



Trango StrataLINK 24

Software v2.0

Release Notes &

Upgrade Instructions

**FIRMWARE UPGRADE FOR WIRELESS COMPATIBILITY BETWEEN SL24
AND SL24E RADIO MODELS.**

December 9, 2014

Table of Contents

- Image Updates
- Supported Modulation/Symbol rate combination
- New Features
- Notes
- Hardware Limitations
- Field Upgrade Process
- Upgrade Instructions – FTP
- Upgrade Instructions – TFTP
- Revision History

Trango StrataLINK 24 v2.0 Release

For Model SL-24 and SL-24-X ONLY – DO NOT load into SL-24-E or SL-24-EX models. THIS FIRMWARE UPGRADE WILL ESTABLISH A WIRELESS LINK BETWEEN THE SL24 AND SL24E RADIO MODELS. IT IS ONLY INTENDED FOR FIELD REPLACEMENT UNITS WHERE SAME MODEL RADIOS ARE NOT AVAILABLE. THIS FIRMWARE IS ONLY AVAILABLE BY REQUEST. PLEASE CONTACT TECHNICAL SUPPORT.

The release consists of the following software images

FPGA version:	0118040E
OS version	2p6r22b0D120514
FW version	2p0r0D120514
Modem Version	6201.6.47

Bold typeface indicates new images for this release.

Supported Modulation/Symbol rate combination in this release – Compression ON

Full Duplex Capacity (Mbps) - 1518/72 byte IPV4 packets UDP + VLAN Tag									
Channel Width/Sym rate (MHz)	QPSK	8PSK	QAM 16	QAM 32	QAM 64	QAM 128	QAM 256	QAM 512	QAM 1024
10/7.5	15/20	23/33	30/44	37/57	46/72	53/84	60/90	68/102	NA
14/12.2	22/34	34/53	45/70	55/84	67/102	78/120	88/137	100/156	113/174
20/16	31/48	47/73	63/96	78/120	96/150	111/173	126/198	143/222	162/251
25/20.8	39/61	60/90	80/126	99/150	120/186	140/216	160/251	182/282	206/323
30/26	47/73	71/108	95/144	118/186	142/222	167/257	192/300	218/342	247/383
40/34.8	63/96	96/150	128/198	159/246	192/300	225/353	256/401	291/456	329/515
50/42	78/120	118/180	157/246	195/305	238/371	277/431	318/497	361/569	407/641
60/52	95/144	141/222	189/294	234/366	287/450	333/522	391/612	431/678	487/726

New Features

1. ATPC feature is available.
2. DCHP feature is available.
3. Packet (green) buffer size 2000 Kb
4. 8 QOS queues are available for user traffic prioritization.

Notes

1. For SL24 and SL24E radio models to be compatible, firmware on SL24E must be 3.1.1 or higher version.
2. After 2.0 firmware upgrade, all traffic Vlans must be added to the SL24 radios. This can be done via the web interface and the CLI interface.
3. Port Priority not functional
4. Pause on/off not functional

Hardware Limitations

Before firmware upgrade, the customer must check the serial number of the radio. If the serial number is 7481397 or higher. The management of the radio must be switched to IBM and port ETH2 must be turned "off".

Field Upgrade Procedure

For field upgrade please follow the below steps.

1. Collect all Vlan information from SL24E radio model.
2. Upload firmware version 2.0.0 to SL24 radio and execute the upgrade.
3. After reboot access the SL24 radio model and add the specific Vlans for user traffic. This can be performed via the web interface or CLI interface.
4. Verify all settings and save configuration.

Note.- SL24E radio must have Encryption feature disabled to establish a wireless link.

Software Image Upgrade Procedure – FTP (All Versions)

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 SL24 will be copied to flash during image upgrade (bootimage upgrade) and will not affect the working link until the system is rebooted / power cycled.

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 subsequent pages.

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 SL-24 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 SL-24 as well as a route to the Internet through out of band management or IBM.

