NITRO Private Network Intelligence

Edge Controller User Guide

Part Number 22170958

Version 1.1

Revision 1.10

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VIAVI Solutions
1-844-GO-VIAVI (1-844- 468-4284)
www.viavisolutions.com

Notice

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

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Patents

Patents are described at www.viavisolutions.com/patents.

Terms and conditions

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

California Proposition 65

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

For the VIAVI position statement on the use of Proposition 65 chemicals in VIAVI products, see the Hazardous Substance Control section of www.viavisolutions.com/en-us/corporate/legal/policies-standards.

Federal Communications Commission (FCC)

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

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

The authority to operate this equipment is conditioned by the requirements that no modifications be made to the equipment unless the changes or modifications are expressly approved by VIAVI.

This product complies with 47 CFR Part 15 through the use of a modular component authorized under a grant of certification:

- FCC ID: 2ABCB-PI4B
- FCC ID: WUW-RM502QAE

Caution:

- This equipment complies with the FCC RF radiation exposure limits set forth for an uncontrolled environment.
- To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.
- This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Innovation, Science and Economic Development Canada (ISED)

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada’s license-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux d’Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. l'appareil ne doit pas produire de brouillage,
2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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

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

EU WEEE and Battery Directives

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

VIAVI has established a take-back process in compliance with the EU Waste Electrical and Electronic Equipment (WEEE) Directive, 2012/19/EU, and the EU Battery Directive, 2006/66/EC. Instructions for returning waste equipment and batteries to VIAVI can be found in the WEEE section of www.viavisolutions.com/en-us/corporate/legal/policies-standards.

If you have questions concerning the disposal of your equipment or batteries, contact the VIAVI WEEE Program Management team at weee.emea@viavisolutions.com.

EU REACH

Article 33 of EU REACH regulation (EC) No 1907/2006 requires product suppliers to provide information when a substance included in the list of Substances of Very High Concern (SVHC) is present in an product above a certain threshold.

For information about the presence of REACH SVHC in VIAVI products, see the Hazardous Substance Control section of www.viavisolutions.com/en-us/corporate/legal/policies-standards.

EU CE Marking Directives (LV, EMC, RoHS)

The equipment conforms with all applicable CE marking directives. Please request an EU Declaration of Conformity for further details.

EU Radio Equipment Directive

In accordance with Article 10.8 of the EU Radio Equipment Directive 2014/53/EU, the following table provides information on the frequency bands and the maximum RF transmit power of this product for sale in the EU.

Interface	Mode	Frequency Range	Channels Used	Max. Transmit Power
WLAN	--	5170-5825 MHz	36,40,44,48,149,153,157,161,165	16.3 dBm (42.7 mW)
Cellular	WCDMA	1710-1980 MHz	B1,B2,B3,B4	27.5 dBm (563.6 mW)
		824-915 MHz	B5,B6,B8,B19	25.4 dBm (347.5 mW)
	LTE	1710-2025 MHz	B1,B2,B3,B4,B25,B34,B39,B66	27.5 dBm (563.6 mW)
		663-915 MHz	B5,B8,B12(B17),B13,B14, B18,B19,B20,B26,B28,B71	25.4 dBm (347.5 mW)
		2496-2690 MHz	B7,B38,B41	30 dBm (1000 mW)
		2300-2400 MHz	B30,B40	28.9 dBm (774.5 mW)
		3400-3800 MHz	B42,B43,B48	28.9 dBm (770.9 mW)
	LTE HPUE	2496-2690 MHz	B38,B41	33 dBm (1995.3 mW)
		2300-2400 MHz	B40	31.9 dBm (1538.2 mW)
		3400-3800 MHz	B42,B43	31.9 dBm (1545.3 mW)
	5G NR	1710-1980 MHz	n1,n2,n3,n25,n66	27.5 dBm (563.6 mW)

		663-915 MHz	n5,n8,n12,n20,n28,n71	25.4 dBm (347.5 mW)
		2496-2690 MHz	n7,n38,n41	30 dBm (1000 mW)
		2300-2400 MHz	n40	28.9 dBm (770.9 mW)
		3300-5000 MHz	n48,n77,n78,n79	28.9 dBm (774.5 mW)
	5G NR HPUE	2496-2690 MHz	n41	33 dBm (1995.3 mW)
		3300-5000 MHz	n77,n78,n79	31.9 dBm (1545.3 mW)

Japan Radio Law

.当該機器には電波法に基づく、技術基準適合証明等を受けた特定無線設備を装着している。

電波法により5.2/5.3 GHz帯は屋内使用に限ります

Safety standards compliance

The equipment meets the following standards and requirements:

- IEC 62368-1:2014 Audio/video, information and communication technology equipment - Part 1:safety requirements
- Installation Category (Over voltage Category) II under IEC 60664-1
- Pollution Degree 2 Category

China RoHS Material Disclosure

“中国 RoHS”

《电子信息产品污染控制管理办法》（信息产业部，第 39 号）

附录 (Additional Information required for the Chinese Market only)

本附录按照“中国 RoHS”的要求说明了有关电子信息产品环保使用期限的情况，并列出了产品中含有的有毒、有害物质的种类和所在部件。本附录适用于产品主体和所有配件。

产品系列: NXE-DEVICE v1B
(Product Family)

环保使用期限：

本标识标注于产品主体之上，表明该产品或其配件含有有毒、有害物质（详情见下表）。

其中的数字代表在正常操作条件下至少在产品生产日期之后数年内该产品或其配件内含有的有毒、有害物质不会变异或泄漏。该期限不适用于诸如电池等易耗品。

有关正常操作条件，请参见产品用户手册。

产品生产日期请参见产品的原始校准证书。

有毒、有害物质的类型和所在部件

	有毒、有害物质和元素					
元器件 (Component)	铅(Pb)	汞 (Hg)	镉(Cd)	六价铬 (CR^{6+})	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
产品主体 (Main Product)						
印刷电路板组件 (PCB Assemblies)	X	O	O	O	O	O
内部配线 (Internal wiring)	O	O	O	O	O	O
电源 (Power Supply)	X	O	O	O	O	O
金属外壳零件和紧扣件 (Metal case parts and fixings)	O	O	O	O	O	O
塑料外壳零件 (Plastic case parts)	O	O	O	O	O	O
标签和胶带 (Labels and tapes)	O	O	O	O	O	O
配件 (Accessories)						
手册和其它印刷材料 (Handbooks and other printed material)	O	O	O	O	O	O

本表是按照 SJ / T 11364 的规定编制的:

O：表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下。

X：表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求。

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About This Guide

This prefix explains how to use this manual. Topics discussed include the following:

- Purpose and Scope
- Assumptions
- Related Information
- Document Revision History
- Conventions
- Technical Assistance

Purpose and Scope

The purpose of this manual is to help you successfully use the features and capabilities of the XEdge and the Edge Controller. This manual includes task-based instructions that describe how to configure, use, and troubleshoot the general functions of the instrument.

Assumptions

This manual is intended for novice, intermediate, and experienced users who want to use the test instrument effectively and efficiently. VIAVI assumes that you have basic computer experience and are familiar with basic telecommunication concepts, terminology, and safety

Related Information

Use this guide in conjunction with the following document:

- PNI Dashboards User Guide

Document Revision History

This table provides a revision history for this document.

Table 1 Document Revision History

Revision	Date	Description
1.10	March 2023	Initial Release

Conventions

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

Table 2 Text formatting and other typographical conventions

Items	Examples
Buttons, keys, or switches that you press or flip on a physical device.	Press the **On** button. - Press the **Enter** key. - Flip the **Power** switch to the on position.
Buttons, links, menus, menu options, tabs, or fields on a PC-based or Web-based user interface that you click, select, or type information into.	Press the **On** button**.** - Click **File > Properties**. - Click the **Properties** tab. - Type the name of the probe in the **Probe Name** field.
Directory names, file names, and code and output messages that appear in a command line interface or in some graphical user interfaces (GUIs).	`$NANGT_DATA_DIR/results` (directory) - `test_products/users/defaultUser.xml` (file name) - `All results okay.` (output message)
Text you must type exactly as shown into a command line interface, text file, or a GUI text field.	• Restart the applications on the server using the following command: **`$BASEDIR/startup/npiu_init restart`** Type: **`a:\set.exe`** in the dialog box.
Command line option separators.	`platform [a|b|e]`
Optional arguments (text variables in code).	`login [platform name]`
Required arguments (text variables in code).	`<password>`

Table 3 Symbol conventions

	This symbol indicates a note that includes important supplemental information or tips related to the main text.
	This symbol represents a general hazard. It may be associated with either a DANGER, WARNING, CAUTION, or ALERT message. See Table 4 for more information.
	This symbol represents an alert. It indicates that there is an action that must be performed in order to protect equipment and data or to avoid software damage and service interruption.
	This symbol represents hazardous voltages. It may be associated with either a DANGER, WARNING, CAUTION, or ALERT message. See Table 4 for more information.
	This symbol represents a risk of explosion. It may be associated with either a DANGER, WARNING, CAUTION or ALERT message. See Table 4 for more information.
	This symbol represents a risk of a hot surface. It may be associated with either a DANGER, WARNING, CAUTION, or ALERT message. See Table 4 for more information.
	This symbol represents a risk associated with fiber optic lasers. It may be associated with either a DANGER, WARNING, CAUTION or ALERT message. See Table 4 for more information.
	This symbol, located on the equipment, battery, or the packaging indicates that the equipment or battery must not be disposed of in a land-fill site or as municipal waste, and should be disposed of according to your national regulations.

Table 4 Safety definitions

Term	Definition
DANGER	Indicates a potentially hazardous situation that, if not avoided, will result in death or serious injury. It may be associated with either a general hazard, high voltage, or other symbol. See Table 3 for more information.
WARNING	Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury. It may be associated with either a general hazard, high voltage, or other symbol. See Table 3 for more information.
CAUTION	Indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury and/or damage to equipment. It may be associated with either a general hazard, high voltage, or risk of explosion symbol. See Table 3 for more information. When applied to software actions, indicates a situation that, if not avoided, could result in loss of data or a disruption of software operation.
ALERT	Indicates that there is an action that must be performed in order to protect equipment and data or to avoid software damage and service interruption.

Technical Assistance

If you require technical assistance, call 1-844-GO-VIAVI. For the latest TAC information, go to www.viavisolutions.com

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Chapter 1 Getting Started

This chapter explains how to get started with Edge Controller and XEdge instrument.

The topics discussed in this chapter are as follows:

- About the XEdge Device and the Edge Controller
- Unpacking and Inspection
- XEdge Device Contents
- Powering the XEdge Device
- Physical SIM Installation

About the XEdge Device and the Edge Controller

The Edge Controller is tthe controlling software for the XEdge device that allows the system to work. The Edge Controller user information is provided in Chapters 2 through 9 of this document.

The XEdge device is a wireless communications test and measurement instrument that may be used indoors and is powered by external AC power. The physical specifications for the XEdge are listed in Appendix A of this document. The XEdge catalog identifier is NXE-DEVICE.

The following illustration shows the XEdge device.

Figure 1. XEdge Device

Unpacking and Inspection

VIAVI typically ships hardware using anti-static packing material to stabilize the components inside the box. When unpacking the components, verify that all the items you ordered are included in the package. Accessories may be shipped in a separate box.

After you unpack the components, examine the top, bottom, front, and side panels, including ports and LEDs for damage.

If any component shows signs of damage, contact VIAVI Customer Care at 1-844-GO-VIAVI (1-844-468-4284). For the latest TAC information, go to http://www.viavisolutions.com/en/servicesandsupport/support/technical-assistance.
For information about returning equipment, see “Returning equipment to VIAVI”.

Consider saving shipping boxes and packing materials in case you need to repackage the components for shipment.

XEdge Device Contents

The following equipment is also shipped with the XEdge device:

- 2 AC adapters:
  - NSC-CHARGERV2

Powering the XEdge Device

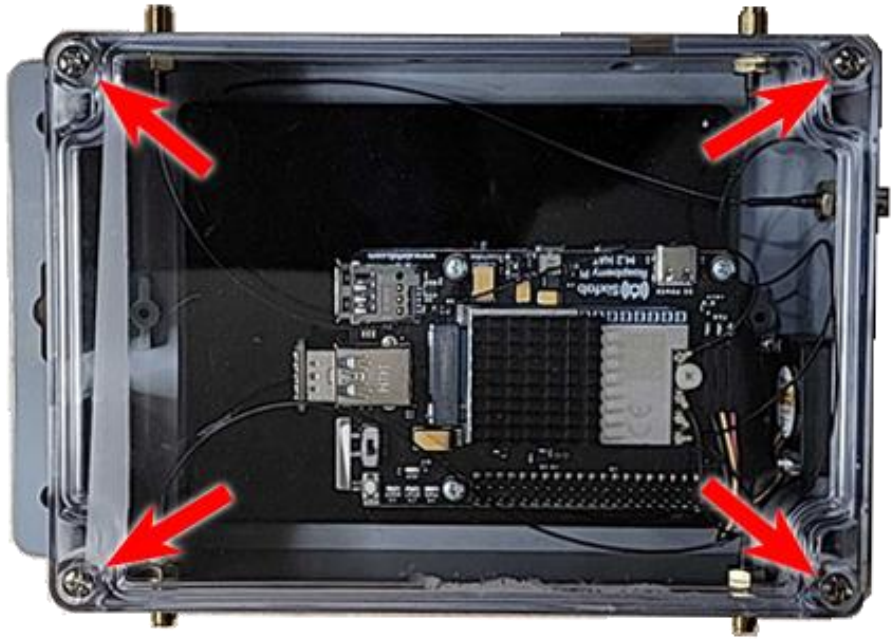
Power is supplied to the XEdge device by two AC power adapters supplied with the unit. Use of AC power adapters other than those supplied with your XEdge is not recommended. . When supplying power using the AC power adapters, verify that you have the correct AC power adapters.

Note: Before connecting an AC power adapter to the XEdge, refer to the label on the adapter, and using the illustration below, confirm that it is the correct adapter for use with the XEdge device.

