# EtherScope® nXG v1.4 Release Notes

January 13, 2021

These EtherScope™ nXG version 1.4 Release Notes briefly describe the new features and enhancements included in the release.

Go to Software Upgrading Instructions at the end of this document

Version 1.4 Major New Features

Active Survey in AirMapper™

Using the AirMapper Site Survey app, EtherScope nXG users can now perform an active survey to measure an actual connection, rather than passive scanning. Before conducting an active survey, use AutoTest to connect to the Wi-Fi network (SSID) of your choice. Then select "Survey Mode: Connected (Active)" in the AirMapper settings.
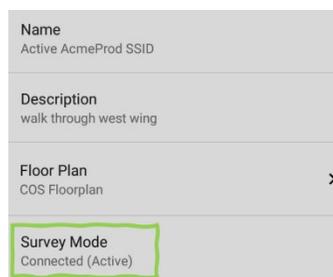
Perform the survey then upload it to Link-Live. The heatmap options for the active survey are Signal, Noise, SNR, and Tx Rate.
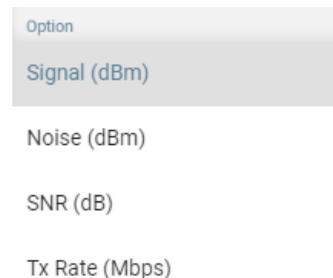
Each survey point in an active survey heatmap will contain the information below:

Channel ↑	BSSID	Signal (dBm)	Noise (dBm)	SNR (dB)	Tx Rate (Mbps)	SSID	AP Name
11	5c5b35-dd6e07	-36	-91	55	260	Black Forest Mist	BlackForestMist-AP1

Expert Tip: While performing an active survey, you may want to view all the connection trends and statistics. You can easily toggle between the AutoTest link details (RSSI, SNR, utilization/non-utilization, retries, Tx rate, roaming status) and the AirMapper survey by double-tapping the square icon at the bottom of the screen. This toggles between the 2 most recently used apps.

Simultaneous Active 1x1 Survey

Independent of the primary survey mode (using the 4x4 test radio) being active or passive, if the management radio (Android 1x1 connectivity radio) is associated to an SSID during a survey, the active measurement data is also captured. The data consists of active 1x1 RSSI, Tx rate, Channel, and connected BSSID at each survey point. This allows a conducting a passive survey while measuring how a simple client radio would perform. This also makes it possible to see where roaming and connectivity issues exist.

Option
Signal (dBm)
Noise (dBm)
SNR (dB)
Co-Channel Interference
Adjacent Channel Interference
AP Coverage
Min Basic Rate (Mbps)
Beacon Overhead
Max TX Rates (Mbps)
Max RX Rates (Mbps)
Max TX MCS
Max RX MCS
Active 1x1 Signal (dBm)
Active 1x1 Tx Rate (Mbps)

Simply connect the Wi-Fi management (Android radio) to the desired SSID to perform the active 1x1 survey and conduct the survey as usual. Once uploaded to Link-Live, two additional Active 1x1 heatmap choices will be shown at the bottom of the options list.

Selecting any survey point will show the Active 1x1 survey results at that location. Every client will vary in is connectivity and roaming characteristics.

The resulting performance metrics serve as an example of how a typical Android client device would behave.

Channel	BSSID	Signal (dBm)	Link Speed (Mbps)	SSID
7	6c3b6b33e972	-57	24	Prospector70d-Owner

Add comment to survey

A long press in the floor plan area in the AirMapper user interface allows the survey taker to capture a comment for that location. An existing comment can be edited or deleted by performing a long press on an existing comment.
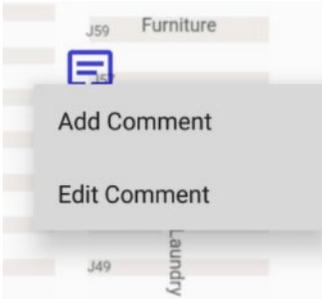

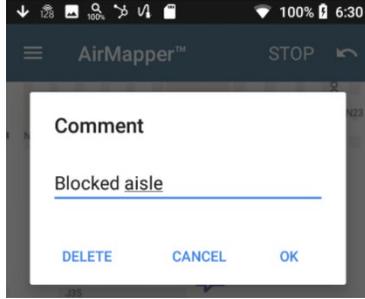*Image: Long press on existing comment*

Image: Comment entry, editing, and deletion

The comment is visible in Link-Live when hovering over the comment bubble.

