



## **TrangoLINK GigaPlus**

### **Software v3.0 Release Notes & Upgrade Instructions**

**2 March 2012**

## TrangoLINK GigaPlus v3.0 Release

### The release consists of the following software images

FPGA version:	0027040B
OS version	<b>2p6r22b0D030212</b>
FW version	<b>3p0r0D030212</b>
PIC version	62
Modem Version	1
SP ODU FW version	27 <b>*Only select SP-ODU's are supported</b>
HP ODU FW version	150410
HP1 ODU FW version	060211
HP2 ODU FW version	142

Bold typeface indicates new images for this release.

### Supported Modulation/Symbol rate combination in this release

BW(MHz)	Symbol Rate (Msps)	QPSK	QAM16	QAM32	QAM64	QAM128	QAM256
4	3.75	6	9	15	18	21	23
5	4.3	8	12	19	24	27	31
7	5.6	10	20	25	31	36	40
8.33	7.2	13	26	33	40	46	52
10	8.32	15	30	37	46	53	60
12.5	10.8	20	40	49	60	70	78
14	12.2	22	45	55	67	78	88
20	17.42	31	63	78	96	111	126
25	21.8	39	80	99	120	140	160
28/30	26	47	95	118	142	167	192
40	34.82	63	128	159	192	225	256
50	43	78	157	195	238	277	318
55/56/80	49.5	90	181	225	275	320	365*

*\*375 Mbps support available on speed 80 qam256 [Ethernet Only, Non-ACM Mode]*

### New Features

1. IBM Tagging on/off allows use of in band management with or without a VLAN tag. Previously a VLAN tag was required to manage the radio through one of the data ports. It is still recommended that a dedicated, high priority VLAN be used for management to ensure the ability to manage the radio in the event of traffic congestion.
2. Custom speed profile support allows the use of custom speed profile (binary) for specific needs. User may load as many custom profiles on the IDU as required. The file loaded will override the default profile with the same speed, modulation, datapath and ACM

setting. The custom profile may be removed at a later time and the user may revert to the default profile for the given speed combination.

3. New T1/E1 binary files for reduced voltage. Voltage should be ~5.4 volts peak-to-peak now. **Note: Because of binary change, radios will not link with different firmware.**
4. Ethernet port rate and utilization counters provide individual port utilization in Mbps and percentage over the period of twenty seconds.
5. Remote link status reporting is added to display locally the status of the remote end radio. Remote status will only show when local radio link is locked. The status indicator will provide information on the remote link lock, RSSI, MSE and current Rx modulation profile.
6. Two level access is added to the web interface to provide a view only user and a user with configuration rights.
7. Web interface error messages are updated with more detail on the failed command.
8. Automatic loopback diagnostic function. This feature will disable Ethernet ports, turn ODU power off, run loopback IF and loopback DIG, capture the results to a file for later display, then turn ODU power back on and enable the Ethernet ports. This is especially useful for running a diagnostic loopback on a remote radio.
9. New threshold parameter for link down. Allows the link down threshold to trigger alarm, trap, RPS or hardware switchover as desired.
10. Link status recording for future diagnostic comparison. This provides an internal tool to capture the current system condition when radio is in a good running condition as a baseline for future reference or diagnostic data.
11. Reload in a given time allows the user to pre-program the radio to reboot the system after a given time (in minutes). This is useful for testing a feature that may cause link loss or other management inaccessibility. After the given time, the radio will reboot to the saved configuration and potentially provide a backup method to recreate the link.
12. Linktest feature added to the web interface. This allows users to run a repetitive linktest similar to the CLI command and display the result in the web browser.
13. Add web page refresh rate configuration to allow the user to set the frequency the web pages refresh from 5-60 seconds. Setting the refresh to 0 will cause the pages to not auto refresh.
14. Quality of Service improvements including DSCP and WRR support. Allows the user to configure QoS setting including QoS mode (strict or weighted round robin) and map DSCP tags to priority buckets for each port.
15. General web interface enhancements
  - a. Configure syslog level.
  - b. Configure threshold settings.
  - c. Change SNMP community strings.
  - d. Display min & max tx freq range when configuring ODU frequency.
  - e. Remote status display at top status bar.
  - f. Uptime to use system uptime instead of SNMP uptime.
  - g. Display last saved date and time for configuration and status save.