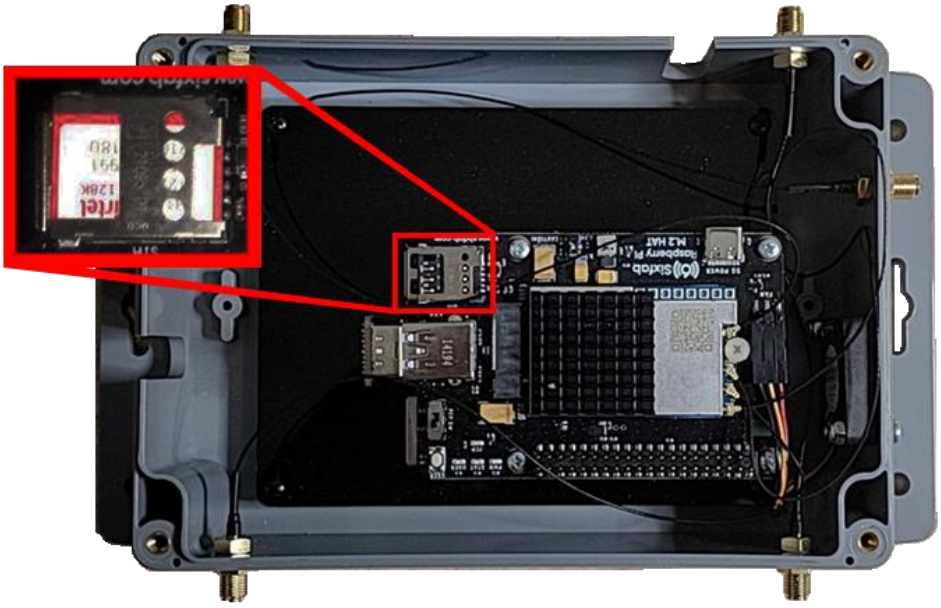
Figure 2. AC Adapter Label

Physical SIM Installation

1. Remove the transparent cover on top by removing the 4 screws.



2. Insert the Micro-SIM (3FF) in the SIM slot as shown below:

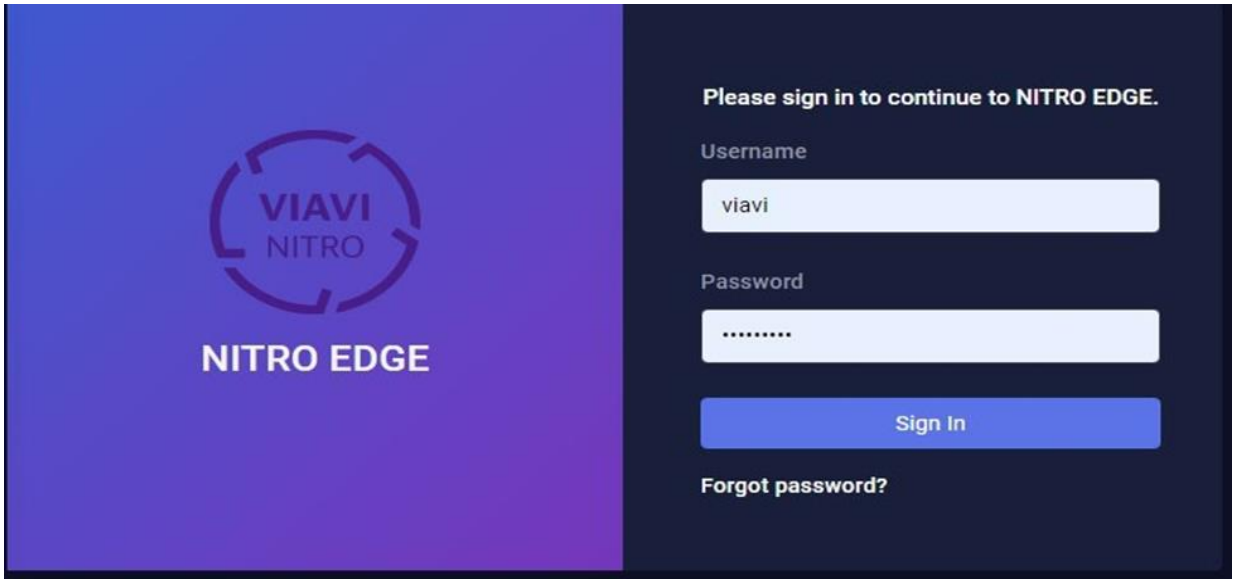


3. Reinstall the transparent cover that was removed in step 1.

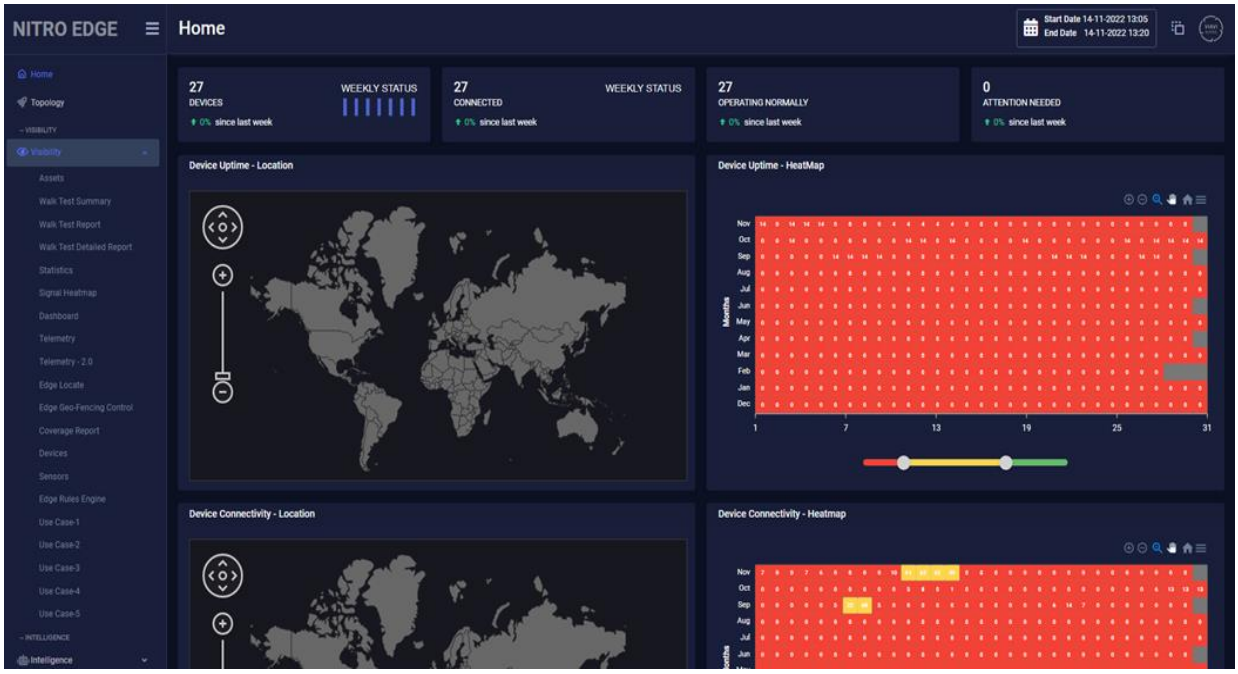
Chapter 2 Accessing the XEdge Controller

This chapter provides task-based instructions for accessing the XEdge Controller. To access the XEdge controller, complete the following steps:

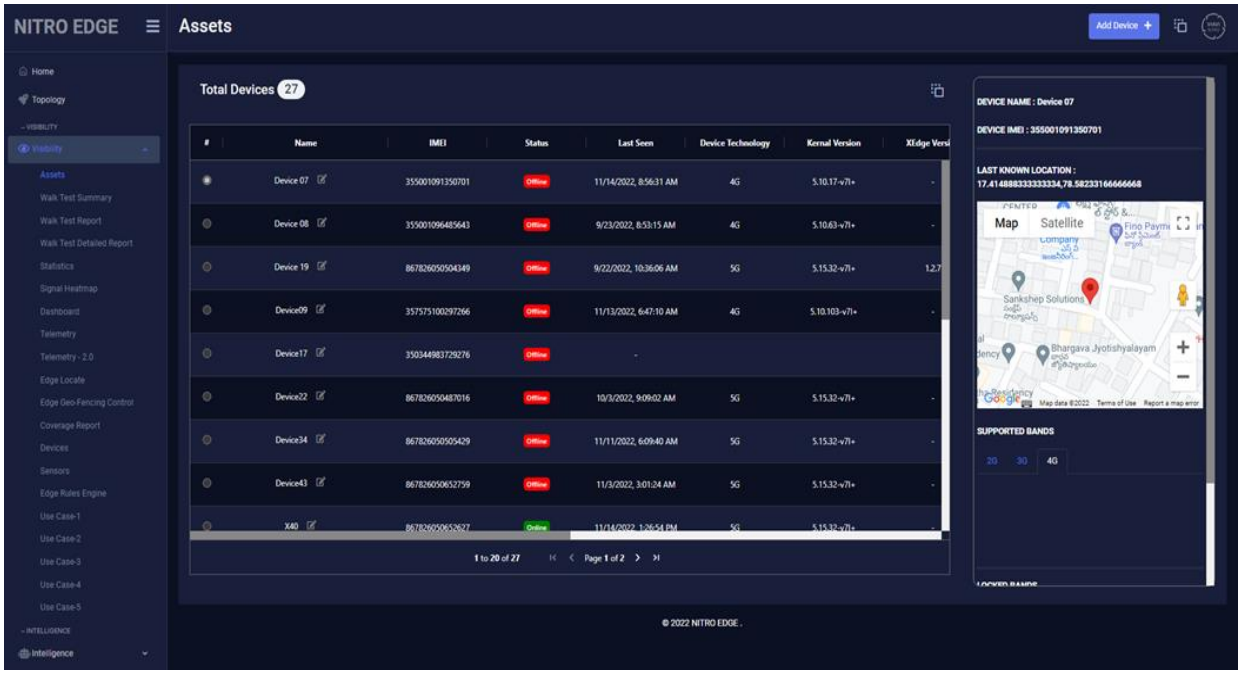
1. Log into the NITRO EDGE production URL: https://production.viaviedge.net:8086/
2. Enter ‘viavi’ and ‘pniuser’ in the respective username and password columns.



3. The ‘Homepage’ is displayed.

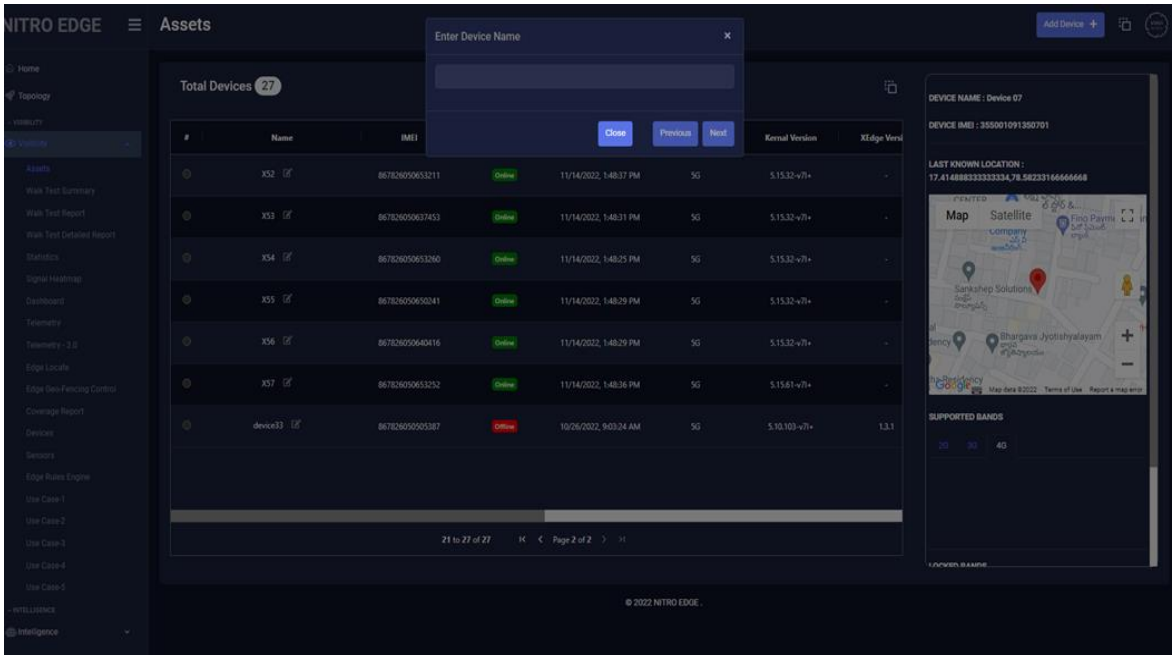


4. Navigate to Visibilty > Assets.



5. Click **Add Device** to add a device that you are going to test.

6. Enter the device name and click **Next**.



7. Enter the IMEI number. You may find it on the device label.

8. Click **Register**.

9. View devices that you added.

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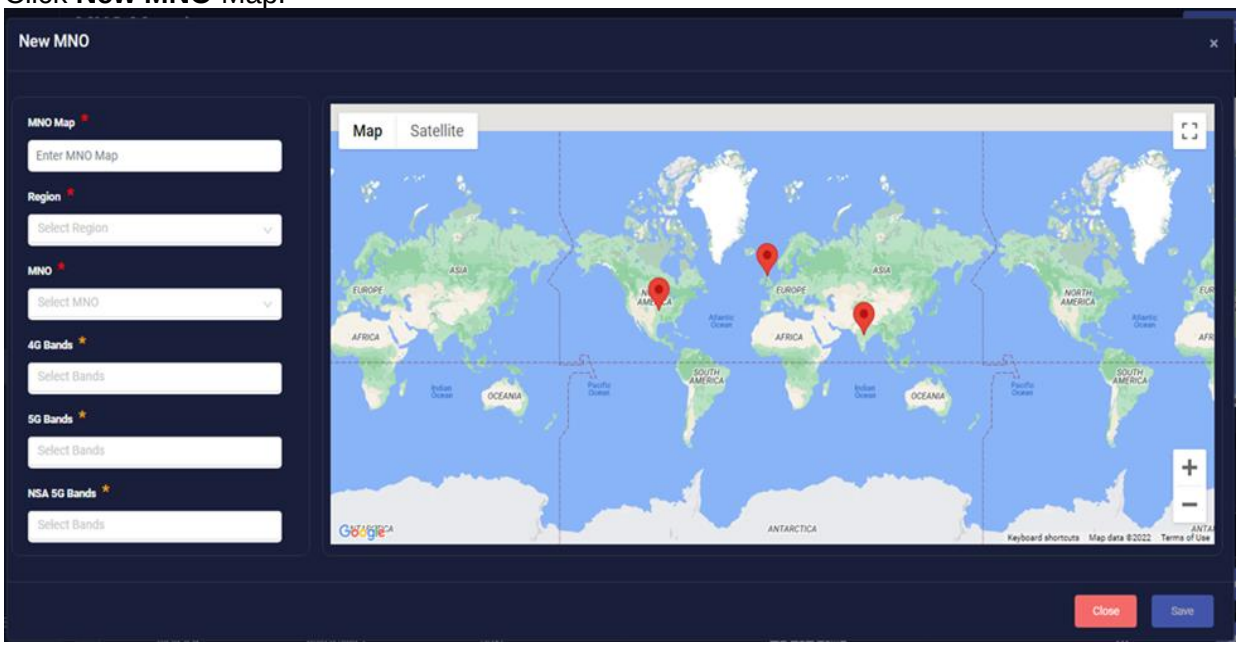
Chapter 3 MNO Mapping

This section describes the procedure for Mobile Network Operator (MNO) Mapping.

