

Software Release Notice

TimeProvider 5000

Introduction

This document provides information about TimeProvider 5000 release 2.0. The latest information regarding features, enhancements, license keys, premium features, and known issues is included in this document.

Summary of Features

New Features

- NTP Server
 - Dedicated NTP server (no PTP) - 20,000 transaction per second capacity per IOC
Optional 120,000 transaction per second capacity per IOC (license key is required)
 - NTP server option on PTP Grandmaster - 20,000 transaction per second capacity, with the following possible configurations (license key is required):
 - 1 port PTP w/1000 clients capacity, 1 port NTP w/ 20,000 transaction per second
 - 2 ports of PTP - 500 clients per port
 - 2 ports of NTP, 10,000 transaction per second per port
- Support for TimeProvider E10 expansion shelf
 - SyncE, including SSM on ESMC messages, supported with optical SFP
 - Multicast PTP supported on layer 2 (Annex F of IEEE 1588-2008)
 - 8 Ethernet ports standard
Optional second group of 8 Ethernet ports for total of 16 ports (license key is required)
- Support for TimeProvider E30 expansion shelf
 - 12 E1/2048kHz output ports
 - 12 1PPS+TOD output ports

- Three IMC modules supporting expansion shelves, available with
 - 1 GPS input port
 - 2 GPS input ports
 - GPS and GPS/Beidou input ports
- ITU-T G.8265.1 Telecom Profile
- New command to deactivate PTP client
- SNMP support for new features and expansion shelves, ifTable and other selected public MIBs (license key is required)
- Reference selection via SSM on E1 and T1 input
- Time and frequency reference modes
- Auto-switching between references based on quality level or priority
- Optional support for 500 VLAN per IOC port (license key is required)
- Optional support for PTP probe (license key is required)
 - Layer 3 unicast
 - Layer 3 multicast
 - Layer 2 multicast
- Event and SNMP trap when PTP client is added or dropped

Resolved Issues

- FSB 098-40621-56: If system has been on for over 248 days, unicast clients will not be dropped from the client list, potentially preventing new clients from being added. In multicast mode, best master clock algorithm will not function after 248 days.
- 9589: Send trap when PTP client added or dropped (enhancement)
- 65059: Internal communication errors if a new IOC is added to the system if the IOC was previously set with a different intra-system class than is presently configured in the TP5000 system
- 65079: The error message received during local configuration backup if IOC card is not installed is misleading
- 65165: Sometimes the standby IOC could not exit standby warmup state
- 65304: Upgrade via FTP could fail if file path was too long
- 65788: May lose expansion shelf management connection if you connect IMC expansion port to IN-2 port of expansion shelf
- 65795: May get "Communication to IMC failed" alarms for expansion shelves.

Known Issues

- 66390: The Tx PQL values for "show sync status" may not match the system PQL values, when the system PQL is 3 or 4. The values in the syncE ESMC messages are correct.
- 66393: The syncE bidirectional mode is not supported in release 2.0.4.
- 23909:: SNMPv3 improper HMAC-validation allows authentication bypass. See <http://www.kb.cert.org/vuls/id/878044>

Workaround: Attach IMC Ethernet port to protected network.

Premium Features & Options

The TimeProvider 5000 also provides premium features and options. An activation key is required to access to the premium features and options. The initial release of the TP5000 firmware, v1.0, included one option. Premium features were introduced with release v1.2 of the TimeProvider 5000. The v2.0 release of the TP5000 introduces new premium features and options, as shown in [Table 1-1](#).

Table 1-1. TimeProvider 5000 Premium Features and Options

FW Version	Available Options	Premium Features	Notes
1.0	■ SNMP	n/a	Keys for options in v1.0 are 6 characters
1.2	■ SNMP	■ PTP 2-step clock, PTP multicast, PTP management multicast	40-character activation key for premium features. and options 6 character activation key. for options still supported
2.0	■ SNMP ■ PTP probe ■ The second 8-port group (Ports 9-16) on TimeProvider E10 expansion shelf ■ NTP Server option for PTP Grandmaster with 20,000 transactions per second ■ Dedicated NTP server with 120,000 transactions per second	■ Support for total of 500 VLANs (16 base + extended 484)	40-character activation key for all options and premium features 6-character option key supported for SNMP option from v1.0 or v1.2

Compatibility Matrix

Table 1-2 below describes the minimum firmware revision required for TP 5000 hardware. The IMC, IOC and expansion shelves should all contain the same firmware revision.