16. SNMP OID harmonization between products. With this release, the SNMP MIB will be compatible with future software releases across PTP products. (i.e. ApexPlus 3.0 will use the same OIDs for compatible features.)
17. Allow standard SNMP OIDs for linux features to monitor the radio CPU. (Ethernet ports that show as part of the standard IF-MIB are for the radio management and not the radio's data ports as the data ports do not run through the CPU.)
18. No longer required to turn opmode off for frequency changes.
19. RSSI & MSE to display as N/A in the web interface when no ODU is detected.
20. Default speed change to 30 MHz qam32 to provide maximum bandwidth and system gain with no license key.
21. TDM status reorganized on web interface. Only the relevant status indicators will display for T1 or E1 mode. Values that are on/off are indicated with a green or red dot instead of 1 or 0 as the used to be.

#### Bug Fixes

1. Command server crash which caused management to become unresponsive has been fixed and additional diagnostic functionality has been added to catch any future issues.

#### Known Limitations

1. BER is based on CRC errors and might not reflect the accurate BER on live data. WA: Use External test equipment to measure accurate BER for testing
2. No current detect for HP2 ODU to indicate loss of communication, so software based mechanism has been implemented.
3. In 1+1 mode, if standby radio is rebooted, a switchover on the far side may occur if default opmode is on. To avoid this, turn default opmode off on the ACTIVE unit, then save the config as this will be saved in the standby. Then reboot the standby radio. The standby will come up with default opmode off. After rebooting the standby, the default opmode on the active may be set back to on and the configuration saved.
4. IBM may not function properly if two ports are connected to the same switch on the same vlan. Pings from the radio will show duplicate responses as traffic will be sent out both ports from the radio to the switch. WA: Only connect or enable one port from switch to IDU, disable smart mode and let spanning tree disable one port.
5. After configuration is removed, a saved date will still show for the saved config, even though the saved config is blank. WA: The user must save the config after config remove, reboot and configuring the radio.
6. With IBM enabled, the radio will not pass more than 100 Mbps of non-unicast (or unknown destination MAC) traffic. WA: Disable IBM or ensure no more than 100 Mbps of traffic that will result in a broadcast.
7. If redundancy cable is connected between two units, the radios should be in 1+1/failover mode. If not configured for failover mode with the cable attached, the Ethernet ports may indicate incorrect status on the front panel. Solution: Remove the redundancy cable and reboot the radios.

## Software Image Upgrade Procedure from v1.3.0 or v1.3.3, FTP

**If you are upgrading from 1.3.2, please see the TFTP instructions on the following pages.**

**If upgrading from an older version, please upgrade to 1.3 before upgrading to 1.3.3.**

Please review these instructions before starting to ensure that you have adequate time scheduled to perform the upgrade as well as fully understand the implications of the process. While all software is tested by Trango Systems on current hardware before being released, it is strongly suggested that you initially perform this upgrade on your lab equipment and not initially in a production environment and test for any and all needed functionality before deploying.