Creating an MNO map

To create a new MNO map, you must complete the following steps:

1. Navigate to Administration > MNO mapping page.
2. Click **New MNO** Map.



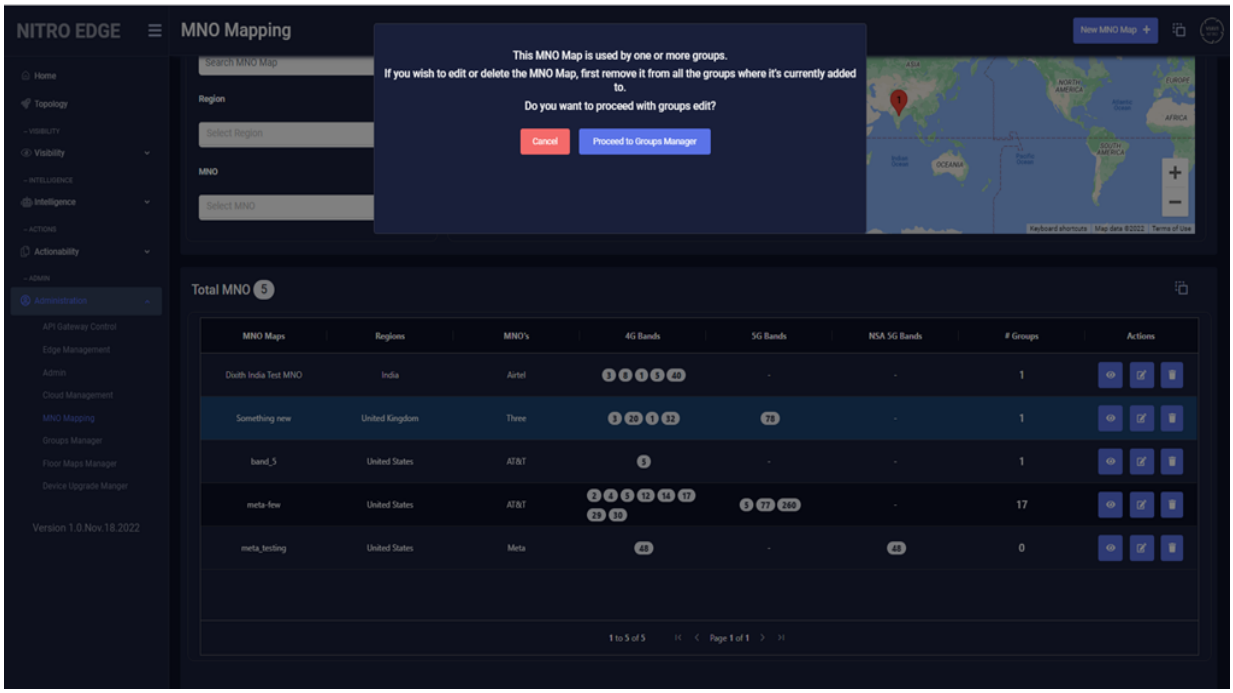
3. Click in ‘MNO Map’ box and enter a new map name.
4. Click in ‘Region’ drop down box and select a region.
5. Click in ‘MNO’ drop down box and select an MNO.
6. Click in ‘4G Bands’ drop down and select bands.

7. Click in ‘5G Bands’ drop down and select bands.
8. Click in ‘NSA 5G Bands’ drop down and select bands.
9. Click **Save**.
10. View MNO that you created.

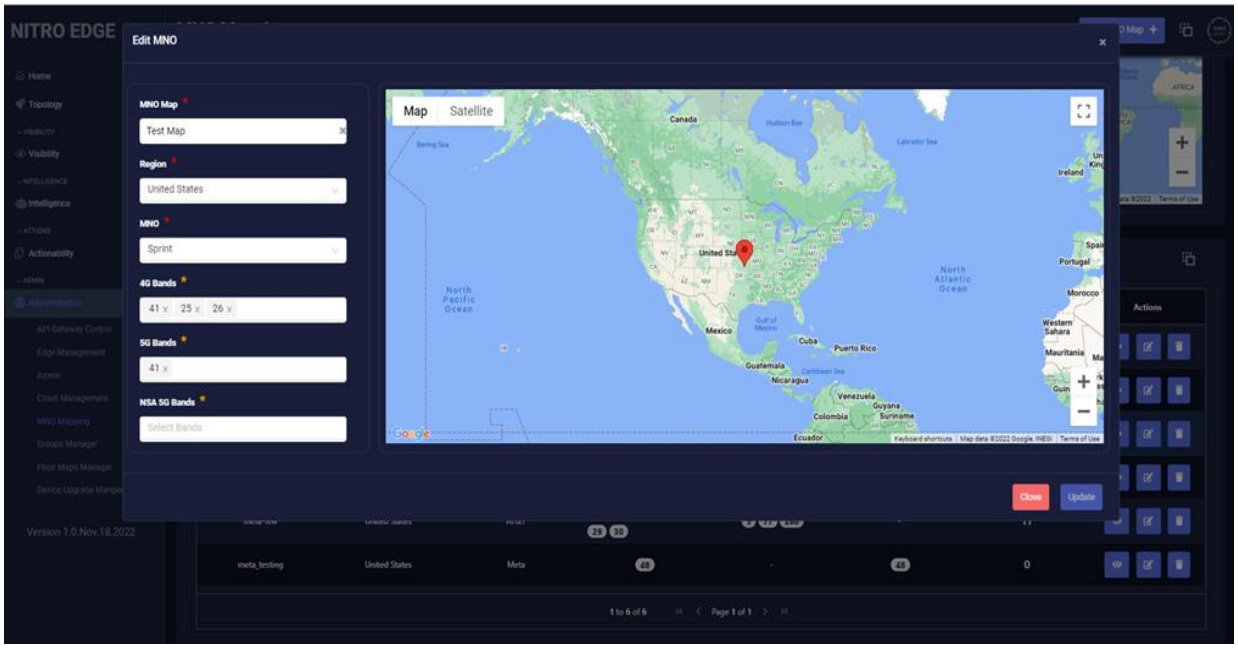
Editing an MNO map

To edit an existing MNO map, you must complete the following steps:

1. Navigate to Administration | MNO mapping page.
2. View the list of all existing MNOs.
3. Select the MNO map that you need to edit, and click **Edit** icon.
4. A pop-up window appears. Click the **Proceed to Groups Manager** button to proceed further.



5. Edit the page and click **Update**.



6. View results.

Deleting an MNO map

To delete an existing MNO map, you must complete the following steps:

1. Navigate to Administration | MNO mapping page.
2. View the list of all existing MNOs.
3. Select the MNO map that you need to remove, and click the **Delete** icon.
4. View the results.

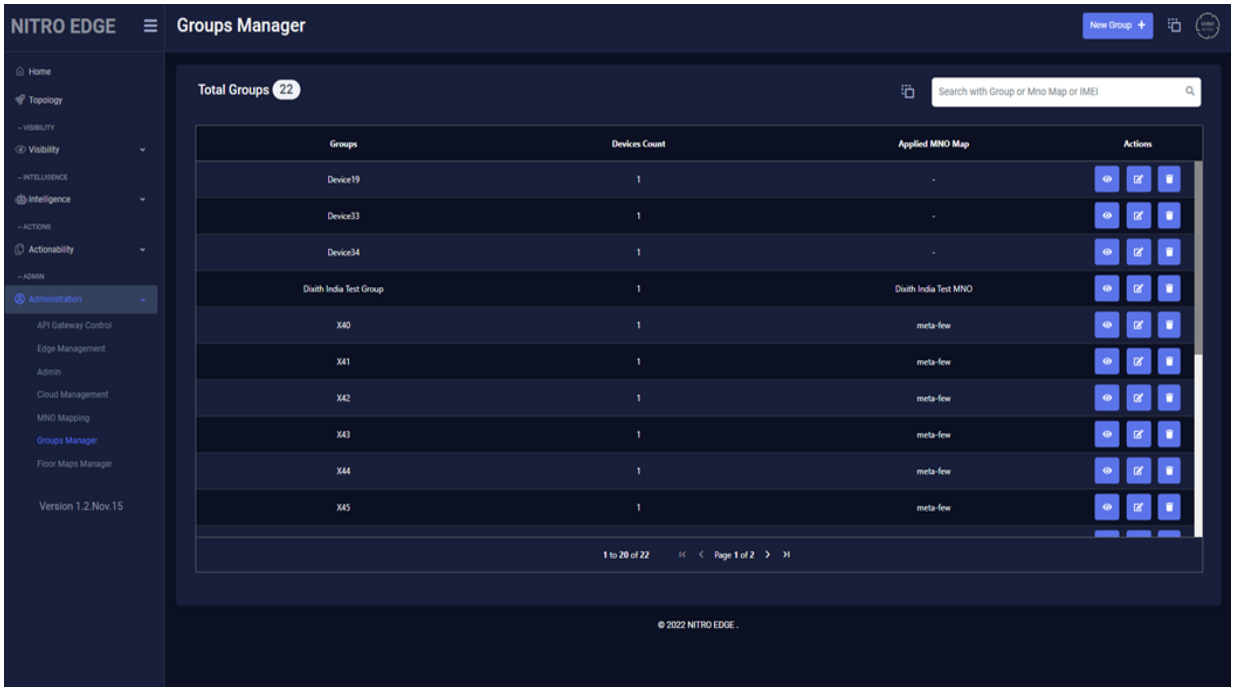
4

Chapter 4 Group Manager

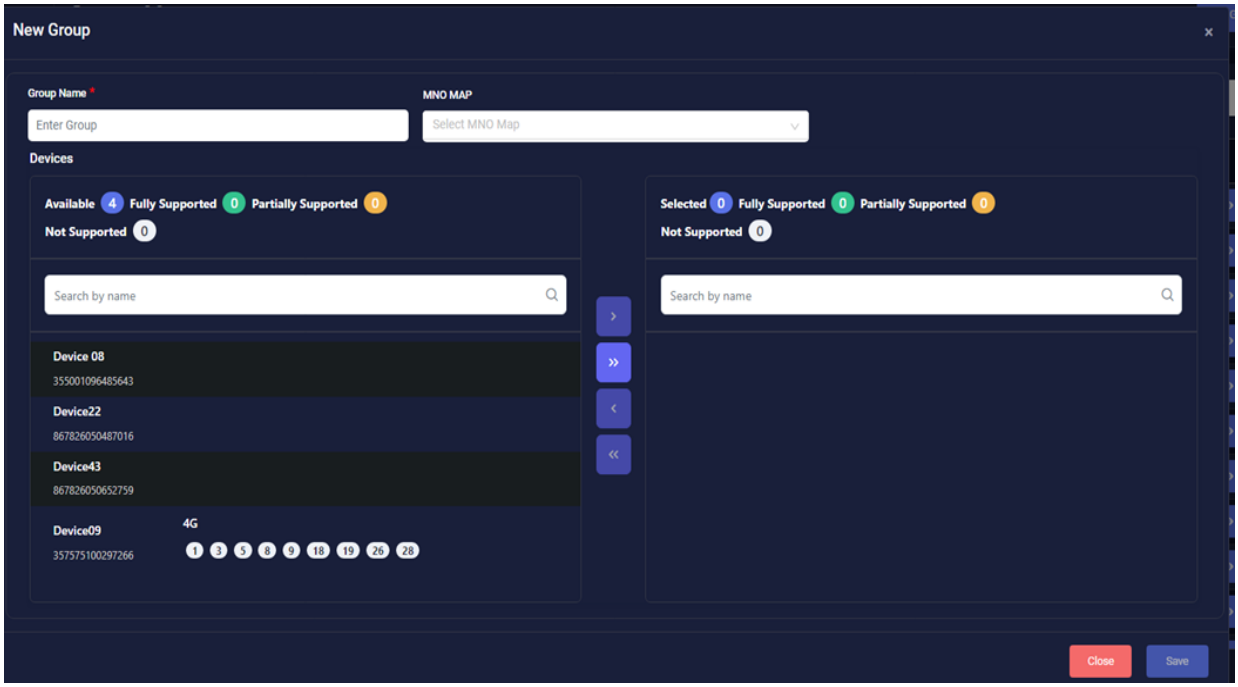
This chapter explains the procedure to access the Group Manager.

To create a new group, complete the following steps:

1. Navigate to Administration > Group Manager page.



2. Click the **New Group** button at top of the screen.



3. Click in the “Group name” box and enter a group name.
4. Click on the “MNO Map” dropdown menu and select the map you created earlier.
5. Click in ‘Search by name’ box to search for a device, and select it.
6. Click the ‘>’ button to move the selected device to the right coloumn.
7. Click **Save**.
8. View the results.

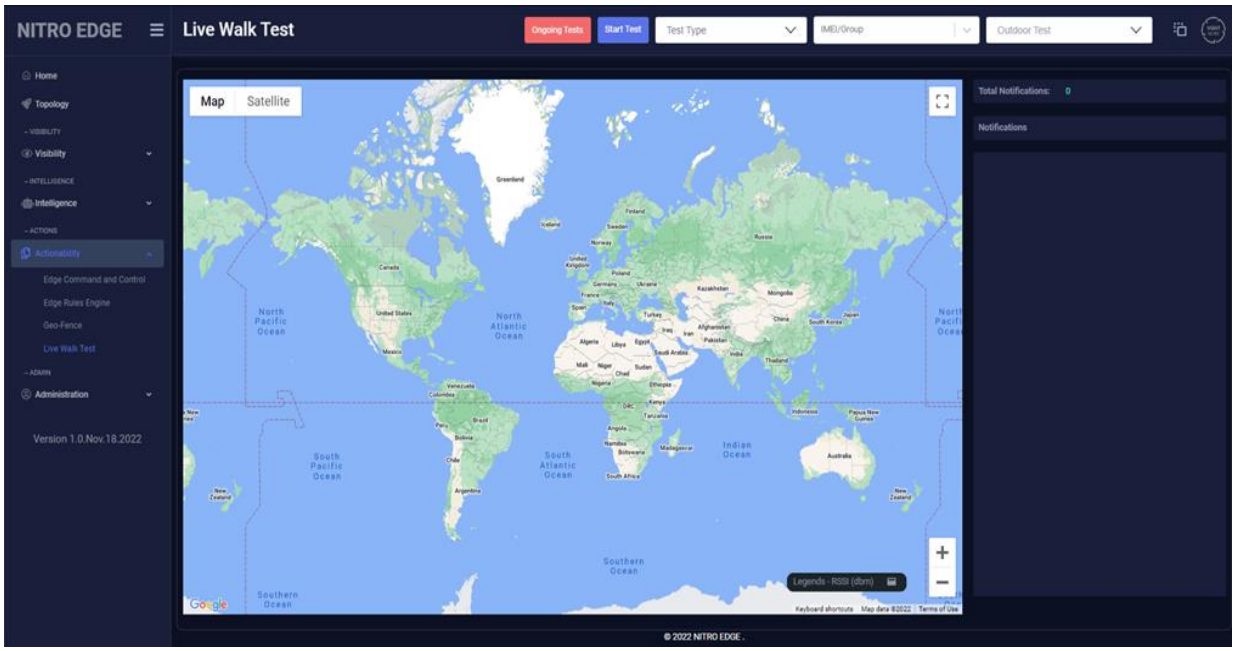
5

Chapter 5 Orchestrating Walk Tests

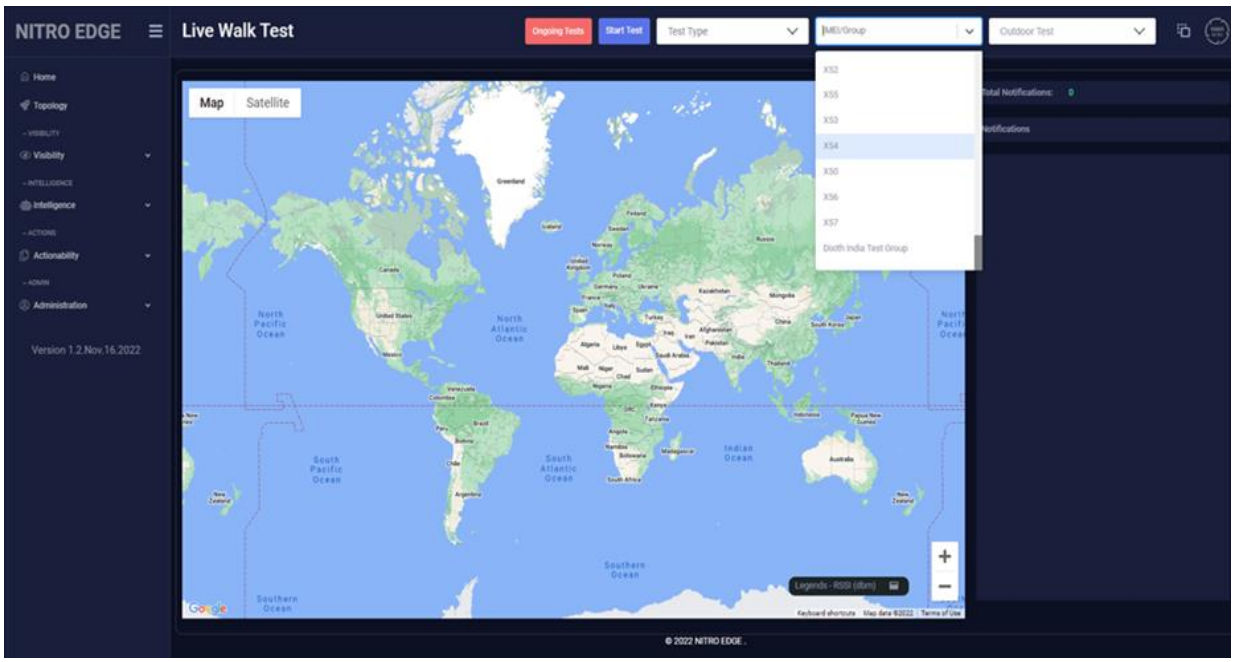
This section describes orchestrating walk tests on one or more devices deployed around the world using a centralized Controller.