1. Plan to use the file directly from Trango's FTP server or copy it to your own local FTP server. It is recommend to verify 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 SL-24, go to config node, and then debug node to test connectivity to your ftp server.

```
(CLI-view)# config  
Password: trango  
(CLI-config)# debug
```

```

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.

- After verifying connectivity, return to config node and save your config if not already saved:

```
Debug> cli
```

```
Trango System: Trango StrataLink 24 Command Line Interface v1.2.4
```

```

(CLI-view)# config
Password: trango
(CLI-config)# config save
New configuration saved

```

```
SUCCESS
```

- 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.

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

```

ftp> get TL-StrataLink/SL24_v2.0.tar.gz
#####

```

```
Get operation successful with passive mode
```

- Logout of the ftp session

```
ftp> logout
```

- Process the upgrade using the bootimage upgrade command.

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

```

.....
.....
.....

```

```
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 earlier. **In case of mismatch version, please perform the upgrade again from step 1.**

FPGA version:	0118040E
OS version	2p6r22b0D120514
FW version	2p0r0D120514
Modem Version	6201.6.47

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 open a support request at support.trangosys.com for further assistance. Serial console remote access to the OMUs 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 - TFTP (All Versions)

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 SL24 will be copied to flash during image upgrade (bootimage upgrade) and will not affect the working link until the system is rebooted / power cycled.

Contrary to the FTP method, the TFTP method does not require access to an FTP server, but instead requires the use of a TFTP client included in many operating systems. Third party tools such as tftpd32 can also be used.

1. Download the software image from the support portal or FTP server to your local computer.
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 SL-24, go to config node and save your config if not already saved:

Trango System: Trango StrataLink 24 Command Line Interface v1.2.4

```
(CLI-view)# config
Password: trango
(CLI-config)# config save
New configuration saved
```

SUCCESS

6. Turn TFTPd service on the Radio ON with command:

```
(CLI-config)# tftpd on
```

7. Send New Firmware Image to target Radio. (This is not done inside the radio and is done in another window on your local computer.)

In DOS window, type command:

```
dos> tftp -i [ip address] put SL24_v2.0.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 SL24_v2.0.tar.gz
tftp> quit
```

- After the file is transferred to the Radio, use the <bootimage upgrade> command from the config mode on the radio.

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

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

```
SUCCESS
```

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

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

- Check the new version on the system with CLI command “version”. It should match with the versions listed earlier. **In case of mismatch version, please perform the upgrade again from step 1.**

FPGA version:	0118040E
OS version	2p6r22b0D120514
FW version	2p0r0D120514
Modem Version	6201.6.47

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 open a support request at support.trangosys.com for further assistance. Serial console remote access to the OMUs 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.**

StrataLINK 24 Software Change History

Software Version 1.2.4

New Features

1. Added new commands to the CLI interface.
 - a. Link_position <0: local ,1:remote>
 - b. XPIC HV <0: Horizontal , 1: Vertical>
It can be used to display current radios polarization when XPIC is not enabled.
2. Web interface will display peer unit MAC address

Bugs Fixed

1. Removed “remote management “ feature
2. Syslog timestamp will be the same as NTP system time.

FPGA version:	0118040E
OS version	2p6r22b0D082514
FW version	1p2r4D082514
Modem Version	6201.4.4

Software Version 1.2.3

Bugs Fixed

1. Power level is set correctly upon initial radio boot up.

FPGA version:	0118040E
OS version	2p6r22b0D071614
FW version	1p2r3D071614
Modem Version	6201.4.4

Software Version 1.2.2

FPGA version:	0118040E
OS version	2p6r22b0D063014
FW version	1p2r2D063014
Modem Version	6201.4.4

Bugs Fixed

1. Bug fix implemented to resolve certain management stability issues.

Software Version 1.2.1

FPGA version:	0118040E
OS version	2p6r22b0D051214
FW version	1p2r1D1051214
Modem Version	6201.4.4