**Image upgrade for IDU will be copied to flash during image upgrade (bootimage upgrade idu) and will not affect the working link until the system is rebooted / power cycled.**

### **\*\*\* CAUTION \*\*\***

**If the PIC version is not already 62, after upgrading the firmware, the radio may not have ODU communication. The firmware upgrade will need to be applied again and the radio rebooted a second time for the PIC image to finish the upgrade process.**

**Note: Because there will be no ODU communication, this upgrade is not recommended over the air. After the first reboot, an OUT-OF-BAND method of transferring the firmware file to the radio must be utilized. Your link may be down until the images are upgraded and the radio rebooted a second time!**

To perform the firmware upgrade using FTP, use the *ftp* command to load the images into memory, then the *bootimage upgrade* commands. The FTP method is much faster and has built in error checking than TFTP. If you prefer to use the TFTP method, instructions can be found in the user's manual or you may follow the tftp instructions provided in the subsequent upgrade paths to copy the necessary files.

All that is needed is the IP address of the ftp server, a username/password, and the filename to be uploaded. The new file to be uploaded should be placed on the server. The ftp server will prompt for the password before allowing access.

If the GigaPlus is configured with a route to the Internet, you can even pull the new software images directly from our ftp server. If you would rather load them into a local server, please change the IP addresses and directory structure in the examples below as needed. You will need an appropriate default gateway setup in the GigaPlus as well as a route to the Internet

through management or IBM. Trango suggests checking connectivity with ping from debug prompt before attempting the ftp upgrade. To do that, login to the CLI view node, then config node and then debug node. Ping 74.62.177.9 to test for connectivity to our FTP server.

1. Plan to use the file directly from Trango's FTP server or copy it to your own local FTP server. We recommend verifying the file name and path to ensure that nothing has changed since this document was prepared.
2. Note down the current version of the firmware loaded in the radio (CLI version).
3. Connect Management Ethernet port to PC.
4. Configure an IP address in unit if not already done.
5. Start a Telnet or SSH session. Log into the GigaPlus, go to config node, and then debug node to test connectivity to your ftp server.

```
Debug> ping 74.62.177.9
```

```
PING 74.62.177.9 (74.62.177.9): 56 data bytes
```

```
64 bytes from 74.62.177.9: seq=0 ttl=127 time=0.965 ms
```

```
64 bytes from 74.62.177.9: seq=1 ttl=127 time=10.009 ms
```

Press ctrl+c to stop the ping.

```
--- 74.62.177.9 ping statistics ---
```

```
2 packets transmitted, 2 packets received, 0% packet loss
```

```
round-trip min/avg/max = 0.965/5.487/10.009 ms
```

If the ping test is not successful, check your IP address and default gateway to ensure that those are addresses that will reach the Internet through your firewall.

6. After verifying connectivity, return to config node and save your config if not already done so:

```
Debug> cli
```

```
Trango System: TrangoLINK GigaPlus Command Line Interface v1.3.0
```

```
(CLI-view)# config
```

```
Password: trango
```

```
(CLI-config)# config save
```

```
New configuration saved
```

```
SUCCESS
```

7. Run the *ftp* command from the command line as follows to open access to the server:

```
(CLI-config)# ftp 74.62.177.9 giga
```

```
password: giga4773
```

If prompted for the password multiple times, check the connectivity to the server by pinging the FTP server IP address from the debug prompt. You may also test the ftp credentials from a laptop or other computer on the same network subnet.

8. Next, get the file from the FTP server by typing the get command from the ftp prompt.

```
ftp> get TL-GigaPlus/idu_GigaPlus_v3.0.tar.gz
#####
```

*Get operation successful with passive mode*

9. Logout of the ftp session

```
ftp> logout
```

10. Process the upgrade using the bootimage upgrade idu command.

```
(CLI-config)# bootimage upgrade idu
```

```
.....
.....
.....
```

**SUCCESS**

11. After the process returns success, reboot the radio for the new image to be loaded into active memory.

```
(CLI-config)# reboot
```

12. Check the new version on the system with CLI command “version”. It should match with the versions listed below. **In case of mismatch version, please perform the upgrade again from step 1. If no link, or no ODU communication, please transfer the firmware to the radio and perform the upgrade again.**

