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Customer Letter — Please Read First

Agilent N2X 6.12 System Release Information

Includes new features, enhancements to existing features, and some known limitations

Dear Valued Customer,

We are pleased to introduce the **6.12 System Release (SR)** of the Agilent N2X Packets and Protocols application. The 6.12 SR introduces multiple new products and enhancements, protecting your investment in the N2X platform by offering new functionality, enhanced performance, and improved usability. 6.12 SR includes the following:

New software products:

- HTTP Protocol Emulation Software (N5577A)
- Link OAM Emulation Software (N5589A)
- Synchronous Ethernet ESMC Emulation Software (N5566A)

Existing products that are enhanced in this release include:

- Ethernet OAM Fault Management Emulation Software
 - o Continuity Check Messages can now contain TLVs
 - o Continuity Check Data Base (CCDB)
 - o 10,000 VLAN support
 - o Incrementing MAID
- Access Protocols Emulation Software
 - o DHCP Option 60 ASCII value insertion
 - o Re-establishment of PPP and DHCP Sessions
 - o IGMP and MLD Rate Control
 - o VLAN & IP Priority Bit configuration
- Routing Emulation Software
 - o OSPF Topology Builder
 - o OSPF MTU increased
 - o BGP-4 4-byte AS for VPN
 - o IS-IS
 - o RSVP ERO
 - o RSVP Unnumbered ERO and RRO
 - o SIP



E7900-90021

- IPTV QoE Productivity Application
 - o Support for 10-port Ethernet test cards (N5606A)
 - o Stacked VLANs
- GUI enhancements
- Other

Below, you will find further highlights of new products available in this release, as well as enhancements to existing products which you are eligible to receive at no extra charge provided you have an active Software and Support Agreement (SSA) contract and the relevant protocol emulation licenses. Please refer to the “More Information” section of this document for references to further sources of information about this release.

New Software Products

HTTP Protocol Emulation Software (N5577A)

The HyperText Transfer Protocol emulation introduced in this release provides a multi-service test solution to test real web services and end-to-end data services. You can emulate HTTP Clients and HTTP Servers based on version 1.0 or 1.1 to simulate:

- HTTP clients fully integrated with access protocols such as PPP and DHCP
- HTTP Server responses to various HTTP requests sent from HTTP Clients which can be used to evaluate a forwarding device such as a router for:
 - o performance by simulating null transactions (establishing only TCP connections)
 - o network authentication (basic or form based)
 - o HTTP 3xx redirection and the meta-redirection

Link OAM Emulation Software (N5589A)

With the advent of Ethernet in the First Mile and use of optical fiber for residential and business purposes, many new challenges arise in deploying Ethernet networks that are resilient to errors. To complement the existing *service-layer* Ethernet OAM Fault Management emulation, this release introduces a *link-layer* Link OAM emulation based on the standard IEEE 802.3 (2005) Clause 57 (formerly 802.3ah). You can use the service-layer OAM emulation to test end-to-end sessions, and the link-layer OAM emulation to test individual links. At the link-level, you can discover remote link OAM DTEs; initiate remote data loopback and test a link for bit and frame errors; and simulate and monitor link errors and failures.

Synchronous Ethernet ESMC Emulation Software (N5566A)

The new Synchronous Ethernet ESMC Emulation software allows you to test the clock management, selection, traceability, and failover (functionality and performance) of Synchronous Ethernet devices, by verifying the Ethernet Synchronization Message Channel (ESMC) Synchronization Status Message (SSM) protocol.

Enhancements to Existing Products

The Agilent N2X 6.12 SR includes enhancements to the base Packets and Protocols software application and emulation packages. These capabilities are available on all N2X controllers covered under an active SSA contract with the appropriate software licenses installed.

Ethernet OAM Fault Management Emulation Software (Enhancements to N5585A & N5587A)

This release provides the following enhancements to the N5585A and N5587A E-OAM Fault Management Emulation Software:

- **Continuity Check Messages**

You can now include Sender ID, Port Status, Interface Status, and Organization-Specific TLVs in Continuity Check messages using either the GUI or the API (AgtEthernetOamTopology).

- **Continuity Check Data Base (CCDB)**

The way in which you can manually add the CCDB entries has changed slightly.

- **10,000 VLAN support**

You can now create up to 100 Ethernet OAM emulations containing a combined total of 10,000 instances.

- **Incrementing MAID**

You can create unique values for various string values using the new custom string modifier function. AgtEthernetOamTopology has been updated to allow for multi-level parameters that support incrementing.