Deleting selective point

When a long press is made within the green propagation radius of an existing survey point, the survey point turns red and an option to delete the survey point is presented.

Manage Floor Plans from Link-Live

The AirMapper Ecosystem now supports the creation and calibration of floor plans in Link-Live in the Survey Projects menu. Once created, the floor plan(s) can be sent to any of the AirMapper collectors (AirCheck G2 or EtherScope nXG units) in the user's organization. Navigate to the Survey Projects menu by selecting the purple action button in the lower right and then the floor plan icon.

The Survey Projects menu contains all the existing projects in your Link-Live organization on the left, and the selected project on the right.
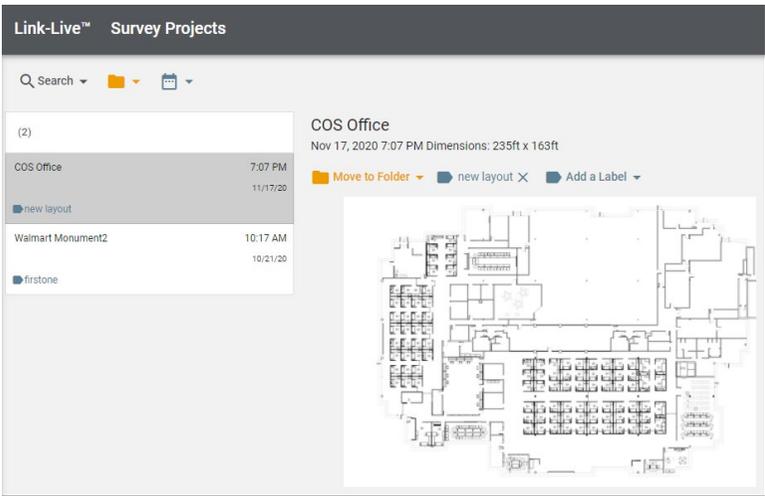
Press the green action button in the lower right to create a new project.

The Create New Floor Plan dialog allows you to add the image, name the survey, set the signal propagation, calibrate and optionally attach a label to the floor plan.

Link-Live™   Create New Floor Plan

Drag a file, or click to add an image
(.png, .jpg)

Floor Plan Information

Survey Name *   Labels

Floor Plan Calibration

Width   Height   Calibrate

Signal Propagation *
20   ⦿ ft ○ m

PUBLISH

Calibrating the new floor plan

The new floor plan can be calibrated two different ways.

If either the horizontal or vertical size of the entire image is known, then entering that dimension as the Height or Width automatically calculates the other dimension based on the image aspect ratio.

Floor Plan Information

Survey Name *
COS Office

Labels
upgrade

Floor Plan Calibration

Width *
210.0

Height *
301.6

Calibrate

Signal Propagation *
20

⦿ ft ◯ m

PUBLISH

Interactive calibration is available by pressing the Calibrate button. The next two points selected on the floor plan will set the reference distance to which a distance is assigned. Press on either of the blue points to delete it and replace it with the next press. Enter the distance and press Set Calibration. The Height and Width values will be updated to show the image dimensions using the new calibration. Press publish to save the newly created floor plan.

Floor Plan Information

Survey Name *
COS Survey

Labels
upgrade

Floor Plan Calibration

Width *

Height *

distance *
42

ft

Set Calibration

Signal Propagation *
20

⦿ ft ◯ m

PUBLISH

The existing floor plans in the Survey Projects can be modified by selecting a floor plan and pressing Edit in the upper right. A floor plan can be deleted using the "…" menu.

✏ Edit   ⋮
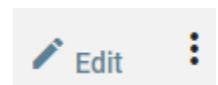
Publishing the floor plan to handheld testers

Once a floor plan is created, any of the existing floor plans can be pushed to the AirCheck or EtherScope testers. Select the floor plan from the list and then the tester(s) you want to send it to. The floor plan will be automatically sent to the testers the next time they connect to the internet and talk to Link-Live.