FPGA version:	0027040B
OS version	<b>2p6r22b0D030212</b>
FW version	<b>3p0r0D030212</b>
PIC version	62
Modem Version	1
SP ODU FW version	27
HP ODU FW version	150410
HP1 ODU FW version	060211
HP2 ODU FW version	142

*Please follow all the instructions as listed above in the upgrade instructions. In the case of version mismatch on the system (local/remote/system) the system is NOT guaranteed to work. In the event of a power failure during the upgrade process or any mismatch conflict, please contact technical support <techsupport@trangosys.com> for further assistance. Serial console remote access to the IDUs might be required in the event of such failure. It is suggested that all customers have at least one serial/console cable available at each site.*

**Please don't make any implicit assumptions.  
In case of any doubt please contact technical support for clarification.**

## Software Image Upgrade Procedure from v1.3.2 to 3.0 via TFTP

**If you are upgrading from an older version, please upgrade to 1.3 or 1.3.3 before upgrading to 3.0.**

Please review these instructions before starting to ensure that you have adequate time scheduled to perform the upgrade as well as fully understand the implications of the process. While all software is tested by Trango Systems on current hardware before being released, it is strongly suggested that you initially perform this upgrade on your lab equipment and not initially in a production environment and test for any and all needed functionality before deploying.

**Image upgrade for IDU will be copied to flash during image upgrade (bootimage upgrade idu) and will not affect the working link until the system is rebooted / power cycled.**

### **\*\*\* CAUTION \*\*\***

**If the PIC version is not already 62, after upgrading the firmware, the radio may not have ODU communication. The firmware upgrade will need to be applied again and the radio rebooted a second time for the PIC image to finish the upgrade process.**  
**Note: Because there will be no ODU communication, this upgrade is not recommended over the air. After the first reboot, an OUT-OF-BAND method of transferring the firmware file to the radio must be utilized. Your link may be down until the images are upgraded and the radio rebooted a second time!**

1. Note down the current version of the firmware loaded in the radio (CLI version).
2. Connect Management Ethernet port to PC.
3. Configure an IP address in unit if not already done.
4. Start a Telnet session.
5. Turn TFTPd service on the Radio ON with commands:  
*(cli-config)tftpd on*
6. Send New Firmware Image to target Radio.

In DOS window, type command:

```
dos> tftp -i [ip address] put idu_GigaPlus_v3.0.tar.gz  
ip address          IP Address of the Radio.
```

In Mac/Linux window, type commands:

```
# tftp
tftp> mode binary
tftp> connect [radio ip address]
tftp> put idu_GigaPlus_v3.0.tar.gz
tftp> quit
```

- After the files are transferred on the Radio. Use the “bootimage upgrade idu” command from the config mode on the radio.

The command prompt will return with SUCCESS/ERROR once the image is copied to flash.

```
(cli-config) bootimage upgrade idu // for all idu image upgrade
```

The new image will take effect once the radio is rebooted.

- Reboot the radio:
 

```
(cli-config) reboot
```
- Check the new version on the system with CLI command “version”. It should match with the versions listed below. **In case of mismatch version, please perform the upgrade again from step 1. If no link, or no ODU communication, please transfer the firmware to the radio and perform the upgrade again.**

FPGA version:	0027040B
OS version	<b>2p6r22b0D030212</b>
FW version	<b>3p0r0D030212</b>
PIC version	60 or 62
Modem Version	1
SP ODU FW version	27
HP ODU FW version	150410
HP1 ODU FW version	060211
HP2 ODU FW version	142

*Please follow all the instructions as listed above in the upgrade instructions. In the case of version mismatch on the system (local/remote/system) the system is NOT guaranteed to work. In the event of a power failure during the upgrade process or any mismatch conflict, please contact technical support <techsupport@trangosys.com> for further assistance. Serial console remote access to the IDUs might be required in the event of such failure. It is suggested that all customers have at least one serial/console cable available at each site.*

**Please do not make any implicit assumptions.  
In case of any doubt please contact technical support for clarification.**

