

VLAN Support and Strata Net Small Node Licensing for Strata CIX Release 4.1 MN023

We are very pleased to announce some important enhancements to Strata CIX Release 4.1 software with version MN023.

- This new software version provides new **802.1Q Virtual Local Area Network (VLAN)** capabilities that make voice IP packet prioritization over data and Quality of Service (QoS) control much easier.
- The new software version also makes small node Strata Net networking applications more cost effective, with a new **Strata Net per-channel license**. The per-channel Strata Net license is a lower priced alternative to the per-site Strata Net license.
- In addition, the new version includes **PAD table enhancements** that add Strata Net PAD Table assignments for devices and default values. This makes them more flexible and easier to program.

Strata Net Channel License Description

Do you have networking applications with some very small branch office nodes? Need a less expensive way to connect them to your Strata Net network? Now you have it with a new Strata Net channel license! You buy only the number of channel licenses you need now to get started, and buy additional channel licenses one at a time as your network grows.

The Strata Net channel license (LIC-CIX-STRN-CH) allows you to license a specific number of Strata Net channels on Strata CIX systems. The same license part number, LIC-CIX-STRN-CH, can be used on any R4.1 version MN023 Strata CIX100, CIX200 or CIX670 system, but not previous version systems.

This license provides a cost effective solution for deploying Strata Net to small size CIX nodes on a Strata Net network. This solution is economically effective for up to 1~12 channels on CIX100, CIX100-S and CIX200, and up to 1-20 channels on CIX670.

The Strata Net system licenses LIC100-STRATA N, LIC200-STRATA N and LIC670-STRATA N are still available for applications that require more Strata Net channels or for older version systems.

Each Strata Net Channel License (LIC-CIX-STRN-CH) enables one channel on the Strata CIX network interface cards for Strata Net operation. One LIC-CIX-STRN-CH is required for each Strata Net channel needed. No other license is required for this function. The Strata Net Channel License supports IP Strata Net and PRI Strata Net.

Technical Notes:

1. The Strata Net Channel License is supported by LIPU-X/LIPS-X, BIPU-Q IP interface cards and BPTU and RPTU2 PRI interface cards.
2. The Strata Net Channel license can be applied one at a time to LIPU-X/LIPS-X IP interface cards.
3. The Strata Net Channel license must be applied 8 at a time (8, 16, etc.) to BPTU, RPTU2 and BIPU-Q interface cards (minimum 8 channels on these interfaces). This requirement is based on Strata CIX system architecture.
4. If the Strata Net system license (LICXXX-STRATA N) and Strata Net channel licenses are applied to the same Strata CIX processor, the number of Strata Net channels on PRI and/or IP interface cards is unlimited.
5. If the Strata Net system license (LICXXX-STRATA N) is used, one LIC-4 BASIC license is also required for each Strata Net channel needed. However, but the LIC-4 BASIC license is not required for the LIC-CIX-STRN-CH channel license, providing even more cost savings for small nodes.

Strata Net Licensing Options

The Strata Net networking application can now be licensed on a per-channel or per-site basis.

- This provides lower pricing for Strata CIX network nodes using only a few channels.
- Larger nodes can opt for the per-site license.
- The breakeven in pricing, between using the channel license or the site license, is 11 approximately channels on CIX100 and CIX200 systems, and approximately 21 channels on CIX670.

The following is a list of the Strata Net networking licenses available.

- LIC-CIX-STRN-CH CIX100/200/670 Strata Net Networking Channel License (per-channel at a site).
- LIC100-STRATA N Strata CIX100 Strata Net Networking Site License (per site).
- LIC200-STRATA N Strata CIX200 Strata Net Networking Site License (per site).
- LIC670-STRATA N Strata CIX670 Strata Net Networking Site License (per site).

See the updated price book on FYI for details.

Virtual Local Area Network (VLAN) Description

Want easier control over your voice/data packet prioritization and QoS? You now have it with VLAN capabilities!

The LIPU-X1A/LIPS-X1A and 2000-series IP telephones will now support 802.1Q Virtual Local Area Network (VLAN) technologies. For sites with LANs that have a large number of IP devices, VLANs can be used to separate voice traffic from data traffic on the network virtually rather than physically. VLANs prevent the broadcast and other traffic from one virtual LAN (typically a data LAN) from impairing the performance of equipment on another virtual LAN (for example a VoIP LAN), even though the devices are plugged into the same physical network.

VLAN for the IP telephone, and a PC connected through the telephone's switch port, can each be programmed separately. This provides configuration flexibility of each device.

Also, within VLANs or without VLANs, 802.1P and Diffserv can be used to provide Quality of Service for voice by allowing voice packets to be prioritized over data packets. Note that when using 802.1Q or 802.1P, all network Ethernet switches and routers must be capable of supporting these capabilities.

VLAN Training

VLAN setup on any system in any LAN environment is complex, including the Strata CIX. It requires detailed knowledge of the Strata CIX VLAN programming and how all other components on the LAN are setup for VLAN tagging. Successful Strata CIX VLAN programming **requires** that you take the on-line VLAN training on Toshiba University web site.