COS Office
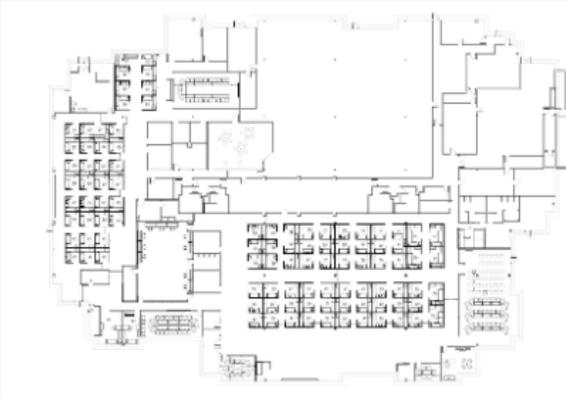Nov 17, 2020 7:07 PM Dimensions: 235ft x 163ft

📁 Move to Folder ▾   ▶ new layout ✕   ▶ Add a Label ▾

Apply To

◯ All
◉ Specific Units

Selected 1 of 10 units

☑ 📱 00C017-530124 / 1920020 / **James's DEV1 - 530124** / james.kahkoska@netally.com

☐ 📱 00C017-35525A / 1846113 / **James's Survey ACK G2 - 35525A** / james.kahkoska@netscout.com

☐ 📱 00C017-530158 / 1920019 / **James's Test Stack nXG - 530158** / james.kahkoska@netscout.com

☐ 📱 00C017-5300AC / 25 / **James's EtherScope nXG - 5300AC** / james.kahkoska@netscout.com

[APPLY]   CANCEL

When the tester receives the new floor plan, the user receives a new notification. The new floor plan then exists in the AirMapper settings.

📍 AirMapper™
New floor plan from Link-Live
COS Office

Optical Power Meter Operation

When connected with fiber, the AutoTest Link card has been augmented with the ability to set a reference and display the current power reading relative to that reference. This is useful for saving the power level at the source as a reference, then measuring the fiber power loss at the far end.

Pressing SET REFERENCE will set the current power level as the Reference Power. In addition to showing the absolute Rx Power, the Power Difference between the current and reference is displayed. CLEAR REFERENCE nullifies the reference and power difference.

1G
SFP   FDx

Speed
Advertised Speeds: 1G
Actual Speed: 1G

Duplex
Advertised Duplex: FDx
Actual Duplex: FDx

SFP Details
Rx Power: -9.77 dBm
Reference Power: -2.92 dBm
Power Difference: -6.85 dB
Wavelength: 850 nm

Result Codes
Success

SET REFERENCE   CLEAR REFERENCE

Device MAC address

It is often necessary to determine the MAC address of a device when it is not apparent or easy to access. The first MAC address seen has been added to the AutoTest Switch card. This is the source MAC of the first packet received by the EtherScope. For example, connecting to a laptop RJ-45

≡   **AutoTest**   ⚙

Nearest Switch
Port: --

Status:
Network traffic seen in 247 ms from
Dell:847beb-370d59

would display the manufacture prefix and full MAC address and the number of seconds between establishing a link to the reception of that packet.
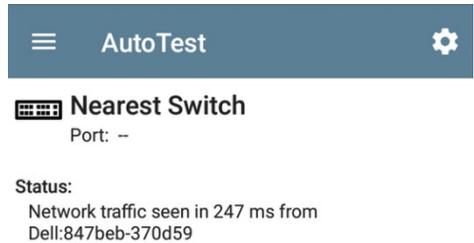
Stop After

- ○ Link
- ● Switch
- ○ DHCP
- ○ DNS
- ○ Gateway
- ○ All

If desired, a specialized profile for only determining the device MAC address by limiting the scope of AutoTest using the Stop After control in the profile settings

Adding Test Targets from Discovery

When building AutoTest profiles, it is useful to use the Discovery app's information to automatically populate the DNS name or IP address in a new test target.

A new option to Add Test Target has been added to the available actions when viewing device details. The action then allows the user to specify what type of service test to add. The new test target will be created in the list of AutoTest targets.

Image: Add Test Target action
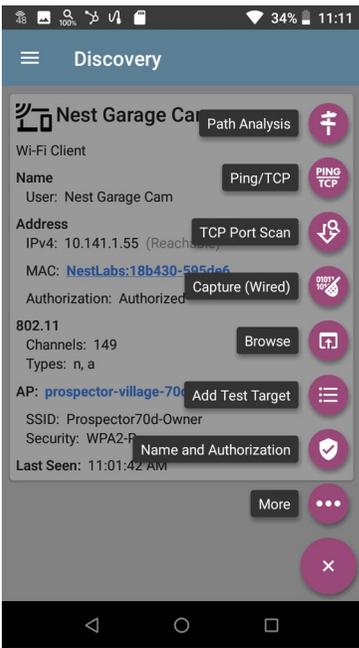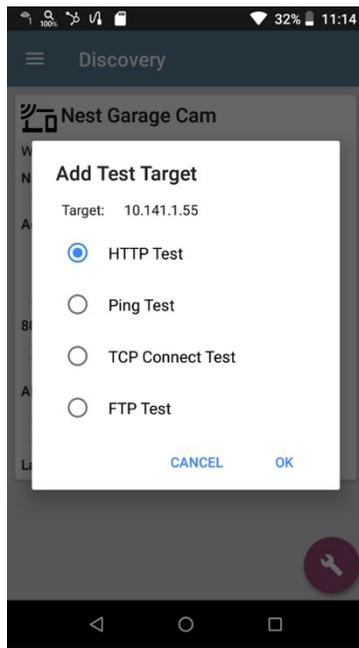