Table 1-2. Compatibility Matrix - TP5000 Hardware and Firmware

Description	P/N	HW Rev.	Minimum FW Rev.	Notes
IMC Module	090-50331-01	Rev L or higher	1.2.3	This module can't distinguish between 090-50301-001 and 090-50301-002 chassis.
		Rev K or lower	1.0.6	This module can't distinguish between 090-50301-001 and 090-50301-002 chassis.
	090-50331-02		2.0.4*	
	090-50331-04		2.0.4*	
	090-50331-05		2.0.4*	
IMC Module - NTP	090-50332-01		2.0.4*	This module can't distinguish between 090-50301-01 and 090-50301-02 chassis.
I/O Module	090-50311-01		1.0.6**	
	090-50312-01		1.0.6**	
	090-50314-01		1.2.3**	
	090-50315-01		2.0.4*, **	Should be used w/ 990-50301-02 chassis
IOC Module, Quartz	090-50321-01	Rev L or higher	1.2.3	
		Rev K or lower	1.0.6	
IOC Module, Rubidium	090-50322-01	Rev M or higher	1.2.3	
		Rev L or lower	1.0.6	
Main Chassis	990-50301-01		1.0.6	
Main Chassis	990-50301-02		2.0.4*	Chassis can be used by older firmware, but p/n can't be identified by "show inventory"
TimeProvider E30 Expansion Shelf E1 & PPS-TOD	990-50401-01		2.0.4*	Must be used w/ 090-50331-02, 090-50331-04, 090-50331-05
TimeProvider E10 Expansion Shelf Ethernet	990-50401-02		2.0.4*	Must be used with 090-50331-02, 090-50331-04, 090-50331-05

* These items are also supported by firmware release 1.3.8 for China region.

** The FW revision for the I/O module refers to the IMC/IOC firmware revision.

Notes

Parameter	Default Value
CLI Administrator	User Name: admin Password: symmadmin**
IMC MGMT IP Address	192.168.0.100
IOC IP Addresses	192.168.1.11 192.168.2.11

- Serial port settings are 57600 baud, 8N1, Flow Control – None.
- After configuring IP and VLAN parameters, be sure to use the CLI command to restart the IP interface in order to apply the changes. It is recommended that the settings be verified with the “show ip status” command.
- In the port redundancy mode (bonded), the configuration from IOC Ethernet port 1 will be used for both ports.
- In the port redundancy mode (bonded), the same type of SFP (multi-mode, single-mode, or electrical) must be installed in both IOC ports. Symmetricom highly recommends that both SFPs have the same performance specifications, especially timing characteristics.
- For card redundancy, the configuration for IOC1 is used for both cards. The IOC1 configuration is also used if the system includes only one IOC which is installed in the IOC2 slot.
- TimeProvider 5000, by default, uses IP addresses 172.16.250.8 through 172.16.250.63 internally. These addresses should not be used for external devices attached to the unit.
- If using a gateway, then all IP interfaces and the VLAN interface should be configured with the proper gateway IP address. If not using a gateway, then configure the TP5000 to not use a gateway by setting the gateway address to 0.0.0.0.
- During power-up and rebooting, messages will be displayed on the EIA-232 console port. The messages are normal and should be ignored.
- Both -48VDC power supply inputs should be connected to avoid generating -48V alarms.
- PTP slaves (clients) should not send unicast negotiation requests faster than once every 10 seconds.
- If the IP interface is disabled, with the port in non-redundant mode, some PTP configurations for that interface can't be set.
- Upgrades use SCP for secure FTP transfer and therefore SSH firewall applies. Both SSH and SFTP firewalls need to be “allowed” for upgrades.
- TimeProvider 5000 IOC only supports full-duplex 100/1000 connections. Ethernet hubs are half-duplex and therefore not supported.