To initiate the walk tests, you must complete the following steps:

1. Navigate to Actionability > Live Walk Test.



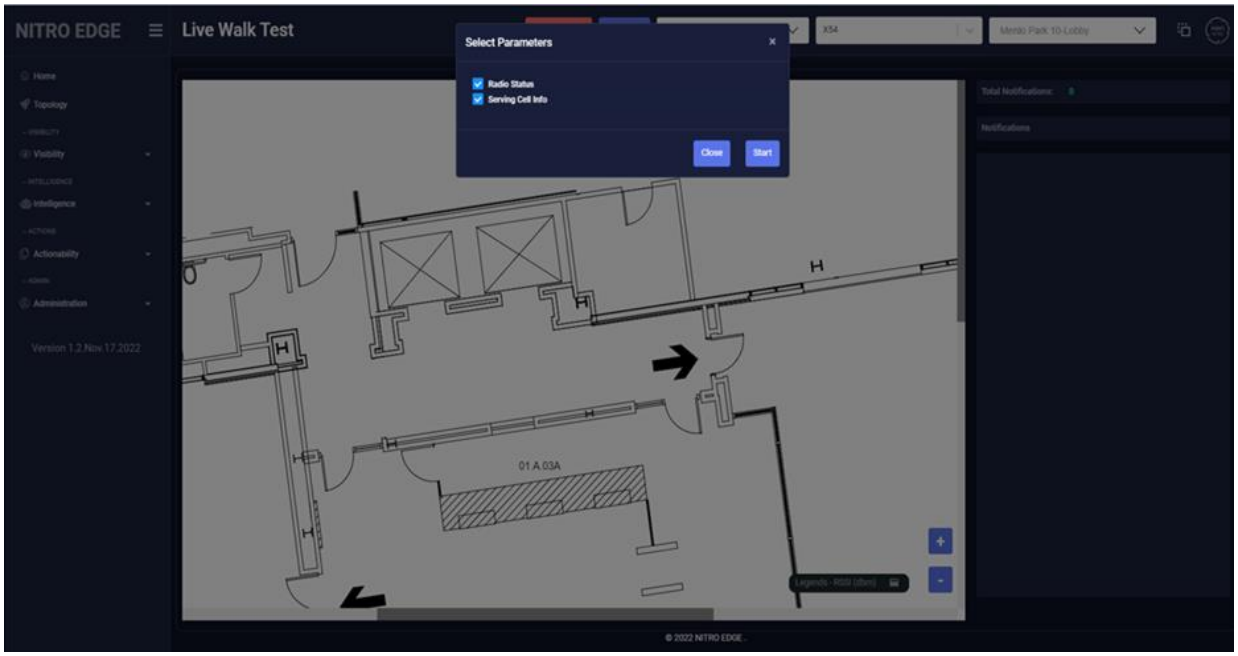
2. Select the device/groups in ‘IMEI/Groups’ dropdown menu and test area under ‘Select a Map’ drop down menu. If you don’t see the test area, you may have to zoom in on the map using the “+“ button.



3. Click in ‘Test Type’ drop down menu and select ‘Continuous survey’**.**

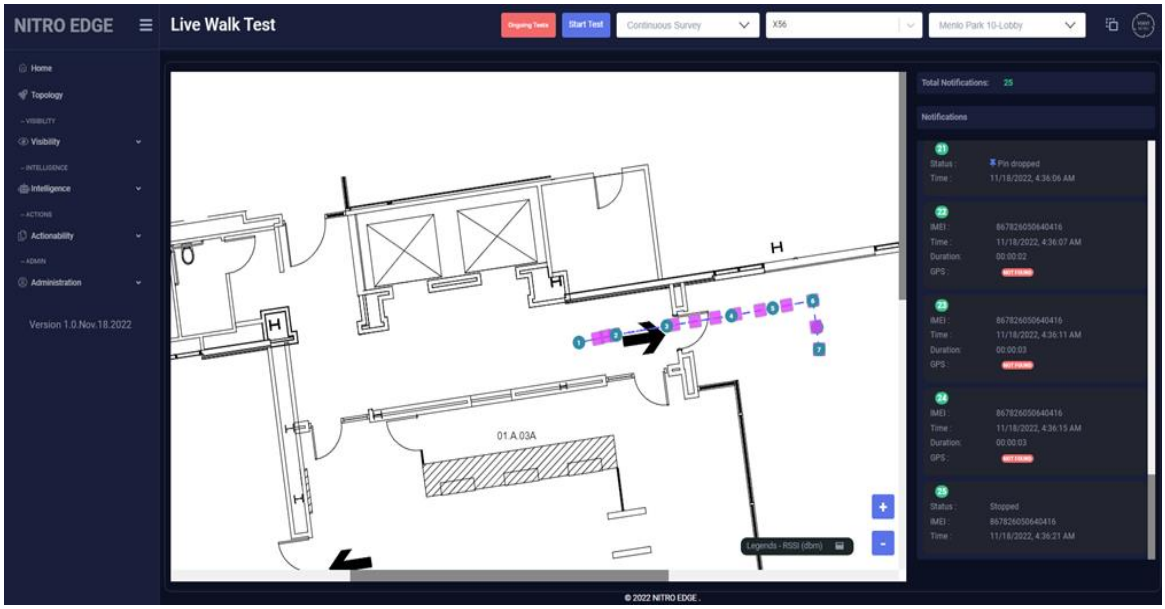
4. Click **Start Test**.

5. Make sure the ‘Radio Status’ and ‘Serving Cell Info’ checkboxes are checked.

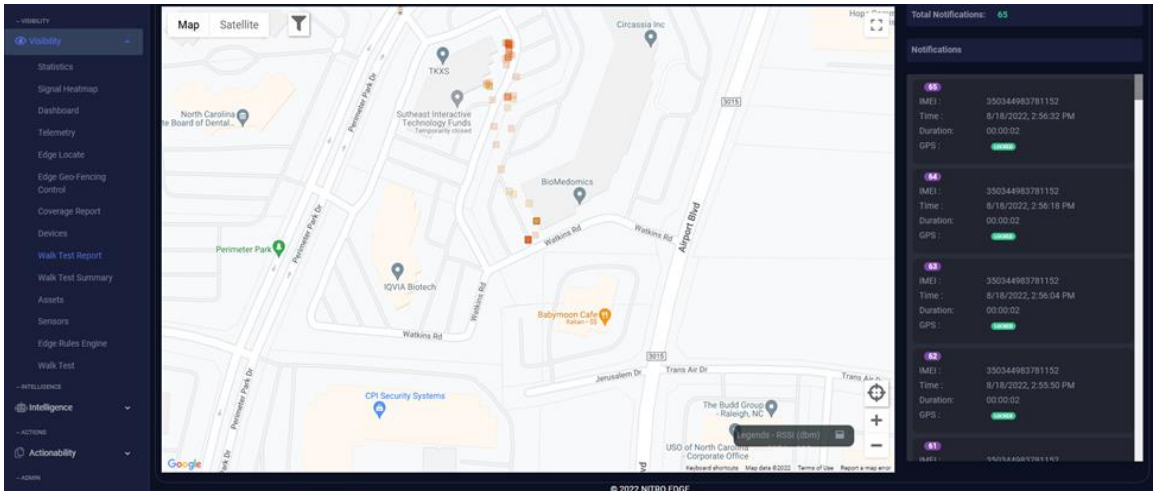


6. Click on the **Start** button to trigger the walk test.

7. For continuous survey, walk around the campus area and drop a pin and wait for pin to turn square before dropping another pin (click on the campus map UI in iPad, or laptop) while changing the direction of walk. You see notifications on the right panel that shows the connection is established, started, and the GPS is locked.



8. Click on the **Stop test** button to end continuous survey.
9. Repeat test on pin drop.
10. Click on maps dropdown again. This time select ‘Outdoor Test.
11. Click on ‘IMEI group’ dropdown and choose ‘group’.
12. Repeat the steps from 3 to 5.
13. Click on the **Start button** to trigger the walk test.
14. As you walk around outside, it will track where you are going. As you view the map you will see this. Notice the notifications on the right side.
15. View the location on the map.

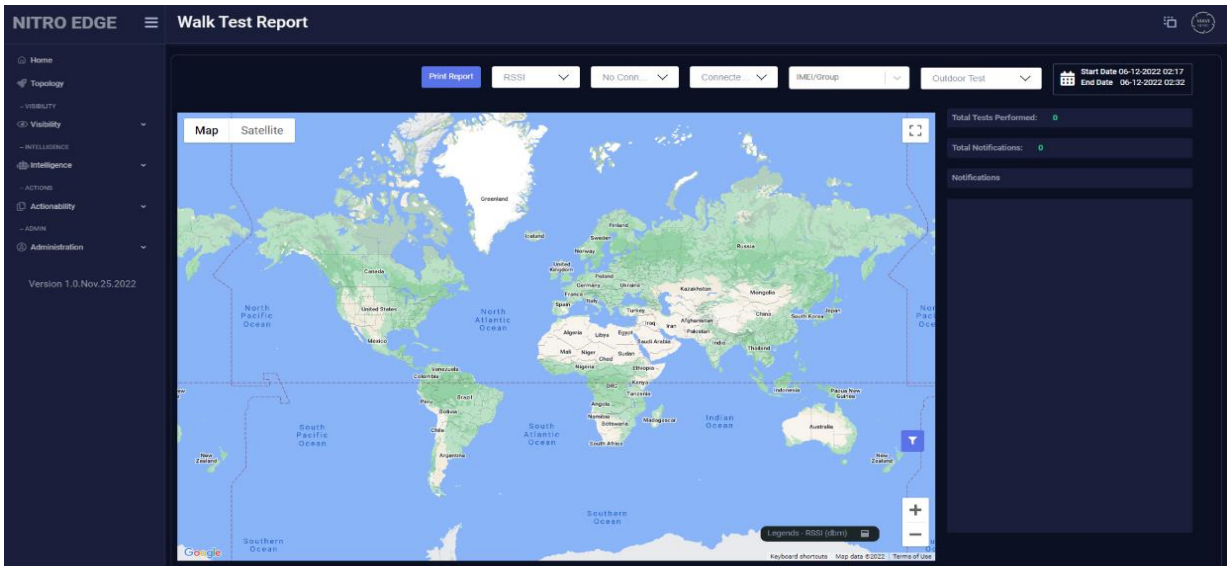


6

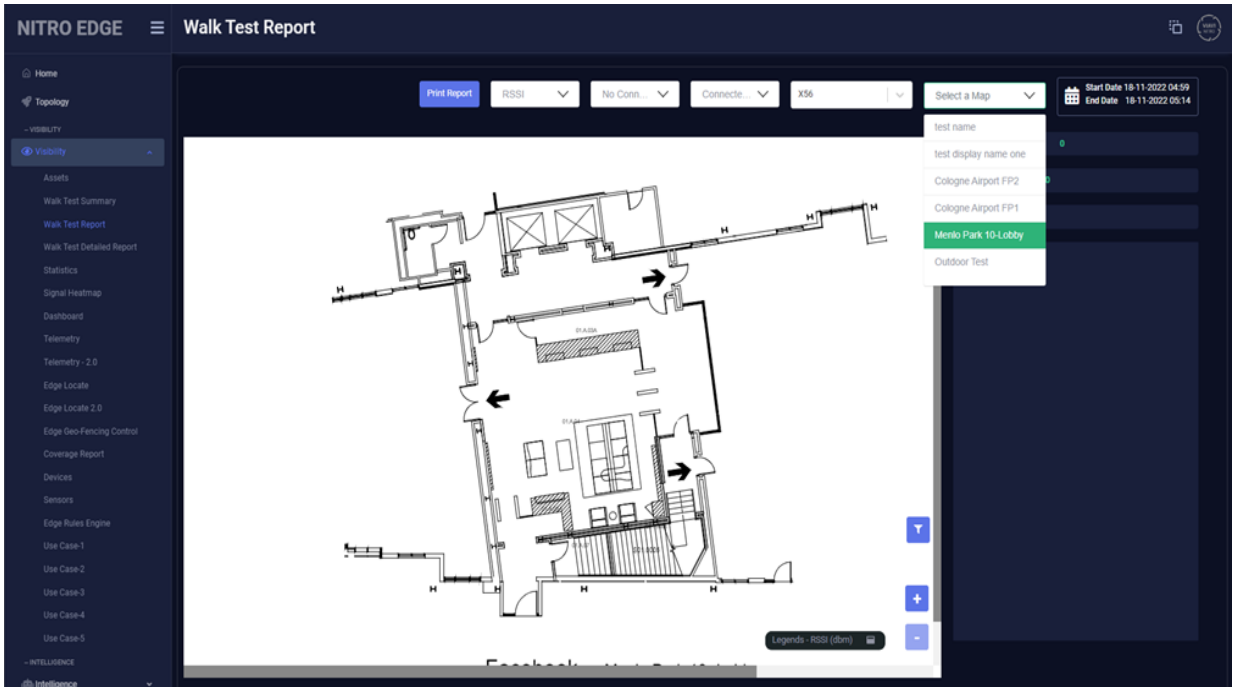
Chapter 6 Reviewing the Walk Test Results

To review the walk test results, complete the following steps:

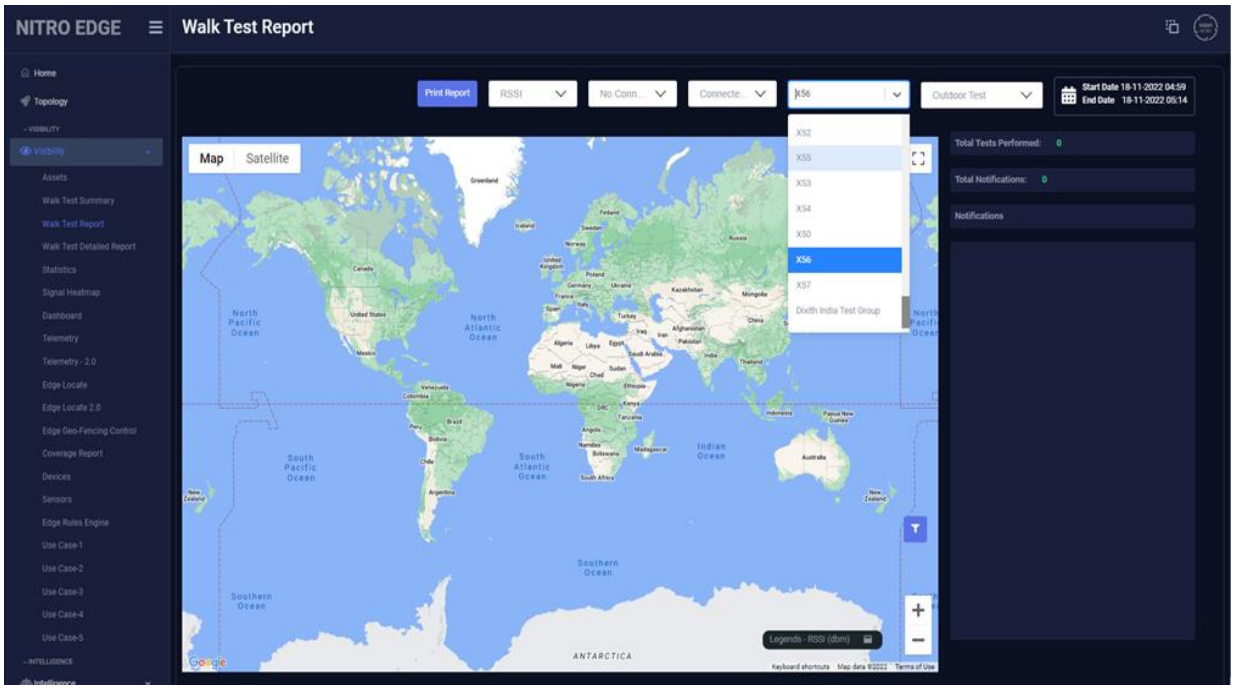
1. Navigate to Visibility > Walk Test Report.