Image: Selecting the type of service for the new target

Running newly added Test Targets

Previously, when you added a new test target to a currently connected AutoTest profile, you had to rerun the AutoTest to run the new test target. Starting with v1.4, test targets added to an active profile can now be run using the TEST AGAIN action on the newly added individual test target.

Saving Performance Test Scrolled Image

When looking at the trended results of any service in the Performance Test app, you can now save the entire screen with a single action. This operation can be performed many times as desired. For example, you could save an overall 24-hour trended result, then zoom into specific time periods of interest to generate additional images. Pressing … in any Performance stream title bar brings up the option to upload the graphs to Link-Live.
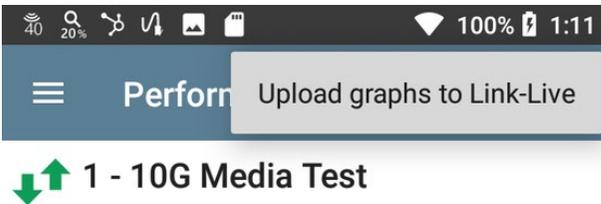
Note: this capability will be added to other multi trended screens (such as Wi-Fi Auto-Test link/roaming) in the future.

Air Quality Improvements

Three improvements were made to the AutoTest Air Quality test.

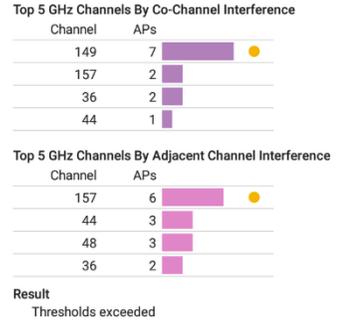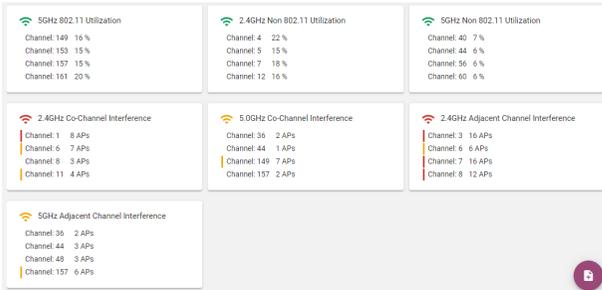EtherScope now does Adjacent Channel Interference testing in the 5 GHz band to detect 40 and 80 MHz-wide overlapping BSSIDs. The CHANNEL MAP overlap view can be used to investigate further. Also, Air Quality results are now pushed to Link-Live results:

Top 5 GHz Channels By Co-Channel Interference	
Channel	APs
149	7
157	2
36	2
44	1

Top 5 GHz Channels By Adjacent Channel Interference	
Channel	APs
157	6
44	3
48	3
36	2

Result
Thresholds exceeded

CHANNELS MAP

5GHz 802.11 Utilization	2.4GHz Non 802.11 Utilization	5GHz Non 802.11 Utilization
Channel: 149 16 %	Channel: 4 22 %	Channel: 40 7 %
Channel: 153 15 %	Channel: 5 15 %	Channel: 44 6 %
Channel: 157 15 %	Channel: 7 18 %	Channel: 56 6 %
Channel: 161 20 %	Channel: 12 16 %	Channel: 60 6 %

2.4GHz Co-Channel Interference	5.0GHz Co-Channel Interference	2.4GHz Adjacent Channel Interference
Channel: 1 8 APs	Channel: 36 2 APs	Channel: 3 16 APs
Channel: 6 7 APs	Channel: 44 1 APs	Channel: 6 6 APs
Channel: 8 3 APs	Channel: 149 7 APs	Channel: 7 16 APs
Channel: 11 4 APs	Channel: 157 2 APs	Channel: 8 12 APs

5GHz Adjacent Channel Interference
Channel: 36   2 APs
Channel: 44   3 APs
Channel: 48   3 APs
Channel: 157 6 APs

The number of scans to perform when doing an Air Quality Test is now configurable. The default is 3 scans to maximize accuracy in the reception of access point beacons.