- SNMP supports adding/deleting one row at a time for SNMP users, trap users, communities, SNMP managers, and CLI users. This also includes multiple accesses to the TimeProvider 5000 from the same or different SNMP managers. Refreshing after making changes is necessary.
- For SNMPv3, the following protocols are supported:
 - Authentication: HMAC-MD5 and HMAC-SHA
 - Privacy: CBC-DES and CFB-AES128
- For SNMPv3 traps, both a user and a trapuser need to be configured identically. In addition, the manager should use the desired user to connect to the TimeProvider 5000. This will ensure that a SNMPv3 trap will be successfully received by the manager using the corresponding trapuser username.
- SNMP does not support the features added with revision 1.3.7.
- The active IOC may switch during insertion of an IMC.
- Modules should not be removed and inserted more frequently than once every 2 hours.
- The TimeProvider 5000 only supports the active mode of FTP; it does not support the passive (PASV) mode.
- Settings for input priorities, input ssm value (PQL value), and input port state are changed to the default values when upgrading from 1.2.3 to a higher revision.
- IMC expansion port should be connected to IN-1 of expansion shelf.
- If PTP static client unreachable alarms are active when PTP is restarted or the IP interface is restarted, then the alarms will be cleared and then set. This results in extra alarm events in the log.
- DTI connection from IMC to expansion shelf must be enabled at both IMC and expansion shelf. See "set exp-if dti" CLI command. May lose expansion shelf management connection if you connect IMC expansion port to IN-2 port of expansion shelf and DTI is disabled or a faulty cable is used.

Upgrading to Revision 2.0.4

Special care must be used when upgrading to 2.0.4. Do not use an IMC running revision 1.1.x through 1.3.x in a system with the IOC or expansion shelves running 2.0.4. Use the recommended procedures below (see user's guide for details of commands and upgrade procedure):

Option 1

For simple upgrading, but no protection of outputs:

1. Verify that SSH or telnet connection to IMC is available
2. Upgrade IMC to 2.0.4
3. Upgrade IOC1 to 2.0.4, and if present, IOC2
4. Upgrade expansion shelves to 2.0.4, if present

5. Reboot system with "reboot system" CLI command

Option 2

To preserve outputs in a redundant system:

1. Verify that SSH or telnet connection to IMC is available
2. Upgrade IMC to 2.0.4
3. Reboot IMC
4. Upgrade standby IOC
5. Reboot standby IOC
6. Wait until IOC completes warm-up
7. Make standby IOC active with "set ioc-state" CLI command
8. Verify IOC switch state with "show ioc-state" CLI command
9. Upgrade other IOC, which is now in standby mode
10. Reboot IOC which was just upgraded
11. Upgrade expansion shelves to 2.0.4 if present
12. Reboot each expansion shelf

If multiple shelves are being used for redundancy, then reboot first shelf and allow it to become locked before rebooting the redundant shelf.

Using the Release CD

To launch the CD for Microsoft Windows, insert the CD into your computer's CD-ROM drive, then do the following:

- In Windows Explorer, double-click on the PDF documentation file for your product.

Available Documentation for Setup and Configuration

- Software Release Notice (this document)
- *TimeProvider 5000 User's Guide* (098-00028-003)
- *TimeProvider E10 Ethernet PTP/SyncE Expansion Shelf User's Guide* (098-00360-000)
- *TimeProvider E30 E1/1PPS+TOD Expansion Shelf User's Guide* (098-00364-000)
- TimeProvider 5000 SNMP Agent User's Guide (098-00385-000)
- SNMP MIBs

This Software Release Notice and the User's Guides are included in PDF format on the CD. Use Adobe Acrobat Reader to open the appropriate file on the CD.

You will need the version of Adobe Acrobat Reader that is appropriate for your Operating System to view and print these documents. If you don't have Acrobat Reader already installed on your system, you can install it from the CD or download it from Adobe's Web site (<http://www.adobe.com>).

Where to Find Installation Procedures

Please refer to the *TimeProvider 5000 User's Guide* for instructions for installing and updating the software.

Contacting Technical Support

If you encounter any difficulty installing the update or operating the product, contact Symmetricom Global Services at:

U.S.A. Call Center:

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