer servicing to qualified personnel. To prevent electrical shock do not remove covers.

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1. Select the Reboot icon  in the E7515A Control Panel whenever the UXM hardware and/or software appear to be in a faulty state. Once the E7515A Control Panel indicator turns green, the UXM is in the ready state and you can proceed with your testing. Note that you may need to perform this reboot more than once to obtain the green display indicator condition. Note that the Restart and Shutdown affect the test set and windows.
2. Perform the BIST if rebooting the Platform boards does not cause the E7515A Control Panel indicator to display the green state. These tests provide you with valuable information when speaking with your Keysight representative. Refer to **“BIST (Built-In Self Tests)”** on page 51 for detailed instructions.


## Returning Your Test Set for Service

### Calling Keysight Technologies

Keysight Technologies has offices around the world to provide you with complete support for your wireless test set. To obtain servicing information, or to order replacement parts, contact the nearest Keysight Technologies office listed under **“Locations for Keysight Technologies” on page 108**. In any correspondence or telephone conversations, refer to your test set by its product number, full serial number, and software revision.

To access your product information, select the Info icon  in the E7515A Control Panel view after switching to the E7515A Control Panel via the Application Switch tool or after performing both or only the second action described below:

1. To access the Windows task bar from inside the TA/LA software application, you can use the Application Switch tool to switch to the desktop and find the task bar, or you can connect the USB keyboard to the UXM using one of the USB ports located on the front and rear panels of

the UXM. Press the key showing the windows icon , which is usually located in the lower-left corner of the keyboard.

2. Once you have access to the windows task bar, double-click the E7515A

Control Panel icon  to maximize the E7515A Control Panel view.

## Locations for Keysight Technologies

For online assistance: <http://www.keysight.com/find/assist>

To contact Keysight Technologies: <http://www.keysight.com/find/contactus>

Alternately, contact the nearest Keysight sales office:

<b>Americas</b>		
Canada (877) 894 4414	Brazil 55 11 3351 7010	Mexico 001 800 254 2440
United States (800) 829 4444		
<b>Asia &amp; Pacific</b>		
Australia 1 800 629 485	China 800 810 0189	Hong Kong 800 938 693
India 1 800 112 929	Japan 0120 (421) 345	Korea 080 769 0800
Malaysia 1 800 888 848	Singapore 1 800 375 8100	Taiwan 0800 047 866
Other Asia-Pacific countries: (65) 6375 8100		
<b>Europe &amp; Middle East</b>		
Austria 0800 001122	Belgium 0800 58580	Finland 0800 523252
France 0805 980333	Germany 0800 6270999	Ireland 1800 832700
Israel 1 809 343051	Italy 800 599100	Luxembourg +32 800 58580
Netherlands 0800 0233200	Russia 8800 5009286	Spain 0800 000154
Sweden 0200 882255	Switzerland 0800 805353 Opt. 1 (DE), Opt. 2 (FR), Opt. 3 (IT)	United Kingdom 0800 0260637



This information is subject to change without notice.

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