## GigaPlus Software Change History

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### Software Version 1.3.3

FPGA version:	0027040B
OS version	<b>2p6r22b0D121311</b>
FW version	<b>1p3r3D121311</b>
PIC version	60 or 62 support (image not included)
Modem Version	1
SP ODU FW version	27
HP ODU FW version	150410
HP1 ODU FW version	060211
HP2 ODU FW version	142

#### Bug Fixes

1. TDM counter retrieval which previously could have caused a crash in the command server, resulting in management unresponsiveness. Does not impact Eth only datapath.
2. New T1/E1 binary files for reduced voltage. Voltage should be ~5.4 volts peak-to-peak now. **Note: Because of binary change, radios will not link with different firmware.**
3. FTP operations restored which had not been included in the 1.3.2 release.
4. Exit from CLI view node is not a permitted command. Previously this would cause future telnet sessions to be rejected.

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### Software Version 1.3.2

FPGA version:	0027040B
OS version	<b>2p6r22b0D092711</b>
FW version	<b>1p3r2D092711</b>
PIC version	62
Modem Version	1
SP ODU FW version	27
HP ODU FW version	150410
HP1 ODU FW version	060211
HP2 ODU FW version	142

#### Bug Fixes

1. Update internal vlan mapping for hardware revision two IDUs.

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### Software Version 1.3.1

FPGA version:	0027040B
OS version	<b>2p6r22b0D091911</b>
FW version	<b>1p3r1D091911</b>
PIC version	62
Modem Version	1
SP ODU FW version	27
HP ODU FW version	150410
HP1 ODU FW version	060211
HP2 ODU FW version	142

### New Features

1. Support for HP1 ODU.
2. Remove support for SP 18E ODU.
3. Support for new hardware revision IDU.
4. Ethernet internal vlan IDs to standardize ports with ApexPlus.
5. Enhanced support against management unresponsiveness.

### Bug Fixes

1. HP2 bandwidth setting was mapped incorrectly and has been enhanced.
2. SP 18 tx PLL update.

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## Software Version 1.3.0 PIC 62

FPGA version:	0027040B
OS version	2p6r22b0D042811
FW version	1p3r0D042811
PIC version	<b>62</b>
Modem Version	1
SP ODU FW version	27
HP ODU FW version	150410
HP2 ODU FW version	142

### New Features

1. Enhanced protection against short circuit on IF/N connector.

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## Software Version 1.3.0

FPGA version:	<b>0027040B</b>
OS version	<b>2p6r22b0D042811</b>
FW version	<b>1p3r0D042811</b>
PIC version	<b>60</b>
Modem Version	1
SP ODU FW version	27
HP ODU FW version	150410
HP2 ODU FW version	142

### New Features

1. HP2 ODU Support allows expanded frequency range coverage.
2. FTP file transfer enables easier software upgrade and transfer of diagnostic files.
3. Additional diagnostic information provided in siglevel command.
4. New MIB OID's to display float values as integers for greater SNMP manager compatibility.
5. Mode long/short push button support to reset values. Short push will reset IP and all passwords and snmp community strings to default values. Long push resets all other configuration parameters to default.
6. Update Loopback command to reflect current hardware features.

7. Show internal port counters in status port for additional debugging.
8. Updates to 1+1 Hot Standby implementation.
9. Web Interface/snmp timeout extended to stop false timeout messages for items like odupower on.
10. Alignment mode renamed alignment\_sp to indicate that it is functional for SP ODU's only.
11. Display ODU model and serial as N/A if not connected after reboot instead of storing previously connected information.

### Bug Fixes

1. ATPC timing improvements when link up/down is triggered.
2. Loglevel implementation.
3. TDM ports default to ON after system initialization.
4. Erroneous reporting of errors in status TDM for port 8.
5. Display ODU Serial ID.
6. SP ODU filter selection.
7. Hardware alarm setting enabled.
8. Guard time range for 1+1 Hot Standby.
9. Improvement of 1+1 Hot Standby functionality and reliability.
10. Modified SNMP OID for IP Address fields from string to IPAddress for improved reliability.
11. Threshold display and setting actions.