Bugs Fixed

2. Improved transmitter power accuracy when setting TX power lower than -10 dbm

Software Version 1.2.0

FPGA version:	0118040E
OS version	2p6r22b0D042314
FW version	1p2r0D1042314
Modem Version	6201.4.4

New Features/Enhancements

1. NTP server this feature can be setup through both management interfaces CLI and WEB interface. User can specify the ntp server ip or name. Local dns server ip is required to setup server name.
2. Syslog server is supported this can be setup through both management interfaces CLI and WEB interface.
3. Loglevel has new settings for more detailed reporting in the syslog.
4. Radio configuration file can be exported and imported from the web interface.

Bugs Fixed

3. General enhancement to speed up response time from web interface and command line interface. This release will also improve overall management stability.
4. Optimized RSSI over temperature variation.

Software Version 1.1.5

FPGA version: 0112030D
OS version **2p6r22b0D100813**
FW version **1p1r5D100813**
Modem Version 6201.4.4

New Features/Enhancements

1. Timer module enhanced to free up more system processing time to support application operation

Software Version 1.1.4

FPGA version: 0112030D
OS version **2p6r22b0D090613**
FW version **1p1r4D090613**
Modem Version 6201.4.4
Bold typeface indicates new images for this release.

New Features/Enhancements

1. None

Bug fixes

1. Fixed a bug that prevents management of radio from web or cli while still passing traffic
2. Fixed remote link status that displayed "Unlocked" state when the link was "Locked"
3. Fixed problem that would potentially cause traffic to stop after changing the speed
4. Fixed survey function bug in web interface that would sometimes show wrong RSL
5. Fixed loopback_auto display incorrect BER format
6. Adding setting date command on the web interface
7. Fixed Reload cancel bug

Notes

1. Use config as the username for the config login on web interface.
2. RF In/Out counters read slightly lower than actual number of packets going over the air. GE1 and GE2 port counters are always accurate.
3. Port Priority not functional
4. Pause on/off not functional
5. ACS function removed for this release due to increased time to change speed. This feature will be added back in next software release.
6. BER on the loopback_auto display may show a small error rate which is decreasing.

Software Version 1.1.2

FPGA version: 0112030D
OS version **2p6r22b0D071613**
FW version **1p1r2D071613**
Modem Version 6201.4.4

Bold typeface indicates new images for this release.

New Features/Enhancements

8. None

Bug fixes

1. Fixed management interface lockup that occurs when sending SNMP Traps
2. Fixed Reset password button on the web to remove the web config password in addition to the view password.

Notes

7. Use config as the username for the config login on web interface.

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. Including a space in a password field can cause management unresponsiveness. Ensure that no spaces are used in passwords. If spaces are included, please provide remote access to Trango Support for assistance or request RMA for repair.
3. Refreshing the webpage after selecting reboot may cause the radio to reboot again.
WA: Type in the IP address or hostname again instead of using the refresh button.
4. With IBM enabled, broadcast and multicast traffic is limited to 100 Mbps.
5. RF in/out counters read slightly lower than actual number of packets going over the air.
GE1 and GE2 port counters are always accurate.
6. Port priority is not functional at this time.
7. Pause on/off is not functional at this time.

Software Version 1.1

FPGA version: 0112030D
OS version **2p6r22b0D052013**
FW version **1p1r0D052013**
Modem Version 6201.4.4

New Features/Enhancements

1. Default Configuration: Update some default configuration parameters:
 - a. 8PSK ACM degrade threshold to -17
 - b. QPSK up threshold set to -19
 - c. Tx freq set to 24085
 - d. Log timer set to 15 seconds
 - e. Speed mod max set to 1024 and min to QPSK
 - f. Egress internally set to 40

- g. QoS weight default set to: 1, 3, 6, 9
 - h. DSCP mapping for 18, 20, 22 set to Pri 2
 - i. Temp max set to 85 degrees
 - j. Unit ID set to "StrataLink 24"
2. CLI: Remove egress_margin and bootimage toggle from the CLI as they are not relevant commands.