1. Log into **Toshiba University**
2. Click on **Course Catalog**
3. Click on A3: **CIX Elective Courses**
4. Scroll to bottom of **Course Information**, then click on **You may begin by clicking here**

The Course Information Screen for A3: CIX Elective Courses is shown below:

A3: CIX - Elective Courses
1199VLAN Tagging
Course Information This course covers the concepts and theory of VLAN Tagging and Traffic Prioritization (IEEE802.1Q and IEEE802.1P) After completing this course you should understand what is required to install and program a VLAN environment. Programming the CIX for VLAN is taught through the use of e-Manager simulations. There are no training prerequisites for this course, however you must have a working knowledge and understanding of CIX/CTX programming and data networking to understand the overall concepts and programming simulations. You may begin by clicking here .

VLAN Requirements

1. VLAN is for IP telephones – not for Strata Net Networking.
2. VLAN is supported by 2000-series IP telephones – not IPT1020-SD.
3. VLAN is supported by LIPU/LIPS – not BIPU-M.
4. VLAN IP Telephones require the firmware listed below:
 - IPT2010-SD and/or IPT2020-SD = **DIP2T1Yx (x=A, B or C)** or higher.
 - IPT2008-SDL = **DIP2M1Yx (x=A, B or C)** or higher.Note: **DIP** is the firmware version, **x** is the boot version.
5. CIX Software: MN023 or above.
6. eManager version: V4.10A38 or above.
7. LIPU\LIPS firmware: LIPX47 or above.

VLAN Setup – Basic Steps

1. Complete VLAN training on Toshiba University Web site.
2. Verify all non-CIX LAN devices (routers, switches etc.) on the LAN support VLAN tagging.
3. Verify all CIX components have the correct software/firmware listed in CIX Requirements above.
4. If any software/firmware is upgraded to meet CIX VLAN requirements, make sure all items are working properly before starting to setup the VLAN.
5. Set VLAN IDs and parameters on IP telephones on the LAN using eManager. Go to: *Advanced Configuration> IP-Telephony>IPT VLAN Setup* and set VLAN IDs and parameters for IP telephones and PC ports.
6. Set VLAN IDs and parameters for LIPU/LIPS on the LAN using eManager. Go to: *Advanced Configuration>IP-Telephony>LIPU Configuration* and set VLAN IDs and parameters for LIPU and LIPS.
7. Set VLAN IDs and parameters for all other LAN devices using manufacturer procedures.
8. Perform appropriate test to verify proper operation of IP telephones on the VLAN.

Important! When setting VLAN IDs for IP telephones, LIPU/LIPS, routers, switches and other LAN components, IP telephones will be out of service until all component VLAN IDs are correctly matched and activated.

PAD Table Enhancements

There are new Strata Net PAD Table assignments for devices and default values in Strata CIX Release 3.10 MK041, and Release 4.10 MN023 and above. These require eManager Version 4.10A38 or above.

In older versions of Strata CIX software, Strata Net Channel Groups must be assigned to the appropriate PAD Group Number in Program 108 and the appropriate PAD values must be assigned in Program 107. PAD Table 1 below shows an example of how the Strata Net Channel Groups for each Strata Net interface are arbitrarily assigned to PAD Group 1~PAD Group 3 in the older software versions.

PAD Table 1 (old PAD Table)

IPT1020-SD	10	-6	3	-6
IPT2010-SD, IPT2020-SD, IPT2008-SDL	11	12	3	12
PAD Group 1 (LIPU – Strata Net)	101	12	0	12
PAD Group 2 (BIPU-Q – Strata Net)	102	0	0	-3
PAD Group 3 (PRI – Strata Net)	103	3	3	3

With Strata CIX R3.10 MK041 and R4.10 MN023 and above, Strata Net interfaces are initialized with new default devices/values in Program 107. The LIPU (12), BIPU-Q(13) and PRI(14) device types are added and their recommended default values are automatically assigned upon system initialization as shown in PAD Table 2 below.

PAD Table 2 (new improved PAD Table)

IPT1020-SD	10	-6	3	-6
IPT2010-SD, IPT2020-SD, IPT2008-SDL	11	12	3	12
LIPU – Strata Net	12	12	0	12
BIPU-Q – Strata Net	13	n	0	-3
PRI – Strata Net	14	3	3	3
PAD Group 1	101	12	0	12
PAD Group 2	102	n	0	-3
PAD Group 3	103	3	3	3

When upgrading Strata CIX software from MN018 or lower (old type PAD table) to MN019 (new type PAD table) or higher, the Strata Net interfaces will remain assigned to the original Program 108 PAD Groups/Program 107 PAD Values when system default.dat file is restored. The Strata CIX system will ignore the new LIPU(12)/BIPU-Q(13)/PRI(14) device type assignments.

- If the original Channel Group/PAD Group assignments in Program 108 are deleted after the Upgrade/Restore, the LIPU/BIPU/PRI interfaces will automatically be assigned to the LIPU(12)/BIPU-Q(13)/PRI(14) device types respectfully.
- Any Strata Net Channel Group assigned to a PAD Group (1~32) in Program 108 will use the assigned PAD Group (1~32) values instead of the LIPU(12)/BIPU(13)/PRI(14) PAD values.

Software Version Requirements and Availability

Release 4.10 version MN023 software is currently shipping with all new Strata CIX100, CIX200, and CIX670 systems. The new software is also available on FYI for download, to upgrade existing Strata CIX Release 4 processors.

The updated version of the LIPU-X1A is currently shipping with all new orders. The new LIPU software version LIPX47 is also available for download on Toshiba FYI to upgrade existing LIPU-X1A cards.

New versions of eManager (4.10A38) and CIX Quote (4.1F01), that include the VLAN capabilities, Strata Net per-channel licensing, and PAD table enhancements are currently available for download from FYI.