Improved Manufacturer MAC resolution

Instead of using a proprietary manufacturer MAC lookup, EtherScope nXG now uses the Wireshark manufacturer MAC database.
As such, we now display eight characters (was six) for the manufacturer prefix. The number of manufacturers recognized has doubled as

192.168.0.50

EchoStar:000dc5-b9ff41

EtherScope now includes manufacturers with small and medium MAC blocks.

Sort BSSID by Basic Rate

The Wi-Fi app BSSIDs list now supports sorting by minimum basic rate. This makes it easy to identify slower legacy access points or provisioning.

≡ Wi-Fi - BSSIDs (7) ⋮

▽ ↑≡ Basic Rate ▼

Actionte:84e892-7830b3   -45 dBm ›
1, 2, 5.5, 11   CenturyLink5628   CH: 6

Wait for Network Traffic

During Wired AutoTest, EtherScope by default waits for network traffic before DHCP, allowing Spanning Tree to resolve and packets to be forwarded. In some low-traffic network environments, it may be desirable to skip this traffic validation delay and proceed immediately with the rest of the AutoTest.

☰ **Wired Profile**	
Wait For Network Traffic Disabled	⬤
IP Configuration DHCP: Enabled	›

Link Persistence

During Wired AutoTest when Start is pressed, the EtherScope waits 25 seconds for link before timing out and failing the AutoTest. When using line-rate performance testing for validating dark media (fiber or copper) and linking between two testers, it may be desirable to enable the remote, unmanned Performance Test Peer to wait indefinitely for link rather than timeout. When enabled there is no timeout waiting for link to be established, allowing a single operator to move to the far end of the media and perform the Performance Test.

☰ **Wired Connection**	
Speed/Duplex Auto	
Link Persistence Disabled	⬤

exFAT USB Support

EtherScope now supports higher capacity external USB thumb drives using the exFAT format. This supports greater file size and partition size limits than FAT 32.

Force 10/100 Link Duplex

Some legacy 10Mbps and 100Mbps equipment allowed the user to provision the port a full duplex but not advertise using Auto-Negotiation. As such the EtherScope would always default to a safer half duplex link. Two additional Force settings have been added to the Wired AutoTest Speed/Duplex options allowing the EtherScope to link at full duplex when the link partner is not advertising.

Speed/Duplex

- ◉ Auto
- ○ 10 M HDx
- ○ 10 M FDx
- ○ 10 M FDx Forced
- ○ 100 M HDx
- ○ 100 M FDx
- ○ 100 M FDx Forced

AutoTest Profile Export

When moving AutoTest profiles between testers, users now have 'Export Selected' and 'Export All' options. This allows the user to control is only selected (checked) profiles, or all profiles, are exported.
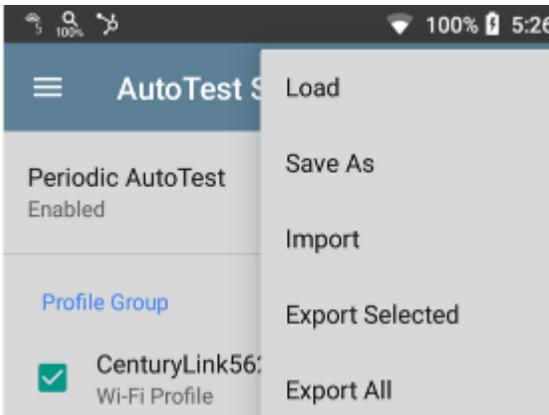
Upgrading to Version 1.4

If you have claimed your unit to Link-Live.com, we highly recommend following the Over the Air (OTA) Firmware Update procedure:

1. To check for available software updates at any time, open the Link-Live App from the Home screen.

2. In the Link-Live App, touch the menu icon or swipe right to open the left-side Navigation Drawer.
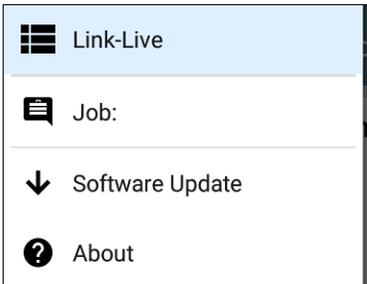
3. Touch **Software Update**. The Software Update screen opens and displays the version number of any available updates.

   For this beta release, you should see Android Update version 1.4.0.819 available.

4. Touch **Download + Install** to update the Android operating system or NetAlly applications. Each update must be installed separately.

   The files download and install. When finished, the unit will restart.