Bug fixes

1. Misc: Some typo errors on the ACM and symbol rate numbers were corrected.
2. Survey: Fixed a bug with the survey function from the command line interface and the web. The results will agree with each other now.

Software Version 1.0.9

FPGA version:	0112030D
OS version	2p6r22b0D043013
FW version	1p0r9D043013
Modem Version	6201.4.4

New Features/Enhancements

1. Management: Added the *remote_mgmt* command to allow management of the far end radio through the local out of band management port. This option must be enabled on both radios for it to function.
2. QoS: Changed the buffer pause thresholds to ensure highest priority traffic is not dropped when the radio is downshifted to QPSK. The max usable buffer size has increased slightly as well to:
 - a. Queue 0 = 103 Kbytes
 - b. Queue 1 = 105 Kbytes
 - c. Queue 2 = 107 Kbytes
 - d. Queue 3 = 118 Kbytes

Bug fixes

1. Misc: Some typo errors on the ACM and symbol rate numbers were corrected.
2. Survey: Fixed a bug with the survey function from the command line interface and the web. The results will agree with each other now.

Software Version 1.0.8

FPGA version:	0112030D
OS version	2p6r22b0D041713
FW version	1p0r8D041713
Modem Version	6201.4.4

New Features/Enhancements

1. Status remote: Reduce the timer for sending out the current status to the remote unit from 20 seconds to 5 seconds to speed up the updates on the web interface.

2. Tx Power: Adjust transmit power incrementally by 0.1 dB step size at times when user configures the power and also when the tx power loop adjusts the power according to the temperature.

Bug fixes

1. ACM: Make CLI display for acm_info and sysinfo 5 consistent.
2. Counters: Removed dropped air frames from the RF counters since the counter is not accurately reflecting the correct number of dropped frames.
3. Diagnostic: FPGA checking reported failed in the past, removed the incorrect register.
4. IP: Reconfigure gateway after changing IBM tagging or VLAN ID.
5. Management unresponsiveness: Three events were using the same resource and are now independent.
6. Web: DSCP QoS mapping adjusted for global setting from per-port.
7. Web: Fixed display of unit_id (remark) to eliminate trailing characters.
8. Web: Fixed mapping of Tx/Rx PLL to show the correct status.

Software Version 1.0.7

FPGA version:	0112030D
OS version	2p6r22b0D040413
FW version	1p0r7D040413
Modem Version	6201.4.4

New Features/Enhancements

1. Management: Kernel level change to prevent resource conflicts.
2. QoS: Added Q3 Strict and Q2/Q3 Strict modes to compliment all strict and all WRR.
3. QoS: Enable both 802.1p and diffserv option per active port at system init.
4. QoS: Process QoS priority setting at the system initialization to process the highest priority available.
5. Tx Power: Issue power command based on the temperature adjusted power level immediately after setting freq or opmode command instead of waiting for the tx power maintenance to make the change.

Bug fixes

1. Command Server: Fix related to setting variables.
2. QoS: DSCP priority mapping applies to both ports. Removed the per port mapping in favor of a global setting.
3. QoS: Egress margin was not saving across reboot.
4. QoS: Update port weight setting to apply to map to CoS queue as opposed to L2 priority.
5. SNMP: Disable all OIDs that do not apply to StrataLINK.
6. Web: Remove unused OIDs like refresh rate.

Software Version 1.0.6

FPGA version:	0014030D
OS version	2p6r22b0D032513

FW version **1p0r6D032513**
Modem Version 6201.4.4

New Features/Enhancements

1. ACM: Corrected ACM threshold values.
2. Counters: Display In Discards, Out Discards, CRC Errors and Collision Errors in port counters via CLI and web interface.
3. Frequency: Validate the user input frequency according to current bandwidth.
4. IBM: Switch the data port when enabling IBM to maintain management connectivity.
5. IBM: Web interface warning message when switching IBM settings.
6. Siglevel: Display both instantaneous and accumulative FER counters in siglevel.
7. Syslog: Provide the ability to update the timer for logging the STAT messages. This allows the user more or less frequency status updates to be logged.
8. Tx Power: Adjust power level immediately after freq or opmode command instead of waiting for tx power maintenance to adjust for temperature changes.