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## Software Version 1.2.0

FPGA version	<b>0014100A</b>
OS version	<b>2p6r22b0D010611</b>
FW version	<b>1p2r0D010611</b>
PIC version	<b>59</b>
Modem Version	<b>1</b>
SP ODU FW version	<b>27</b>
HP ODU FW version	<b>150410</b>

### New Features

1. 1+1 Failover mode  
To support 1+1 failover feature with 4 IDU and 4 ODU setup. Active and Standby units are synchronized at all times and whenever Active unit has met the failure condition, the Standby will take over to resume the data transfer. This feature is to give the system more robustness and reduce downtime.
2. New "freq\_duplex" command for configure the Tx Rx duplex value. This is valid only for HP ODUs.
3. Add new OID to display some system parameter in integer support certain SNMP manager that does not display OID in float val.
4. Threshold action can be configured as more than one action. Allows users to have more than one action executed when the threshold values violets the configured settings.

The actions to be allowed are alarm1, alarm2, snmptrap and switchover and they can all be configured as part of the actions.

5. New debugging CLI "siglevel" to better diagnostic the link condition.

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## Software Version 1.1.2

FPGA version:	0006040A
OS version	<b>2p6r22b0D121410</b>
FW version	<b>1p1r2D121410</b>
PIC version	5
Modem Version	1
SP ODU FW version	27
HP ODU FW version	150410

### New Feature

1. New "freq\_duplex" command for configure the Tx Rx duplex value. This is valid only for HP ODUs.

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## Software Version 1.1.1

FPGA version:	0006040A
OS version	<b>2p6r22b0D092810</b>
FW version	<b>1p1r1D092810</b>
PIC version	5
Modem Version	1
SP ODU FW version	27
HP ODU FW version	150410

### Bug Fixes

1. Ghost packet fix. Modem counters increment unreasonably when radio loses link with bad MSE values.
2. Rare IDU hang issue after system boot-up on IDU. No access to the IDU until power cycle.

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## Software Version 1.1

FPGA version:	0006040A
OS version	<b>2p6r22b0D080610</b>
FW version	<b>1p1r0D080610</b>
PIC version	5
Modem Version	1
SP ODU FW version	27
HP ODU FW version	150410

New Features

1. 56Mhz channel support for 11G. No more speed validation.
2. Channel width (filter) setting to ODU at speed command based on new hardware Idu of 0x08, 0x09, 0x0a.
3. ODU RX AGC loop disable for new ODU HWID of 0x08, 0x09, 0x0a.
4. Web interface: Version section moved to "System Status" tab.
5. HP ODU modulation option 7 support (QAM256) with fall back to option 6 (QAM128) if fails.
6. HP ODU upgrade stability improvement.
7. Add ODU model prefix of "SP" for all SP ODUs and display HW ID.
8. Add HP model # for HP if model # is not pre-programmed.
9. Base license key 1 update to throughput 118 Mbps.
10. New siglevel debug command to track attn./idu sign levels from config node.
11. Port Utilization duration changed from 1min to 20sec.
12. No automatic ODU power off in case of ODU communication failure.

Bug Fixes

1. Web interface: IP format configuration fix from web interface
2. Web interface: Diagnostic spelling error on the page.
3. Display datapath in "text" instead of the numeric representation from config view.
4. 18G boundary frequency fix (18135 for Band 1, 19265 for Band 2. IF fixed to 315 instead of special values)
5. Gateway setting re-issue after IP / IBM configuration change
6. Retrieving Serial ID after system init to resolve timing issue with IDU serial #
7. Fixed power setting at system bootup with ATPC enable.
8. Fix for jumbo packet counter display.