2. Select a map from the dropdown menu.

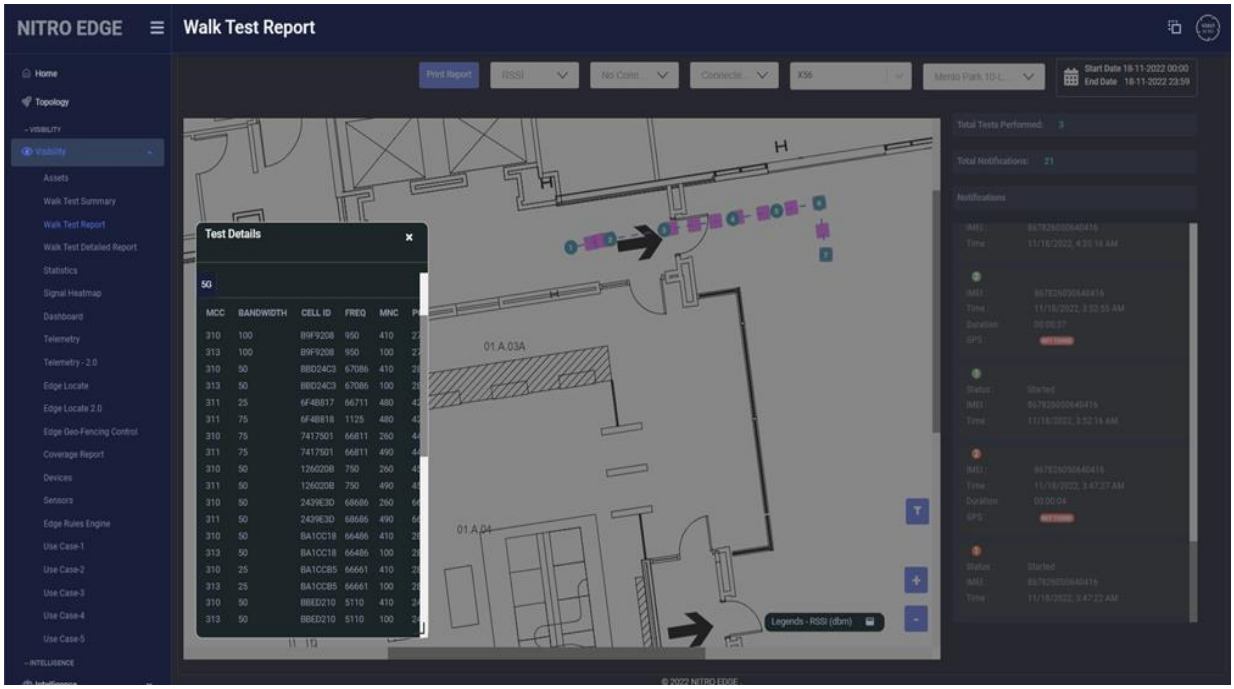


3. Select ‘IMEI group’ from the dropdown menu you just tested with.



4. Select the date you did the test in the calendar and click **Apply**.

5. Double click on one of the squares to see test results, and click **5G**.



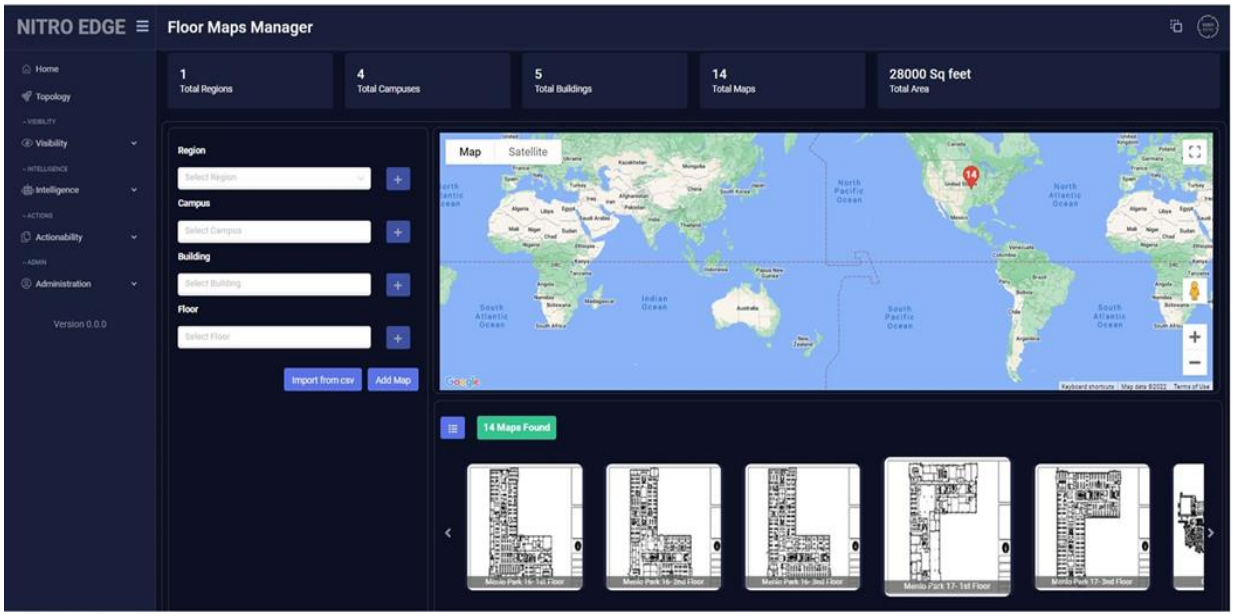
6. Repeat the steps to see the ‘Outdoor test’.

7

Chapter 7 Floor Map Manager

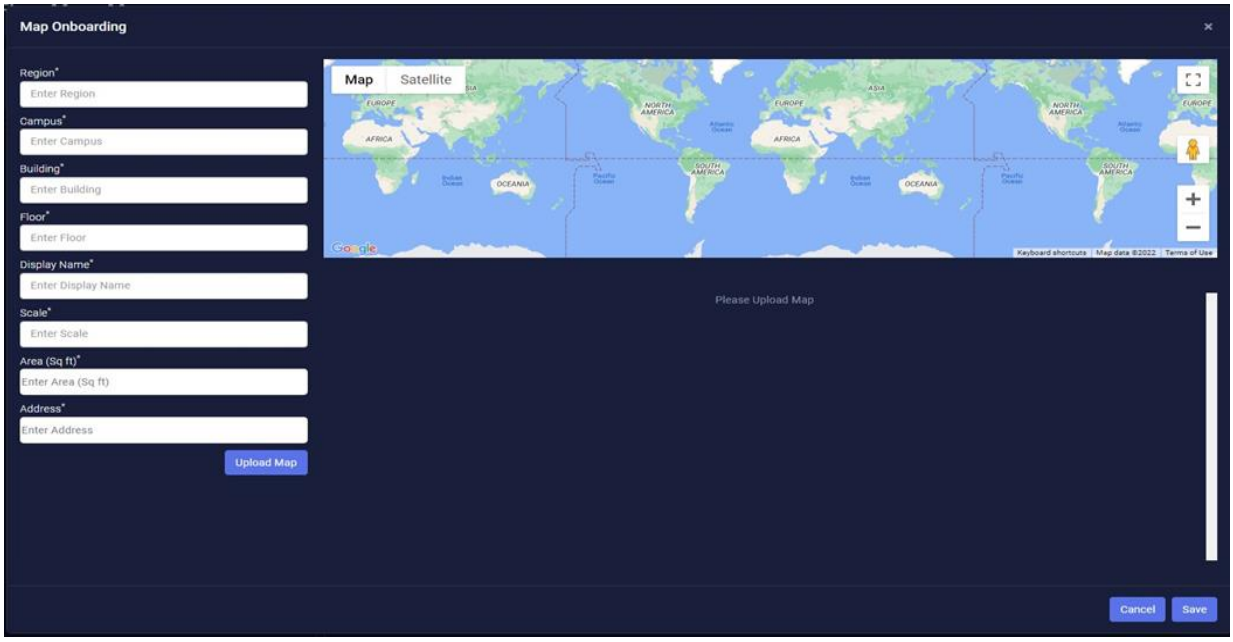
To access the floor map manager, complete the following steps:

1. Navigate to “Floor Maps Manager” page under the Administration menu.

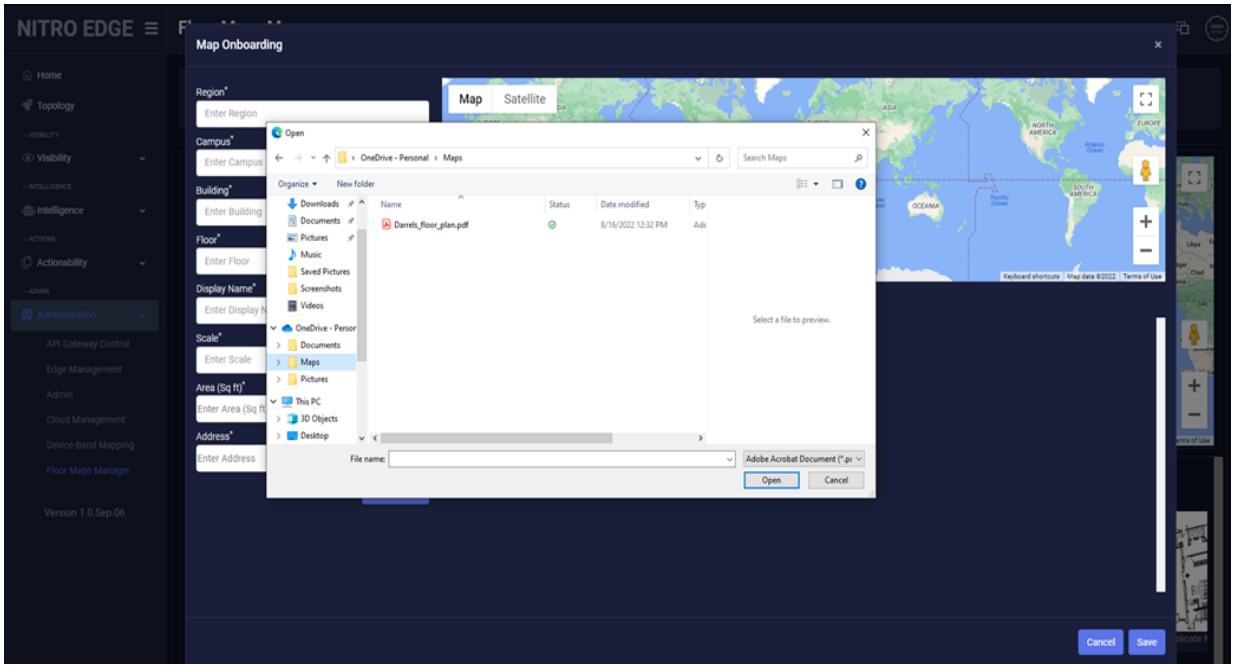


2. Click on the **Add Map** button.

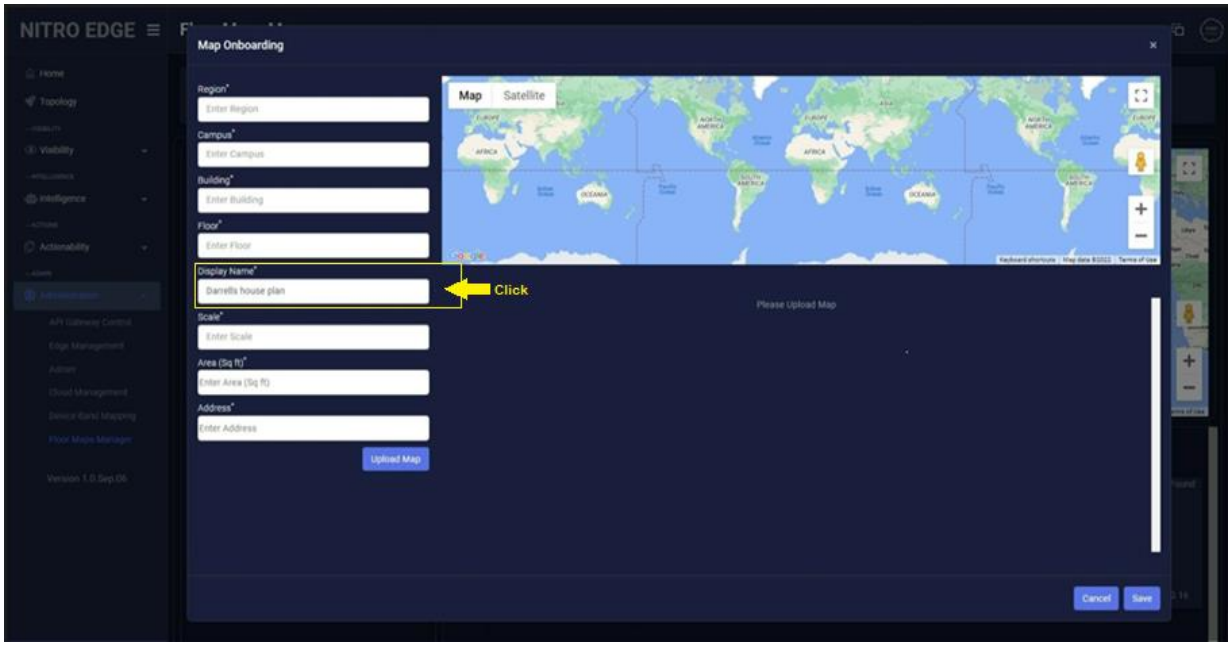
3. Click on the **Upload Map** button.