- **VLAN & IP Priority Bit Configuration**

You can now configure QoS levels for Ethernet OAM packets

Access Protocol Emulation Software

This release provides the following enhancements:

- **DHCP Option 60 (Enhancement to E7887)**

You can now enter the Option 60 value as an ASCII string in addition to a hexadecimal string. This feature is only supported through the GUI. Using the API, you can use Tcl functions to convert ASCII to hexadecimal.

- **Re-establishment of PPP and DHCP sessions (enhancement to E7888A, E7887, E7896A)**

You can now attempt to establish a session again after it has been dropped for any reason other than manual user intervention. This feature is supported through the GUI and API.

- **IGMP and MLD Rate Control (enhancement to E7828A, E7897A, and N5577A)**

For certain emulations such as IGMP, MLD and HTTP, you can control the rate at which a GPF protocol emulation action is applied to the instances in a GPF session pool (for example, to establish IGMP calls at a certain rate).

- **VLAN & IP Priority Bit Configuration (enhancement to E7888A, E7887, E7896A, E7828A, E7897A, and N5577A)**

You can now configure QoS levels for the following protocol emulation packets: IGMP (GPF), MLD, PPP (GPF), DHCP, and DHCPv6.

Routing Emulation Software

This release provides the following enhancements:

- **OSPF Topology Builder (enhancement to E7882A)**

You can now create five different OSPF topology patterns: grid, mesh, tree, ring, and star. Previously, N2X allowed only grid topologies. The way in which you create a grid topology has been changed to allow for the new topology patterns.

- **OSPF MTU increased (enhancement to E7882A)**

Ethernet test cards now support an MTU greater than 9000 octets for Jumbo frames. The maximum possible MTU depends on the test card type. This is to support large protocol messages such as OSPF Database Description packets.

- **BGP-4 4-byte AS for VPN (enhancement to E7882A)**

The 4-byte AS introduced in Release 6.11 for BGP-4 route pools has been extended to VPN route profiles and VRF pools.

- **IS-IS (enhancement to E7882A)**

- **Route tagging**

A new Route Tagging check box is provided in the IS-IS Route pool dialog box that allows you to enable the advertising of the routes in a route pool, using the Extended IP Reachability TLV (135) with an IPv4 prefix and route tag information sub-tlv 1. The IS-IS route prefixes are tagged by a single value and use those tags in a route map to control route redistribution or route leaking. You can use the five new API methods added to the AgtIslslpv4RoutePool object to test the IS-IS Route tagging feature.

- **FA-LSP**

You can now configure bidirectional forwarding adjacency in the IS-IS Router properties dialog box. The forwarding adjacency can be established between routers regardless of their location in the network, even if the routers are located multiple hops away from each other. This MPLS TE Forwarding Adjacency feature allows you to handle a traffic engineering, label-switched path (LSP) tunnel as a link in a network based on the Shortest Path First (SPF) algorithm.

- **IS-IS Restart Acknowledgement (Enhancements to E7882A)**

N2X now correctly responds with a Graceful Restart Acknowledgement when the DUT sends an IS-IS Graceful Restart request without the remaining time and restarting neighbour system ID (that is, when the DUT sends a Graceful Restart Request TLV of length 1 byte).

- **IS-IS grid advertising/withdrawal (Enhancements to E7882A)**

When you advertise/withdraw an entire grid in an IS-IS emulation, N2X now advertises/withdraws only the individual grid routers and not the links. Previously, advertising/withdrawing an entire IS-IS grid would enable/disable the advertise flag for individual grid routers and all the links attached to them.

- **RSVP ERO (enhancement to E7883A)**

You can now set 100 RSVP ERO sub-objects. Previously the limit was 32.

- **RSVP Unnumbered ERO and RRO (enhancement to E7883A)**

You can now create unnumbered ERO and RRO sub-objects.

- **SIP (enhancement to N5588A)**
 - **External Registrar**

A new field introduced in the SIP IPv4 Client properties dialog box '**Registrar contact address type**' allows you to select the external SIP registrar contact type. You can now specify the hostname of the external registrar. During registration, the configured SUT or the Outbound proxy server resolves the DNS hostname to obtain the IP address of the external registrar. New methods to retrieve or set the registrar address type and the registrar host name have been provided to the AgtSipUserAgentPool object and a new enum EAgtRegistrarAddressType lists the external registrar address type.

- **Pool level and instance level statistics API**

You can now retrieve both the pool level and instance level statistics using only one method 'GetStatistics' introduced in the AgtSipStatistics API object. To retrieve the pool level statistics, provide the <device handle> and to retrieve the instance level statistics, provide the <device handle> and the <instance handle>.