Bug fixes

1. Counters: BER calculation based on air frames and current link speed.
2. Counters: Calculate the RF port rate based on the rx profile speed, not the tx profile speed.
3. Counters: Change RF total drop error frame to RF total dropped air frames.
4. IBM: Enable MAC address learning in the internal switch to allow natural filtering of known destination unicast traffic from the IBM port. This removes the previous limitation of 100 Mbps for traffic with IBM enabled. Broadcast traffic and multicast traffic will be limited to 100 Mbps with IBM enabled.
5. IBM: Management interface fixed with IBM tagging on to properly configure it with correct vlan ID at system power up.
6. Loopback: Display the correct number of iterations of loopback_auto via CLI.
7. Survey: Recalculate the average and max RSSI when running through the survey.

Software Version 1.0.5

FPGA version: **0001030D**
OS version **2p6r22b0D030113**
FW version **1p0r5D030113**
Modem Version 6201.4.4

New Features/Enhancements

1. Improved power/RSSI values.

Software Version 1.0.4

FPGA version: 0002010D
OS version **2p6r22b0D022613**

FW version **1p0r4D022613**
Modem Version 6201.4.4

Bug fixes

1. Configure the modem port with proper tx rx pause setting.
2. Changing IBM VLAN ID with tagging off previously caused gateway to be lost, now the setting will not change until tagging is enabled.
3. Remove in/out discard counters from CLI and web interface as they were showing erroneous data.
4. Optimize internal buffer size.
5. Improved ACS reliability through radio to radio messaging.
6. Receive maintenance loop.
7. Added ACS up and down MSE restriction, requires 10 dB difference.

Software Version 1.0.2

FPGA version: 0002010D
OS version **2p6r22b0D021113**
FW version **1p0r2D021113**
Modem Version 6201.4.4

Bug fixes

1. Ignore white space at beginning of unit_id and gps_info as a space was being added on each reboot.

Software Version 1.0.1

FPGA version: 0002010D
OS version **2p6r22b0D020113**
FW version **1p0r1D020113**
Modem Version 6201.4.4

New Features

1. Egress margin for 200, 300 & 400 Mbps license caps fixed at 25%.
2. Pop-up message to inform user what has been done and what the next steps are when doing a diagnostic export or config export via web interface.

Bug fixes

1. Broadcasting default MAC as opposed to assigned MAC on bootup.
2. Egress and burst rate setting at startup.
3. Delay management access until system and all applications are ready for operation.
4. Loglevel updated for specific actions: egress margin and throughput capping as well as power offset message when executed with display as a 0 [SET].
5. License key setting on the web interface.
6. Error checking message for snmp read/write string. Both strings may not be configured to be the same value.

7. Loopback auto to display RSSI and turn off the internal modem data port to prevent traffic loopback.

Software Version 1.0.0

FPGA version:	0002010D
OS version	2p6r22b0D122512
FW version	1p0r1D122512
Modem Version	6201.4.4

Key Features

1. Automatic Channel Selection
2. Hitless Adaptive Modulation for all modulations.
3. Native Ethernet support.
4. Packet QoS based on 802.1p
5. GigE supports configurable speed, duplex, rate limiting and jumbo packets.
6. Rapid Port Shutdown
7. CLI access via serial console/SSH/telnet.
8. SNMPv2 support (Trango MIB)
9. Web access supports both secure (HTTPS) and regular (HTTP).
10. Threshold monitoring.
11. In Band Management with tagging options.
12. Reliable image transfer using FTP, also support TFTP.