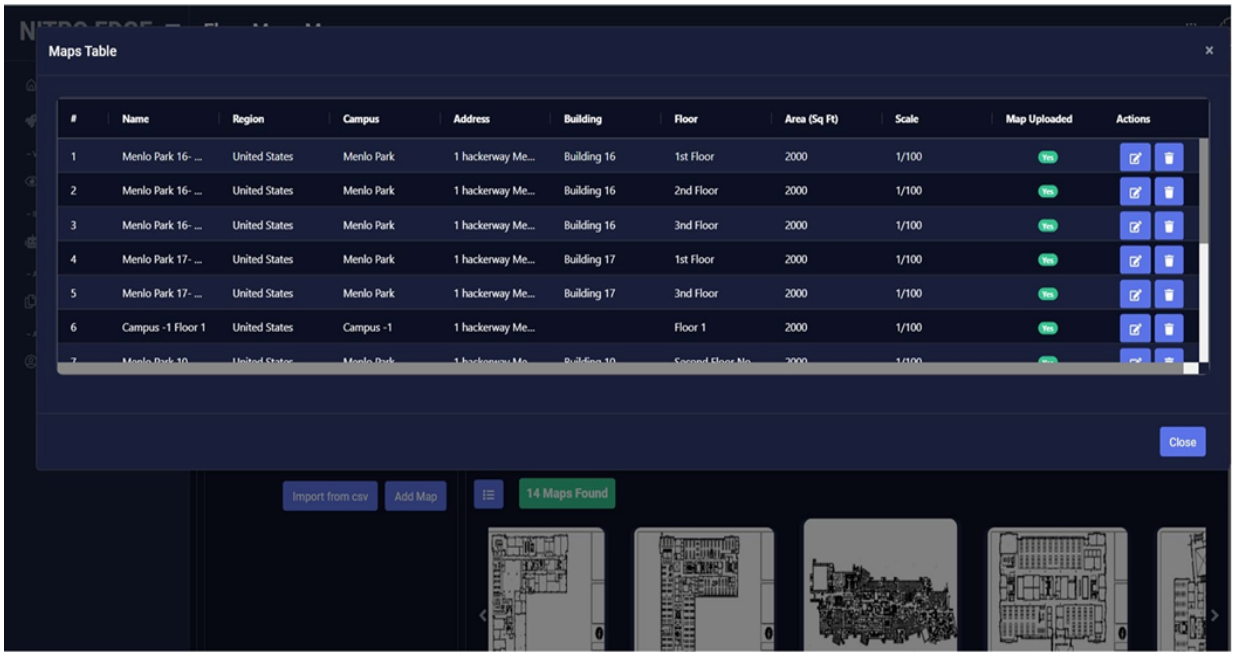
4. Select the map PDF that you want and click **Open**.

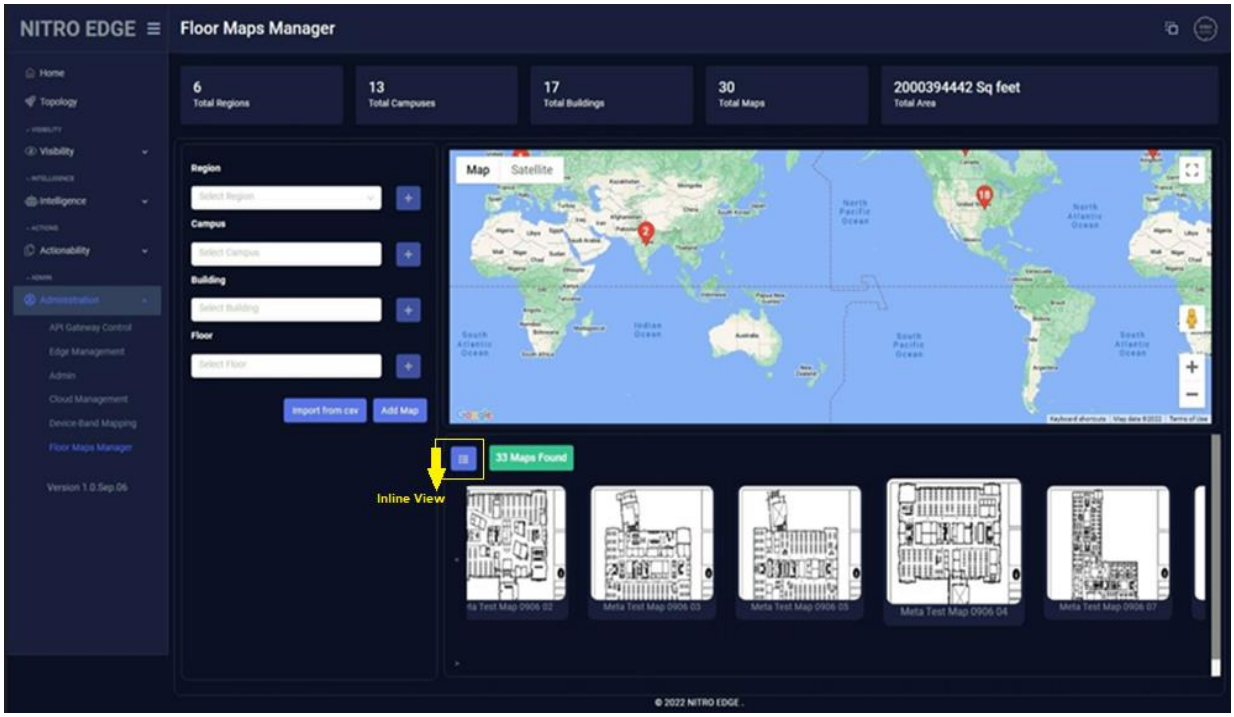


5. Click in ‘Display name’ box.

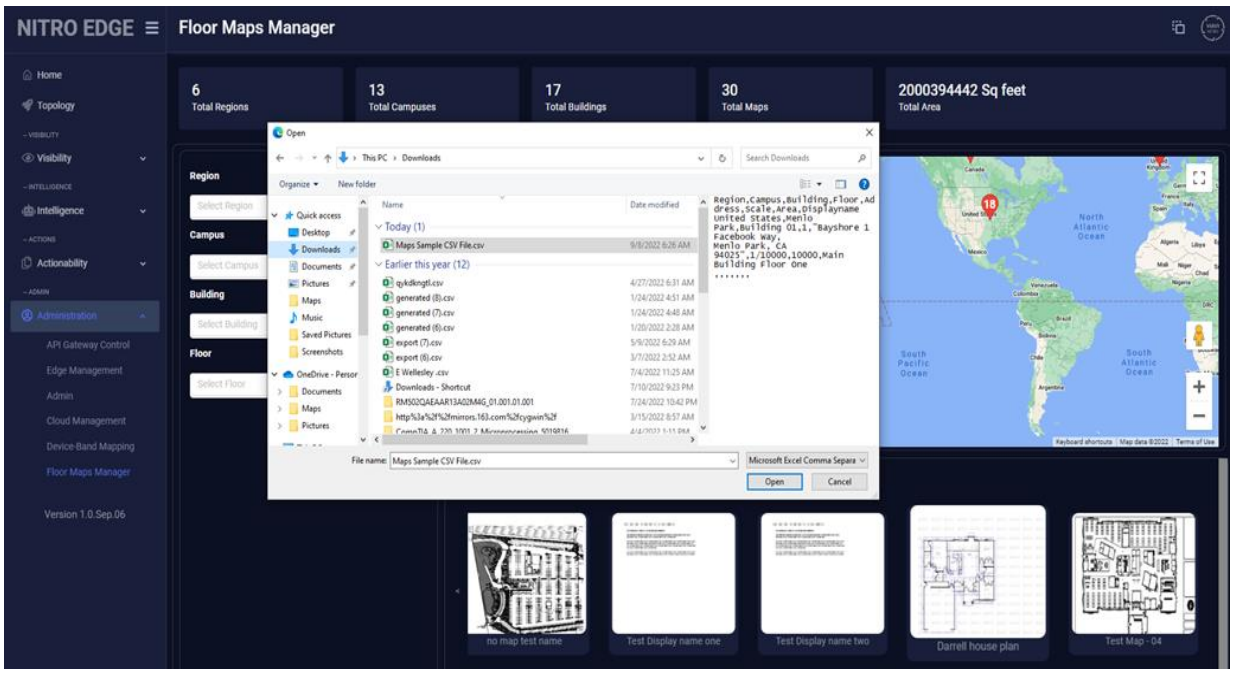


6. Click **Save**.
7. View ‘Maps’.
8. Click on the ‘Inline view’ button to see the detailed line-by-line maps.

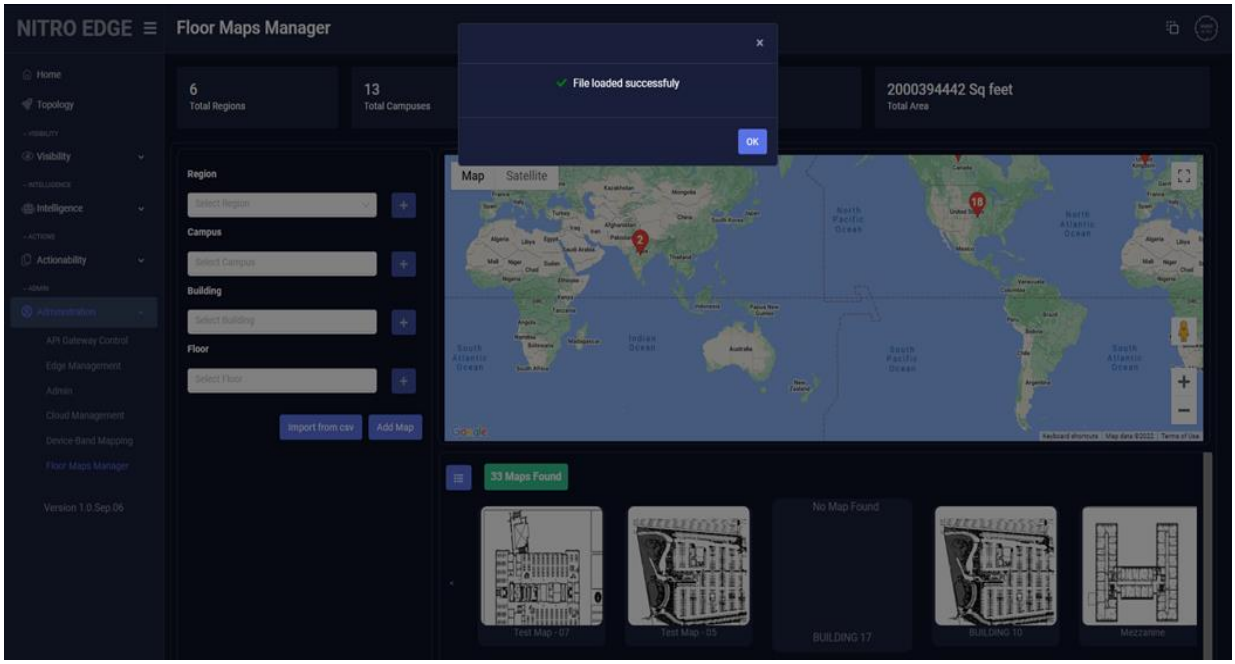




9. Click **Close**.
10. Click ‘Import from csv’ to import the region/campus/building information from the .csv.
11. Click **Open** to load the desired .csv file.