IPTV QoE Productivity Application (Enhancements to N5570A)

The N5570A IPTV QoE Productivity Application now supports:

- **Support for 10-port Ethernet test cards**
- **Stacked VLANs**

(IPv4 PA only) You can now transmit protocol emulation and measure Multiplay traffic over stacked VLANs.

GUI Enhancements

The N2X Packets and Protocols application now provides these enhancements in its graphical user interface:

- **GUI Light mode**

You can now improve system performance by disabling the display of the detailed routing editor dialog boxes. This Light mode is designed for high-scale test scenarios with many routing emulation instances or many test ports. It is an ideal way to develop, debug, and monitor the operation of regression test scripts that build, load, and run complex setups..

- **Spanning Tree bridge group address (Enhancements to N5580A)**

You can now select to use a standard or provider bridge group address for STP, RSTP, and MSTP emulations using the GUI (STP Device Properties dialog box, RSTP Bridge Properties dialog box, MSTP Bridge Properties dialog box) or API (AgtStpSession, AgtRstpSession, AgtMstpSession).

- **LACP (Enhancements to N5582A)**

You can modify the behaviour of update_Selected (see 43.4.9 of IEEE 802.3ad) when it detects that the peer operational values have changed using the GUI (LACP Link Properties dialog box) or API (AgtLacpSession)

- **Speedier restore when config file is selected from launchpad**

When a configuration file is selected from the launchpad and restored, the total time to restore the configuration and wait for the GUI to be ready is the same as the total time required to restore the configuration file from the API and then attach the GUI from the command line. This is particularly important for configurations with large numbers of non-pooled routing sessions.

- **Specify load for traffic mesh in frames/second (fps)**

When adding a traffic mesh, you can set the load in the Advanced tab as either a percentage of the maximum, or as frames/second.

- **Show port labels for destination ports in Stream Group Properties**

In the Stream Group Properties dialog, on the General tab, the port label (if any) is displayed beside each port in the list of expected destination ports. You can also customize your port labels.

- **New stream statistics: Rx Packet Loss (%) and Excess Rx Test Packets**

Other

- **Software installation password**

If you install this release of the N2X Packets and Protocols software, you will notice that you must now enter an N2X Software & Support Agreement (SSA) activation password to begin installation. You can get this password from the Agilent web site at www.agilent.com/find/n2x; click **N2X Software & Support Agreement** to access the SSA area. If this computer does not have web access, you can ask your Agilent representative for the password.

- **Wireshark upgrade**

N2X now uses Wireshark version 1.0.5. This contains newly defined protocol dissections for ATM, ANCP, 802.1ag, Y.1731 and defect fixes in general.

- **Disable trickle time**

You can now disable the trickle time feature. Also, the QuickScript has been updated to support the new EnableTrickleTime/DisableTrickleTime setting.

- **Enabling capture**

You can no longer enable capture for dummy ports.

- **Obsoleted components**

Review these lists of the Obsoleted API components and Obsoleted PDU builder XML fields for past releases.

Known Limitations and Recommendations

For detailed information on known issues and workarounds, we highly recommend that you review either the 6.12 Release Notes or Frequently Asked Questions knowledge base, which are both available from the N2X website. The website also provides additional product information such as technical data sheets. For details about accessing these tools, see "More Information".

Installation and Platform Recommendations

- If you have an older N2X controller (models E7891/2/3B), you are encouraged to upgrade your controller in order to take full advantage of recent features and performance improvements. For details, contact your local Agilent representative.
- We recommend the use of Agilent supplied controllers and do not support N2X software releases used on non-Agilent supplied controllers. The value of using an Agilent supplied N2X controller is that it is qualified and tested to reliably control and run the N2X system. The N2X controller undergoes thorough qualification and testing to ensure minimal downtime, accurate test results, and confidence that even the most complex of tests can be run reliably.

More Information

Further information about the release is available from the Technical Support area of the N2X website: <http://www.agilent.com/find/n2xsupport> > Log In to Web-Based Support. Through this site, you can access comprehensive sets of Release Notes and Frequently Asked Questions. You need a current Software and Support Agreement (SSA) to access the download facility at the new corporate web site. Conformance Tests also require an additional CTS-specific SSA.

A comprehensive online Help system is also available within the N2X software application. It provides further details on how to use the new products and features summarized in this letter. The online Help is available from the Start Menu if the software has been installed or on the installation DVD by launching the file "\\doc\\RT900Master.chm". From the help window's Contents tab in the left-hand pane, select "What's new".

Sincerely,
Agilent Technologies
The N2X Product Team

<http://www.agilent.com/find/N2X>