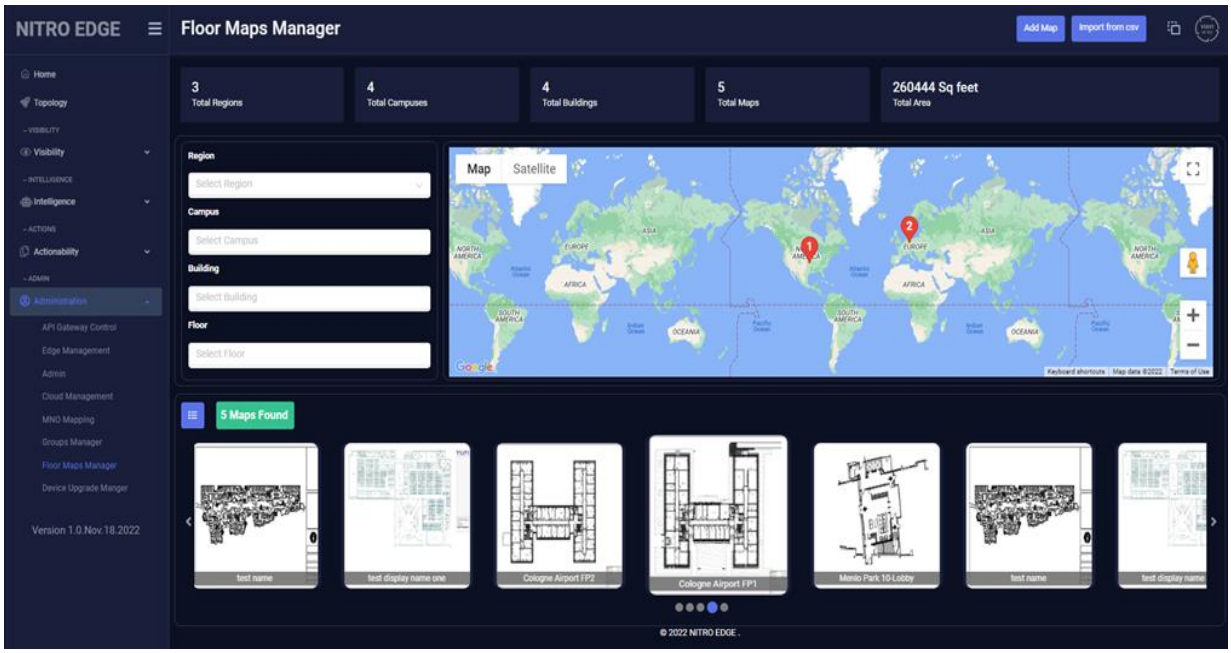


12. Click **OK** after the pop-up message is displayed indicating that the file is loaded successfully.



13. Click **Save** and close the window.

14. View Maps.

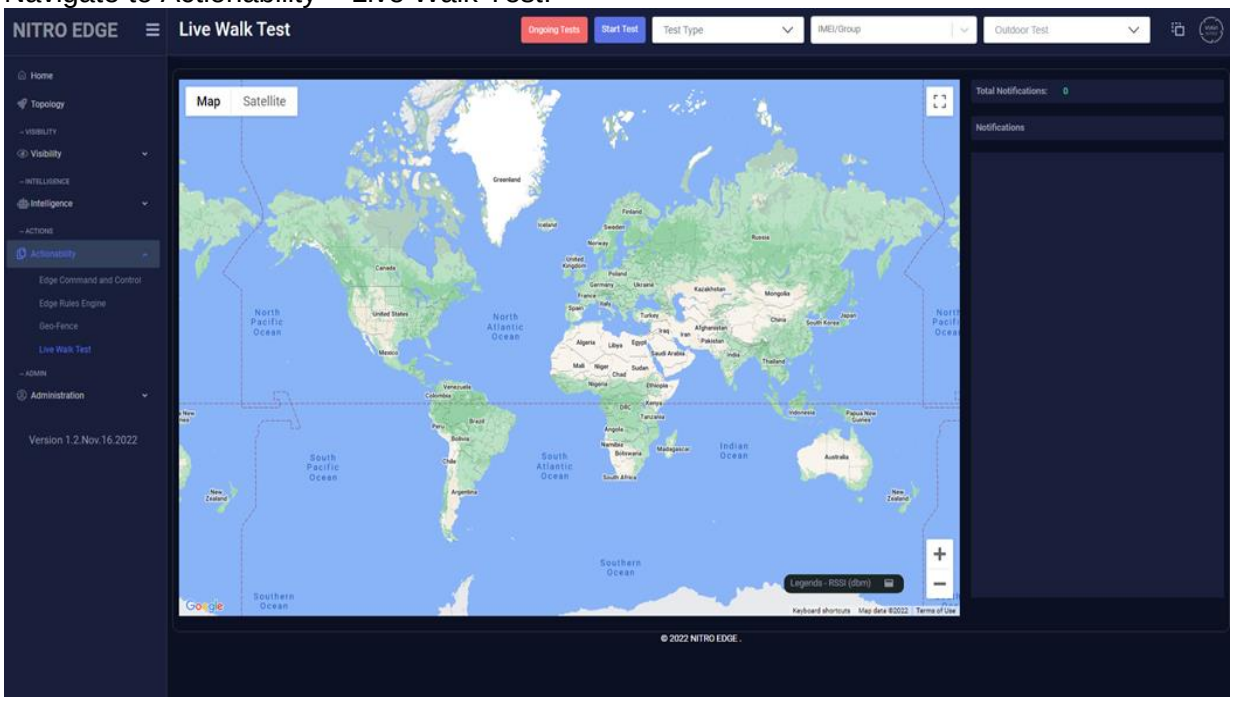


8

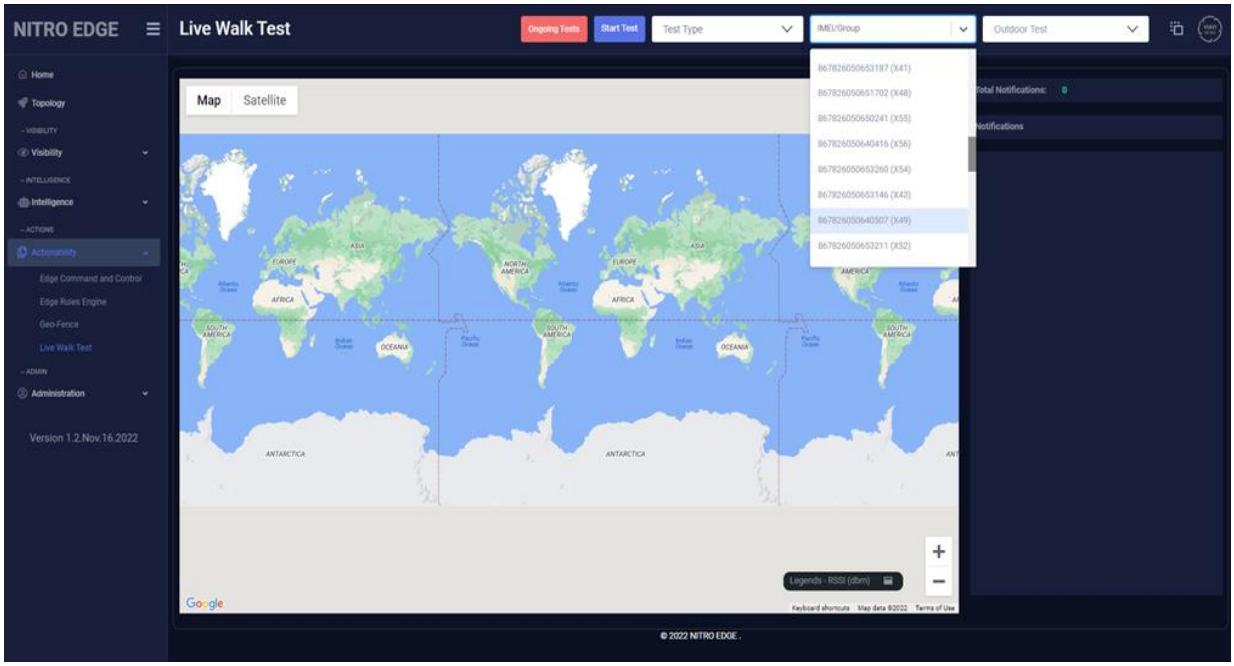
Chapter 8 Iperf Test

To perform the Iperf test, complete the following steps:

1. Navigate to Actionability > Live Walk Test.



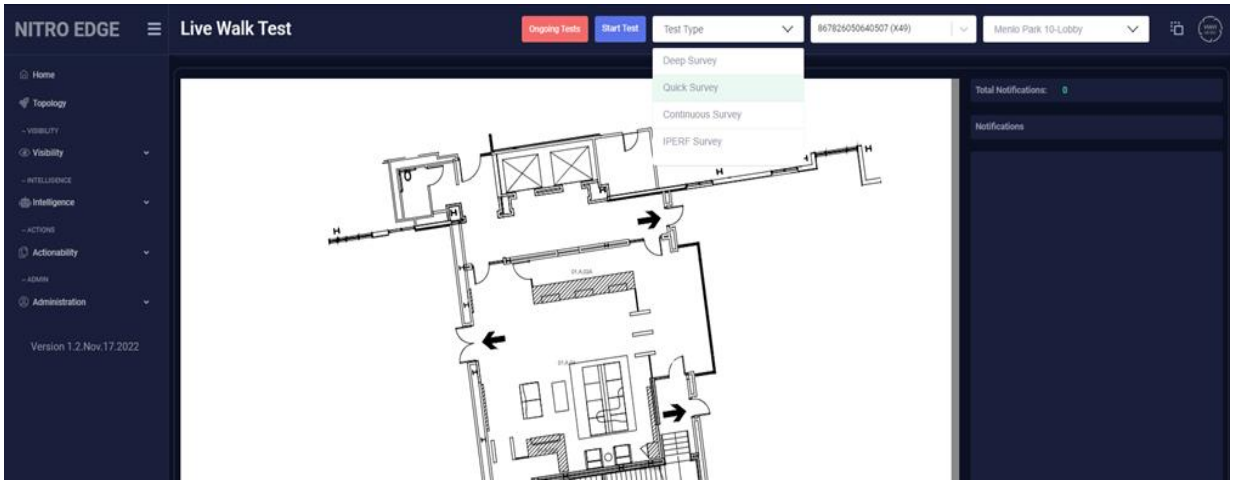
2. Click in ‘IMEI/Group’ dropdown menu and select a device.



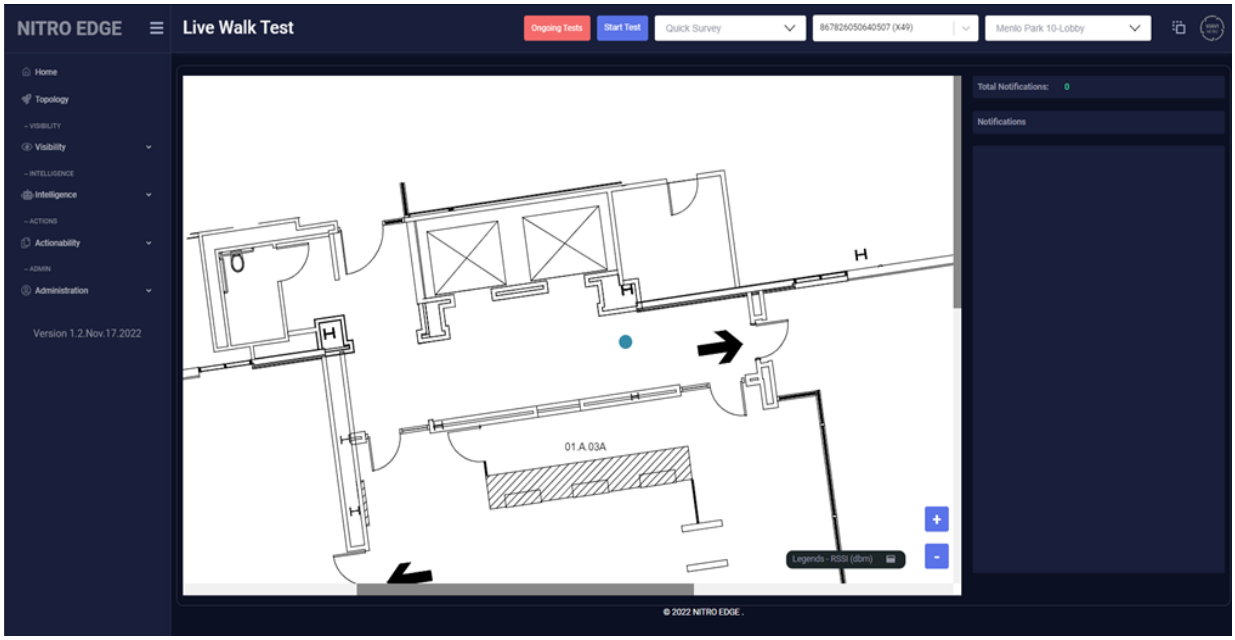
3. Select a map from the ‘Select a Map’ dropdown menu.

4. You may have to zoom in “+” or zoom out “-“ for the preferred map magnification.

5. Click in the ‘Test Type’ dropdown menu and select ‘Quick Survey’.

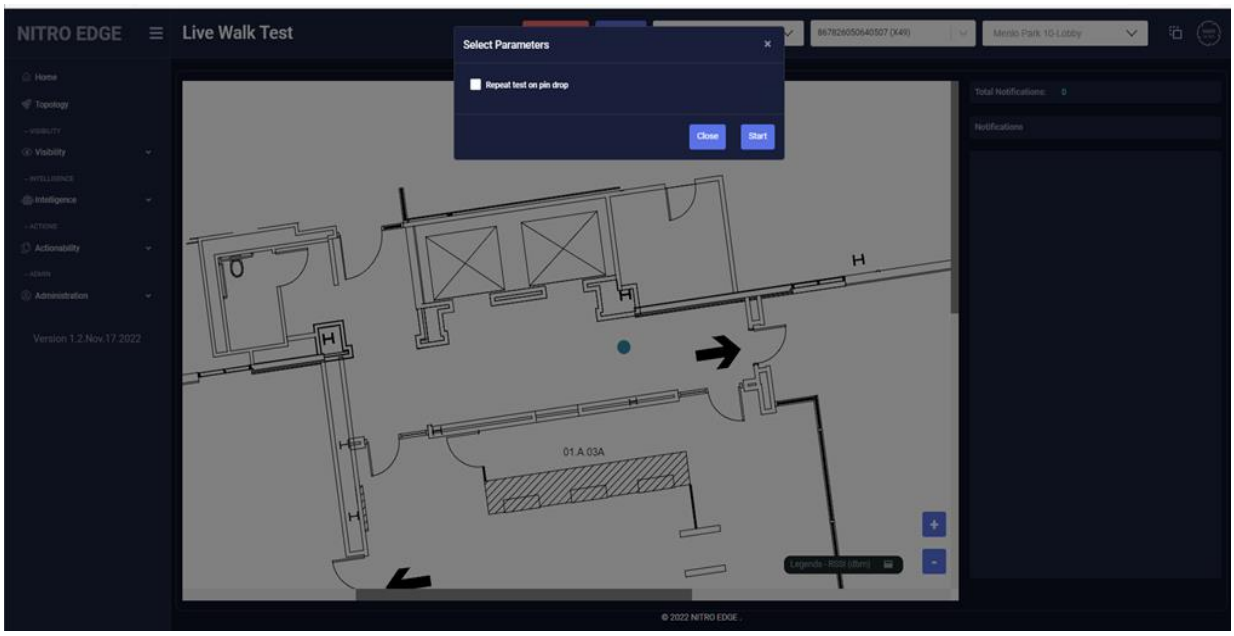


6. Click on the map location to drop a pin.



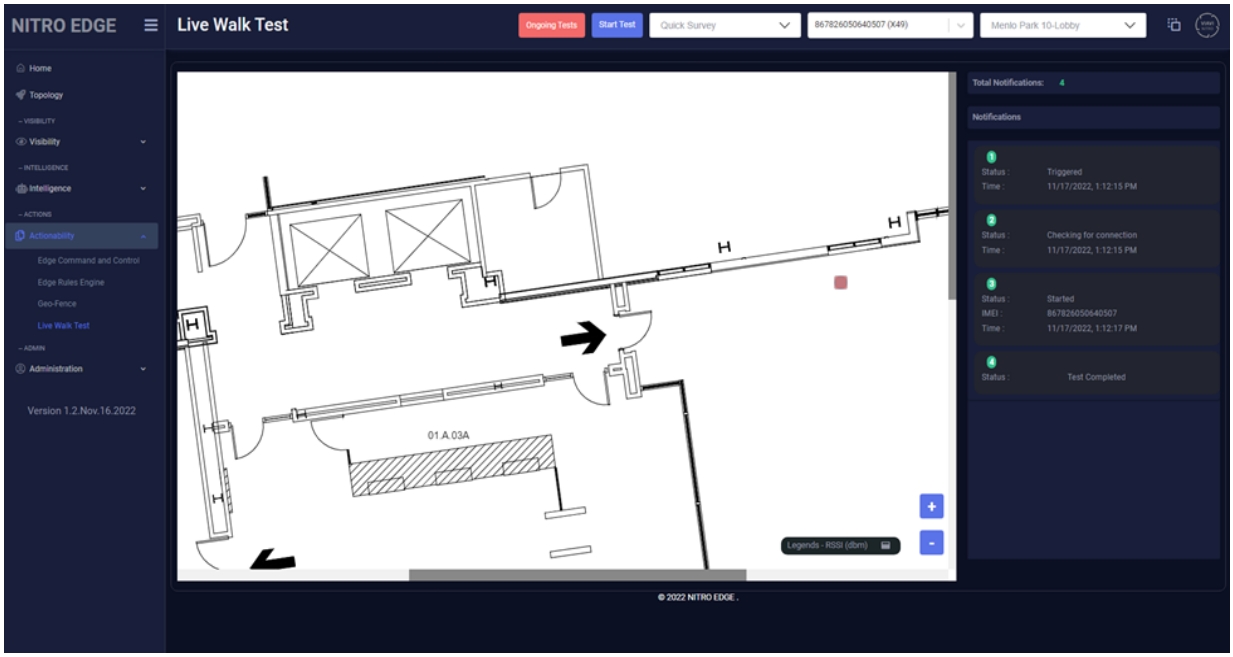
7. Click on the **Start Test** button.

8. Click **Start** after the pop-up message is displayed.

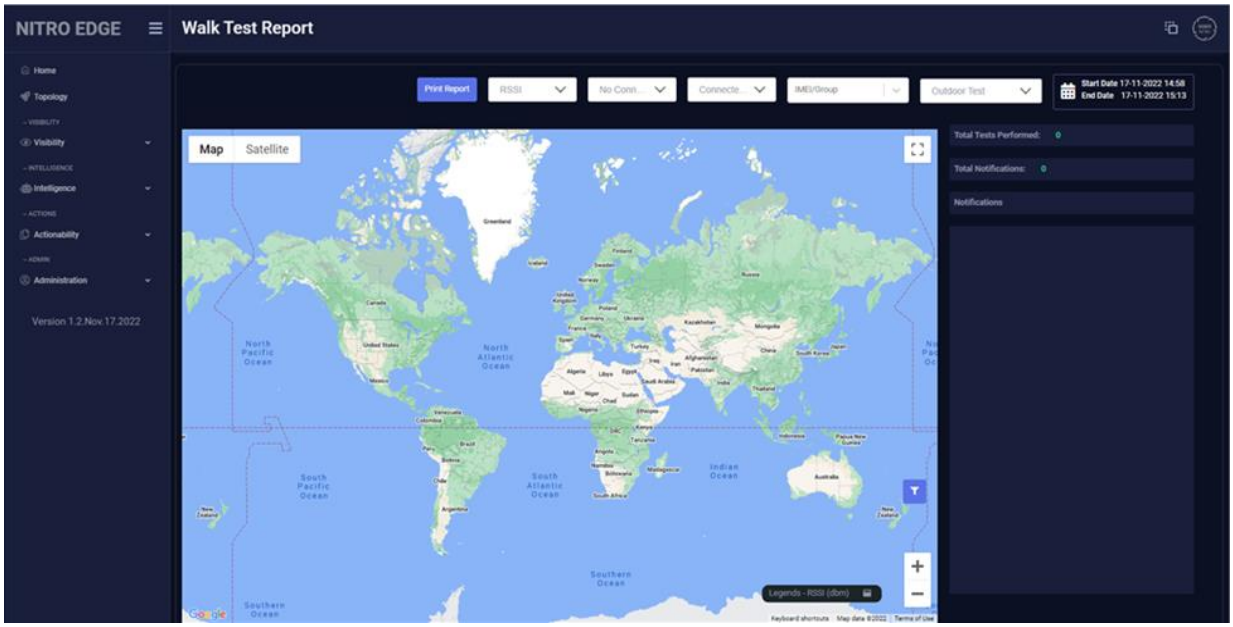


9. Make a note of time you started the test.

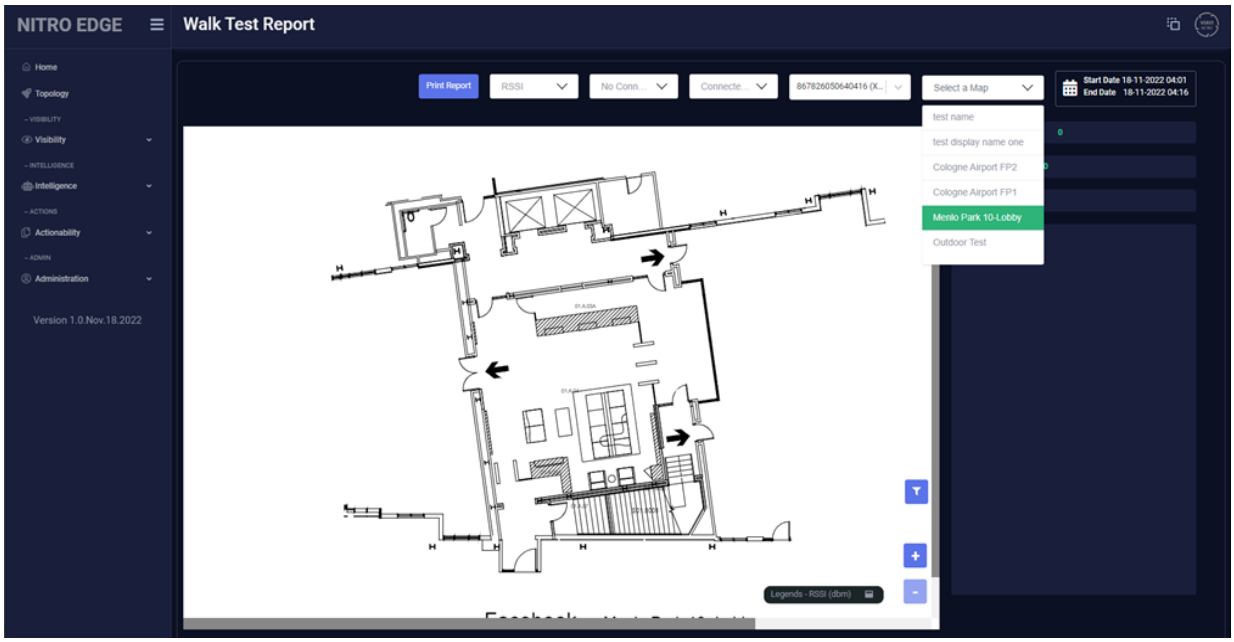
10. View the “Notifications” on the right side of the page.



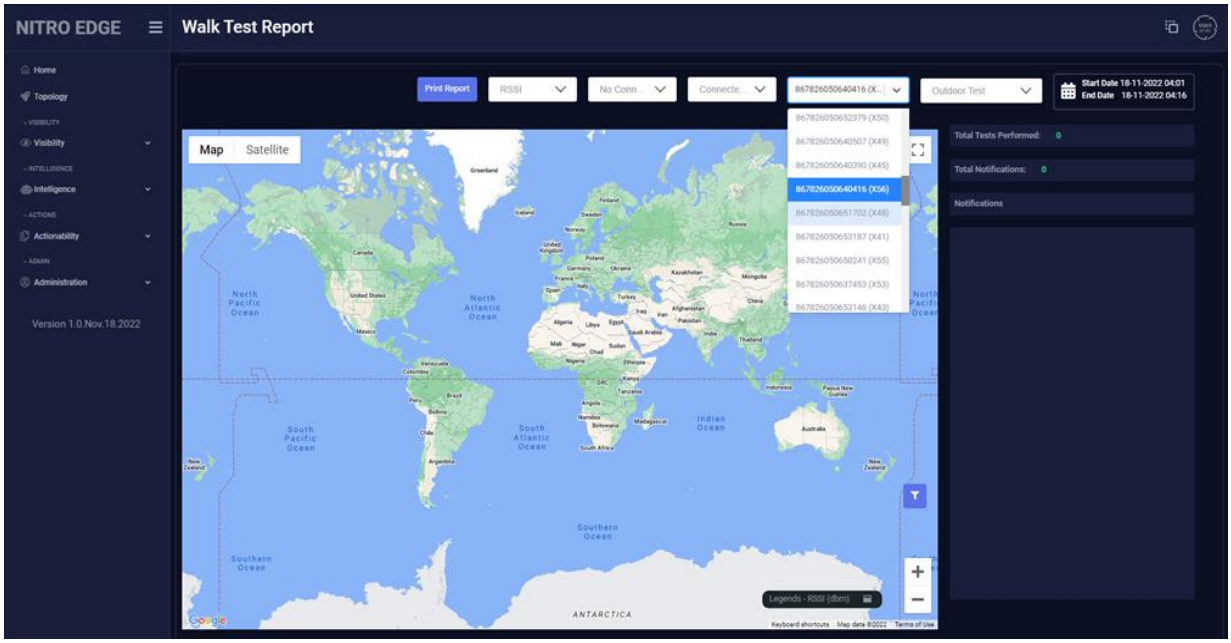
11. Navigate to Visibility > Walk Test Report.



12. Select a map from the ‘Select a Map’ dropdown menu.

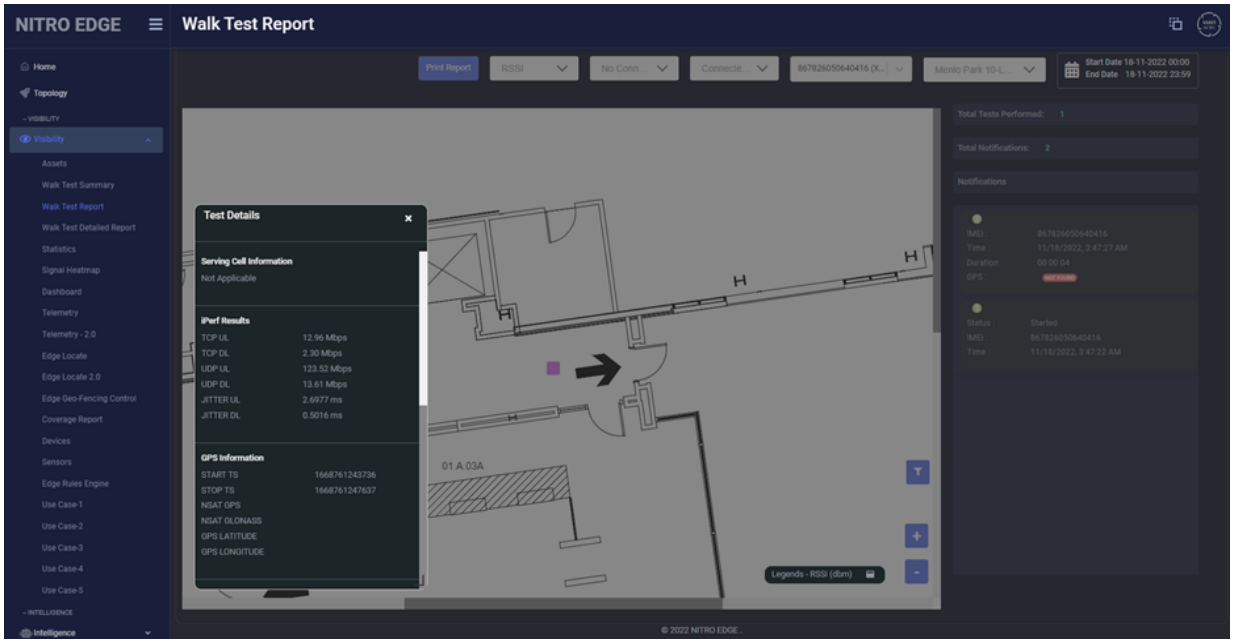


13. Click in IMEI/Group dropdown menu and select a device.



14. Double click on the colored box.

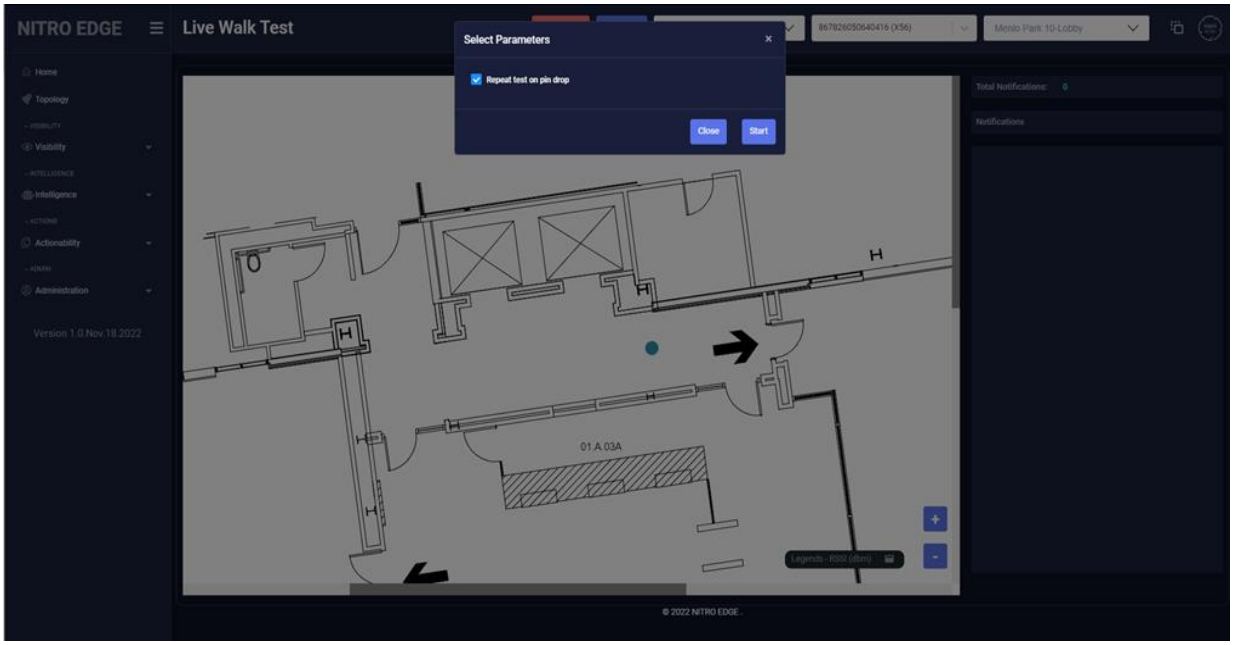
15. View “Test Details” and scroll down to see iperf totals.



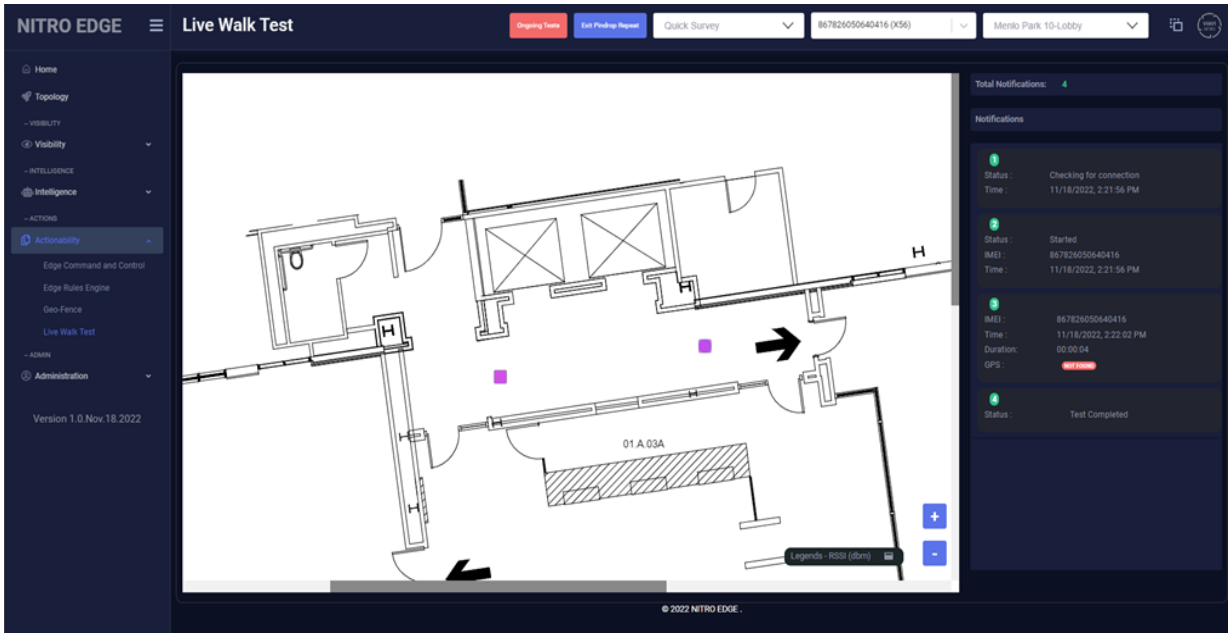
16. Repeat steps 1 to 15 except on step 5, choose ‘Deep Survey’ instead.

17. Click on the **Start Test** button.

18. A pop-up message is displayed. Select the ‘Repeat test on pin drop’ checkbox and click **Start**.



19. Start the test again with the same parameters if another pin is dropped.



9

Chapter 9 Other Information

S.No	Information	Description
1		Backend changes includes addition of band lock APIs and container
2		Backend changes includes addition of band lock APIs and container
3		Map name normalizer for sorting
4		Group management improvements
5		General performance improvements and bug fixes
6	Known issues	While performing the walk test, if Stop Repeat is clicked, and the result fails, neither button will come back
7	Feedback	Please send us your feedback anytime
8	Upcoming features	Delete the latest clicked point when running continuous walk test
9		Device upgrade manager

A

Appendix A – **XEdge Specifications**

XEdge Physical Specifications

This appendix lists the physical specifications of the XEdge instrument.

Parameter	Specification
Dimensions (vertically mounted)	
Height	Enclosure: 211 mm (8.31 in.) Antennas extended (out): 384 mm (15.12 in.)
Width	Enclosure:123 mm (4.84 in.) Antennas extended (out): 435 mm (17.13 in.)
Depth	Enclosure: 60 mm (2.36 in.) Antennas extended (forward): 164 mm (6.42 in.)
Weight	1.1 kg (2.4 lb)
Operating Temperature	0 to 40°C (32 to 104°F)
Storage Temperature	-20 to 60°C (-4 to 140°F)
Maximum Humidity	90% RH non-condensing
Altitude	2000 m (6,652 ft)

Edge Controller User Guide

Part Number 22170958

Revision 1.10

March 2023

English

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