Unified BSP Upgrade using KonaFT

Introduction

- Reference guide to upgrade to and from the unified BSP on **Kona Gateways (Enterprise, Micro, Macro and Mega)** using the **KonaFT.**

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Prerequisites

This guide will assume that you are familiar with operating and navigating through a Linux environment.

Prerequisites:
- The latest release of KonaFT.
- FTP Program (such as FileZilla or WinSCP).
- Gateway (on which BSP needs to be upgraded) and KonaFT must be connected in the same computer sub-network.
- Terminal program (such as TeraTerm or PuTTY).
- SSH access to the gateway (if managing files).

Prerequisites (Continued)

- All Kona gateways will be using a **unified BSP upgrade package** moving forward starting with **BSP v7.X.X.**
- Kona gateways will need to be on a specified BSP (seen below) before upgrading to the unified BSP.
- To determine the BSP version of your gateway, [connect to the gateway (described in next section)](#) and look at the bottom right of KonaFT.
- If your gateway is not on the initial BSP version, **use the legacy upgrade guide before proceeding.**

Gateway	Initial BSP Version	Final BSP Version
Kona Micro	v4.0.5 or newer	v7.x.x
Kona Micro PoE	v5.1.1 or newer	v7.x.x
Kona Macro	v6.1.4 or newer	v7.x.x
Kona Mega	v5.0.6 or newer	v7.x.x
Kona Enterprise	v2.1.2 or newer	v7.x.x

Table-1 BSP Upgrade Path

GUI S/W v0.47 | GPIO FPGA v 0x5007.30 | BSP v 5.1.1 | Agent v1.15.0
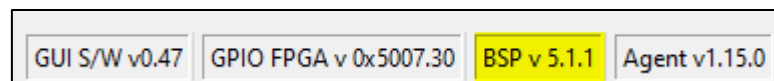
Figure-1 Gateway BSP version

Connecting to your Gateway

<mark>Ensure that the computer and gateway are on the same computer network.</mark> Then follow the steps below:

1. In the top left corner, click on Tools and select **Find my Gateway**
2. Then **select the interface that corroborates to the gateway's network.** When ready, click **Scan.**
3. When your gateway appears, **click on the entry and finalize by clicking Select.**
4. On newer versions of KonaFT, select **SNMPv2 from the drop-down menu indicated.**
5. Below the SNMP drop-down menu in step 4, click **Start** to connect to your gateway.

A pop-up with the title "AGENT MISMATCH DETECTED" may appear. This can be ignored.
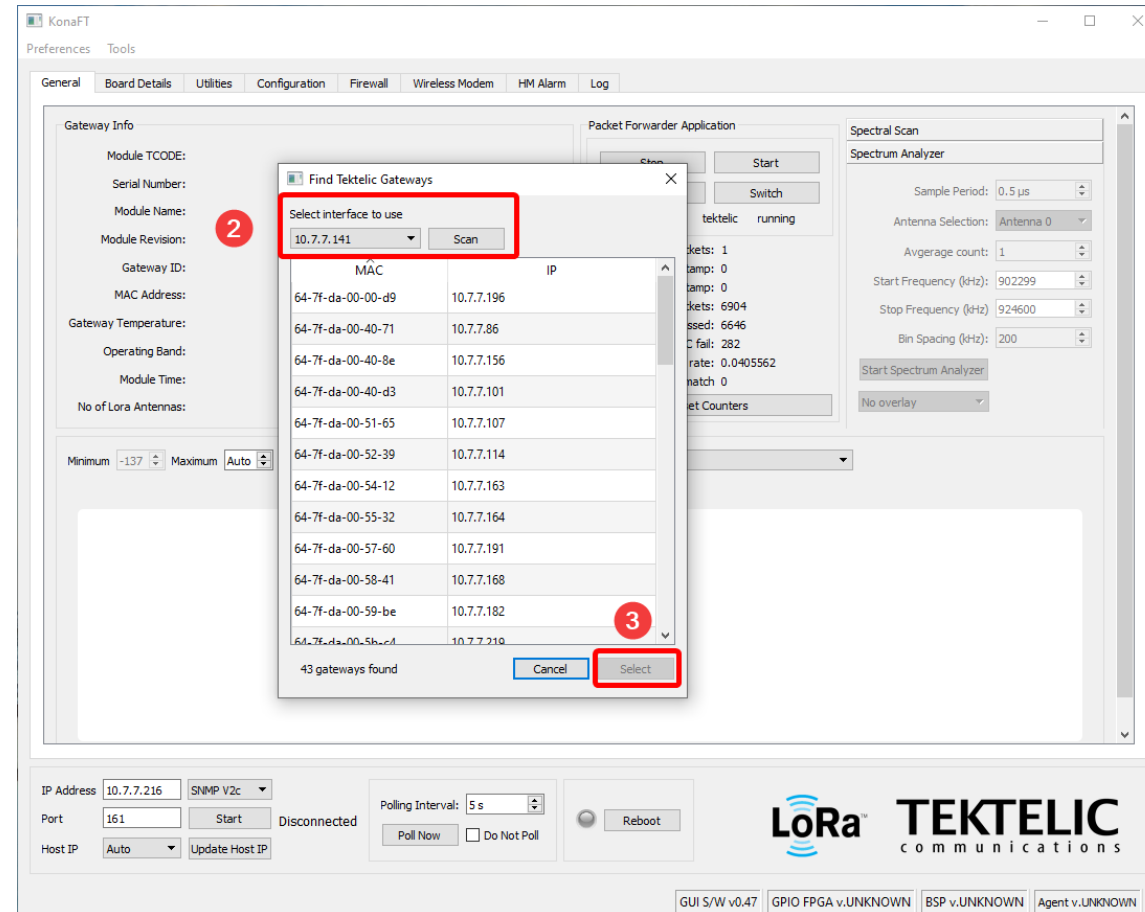
Connecting to your Gateway (Cont.)

Figure-2 Find My Gateway
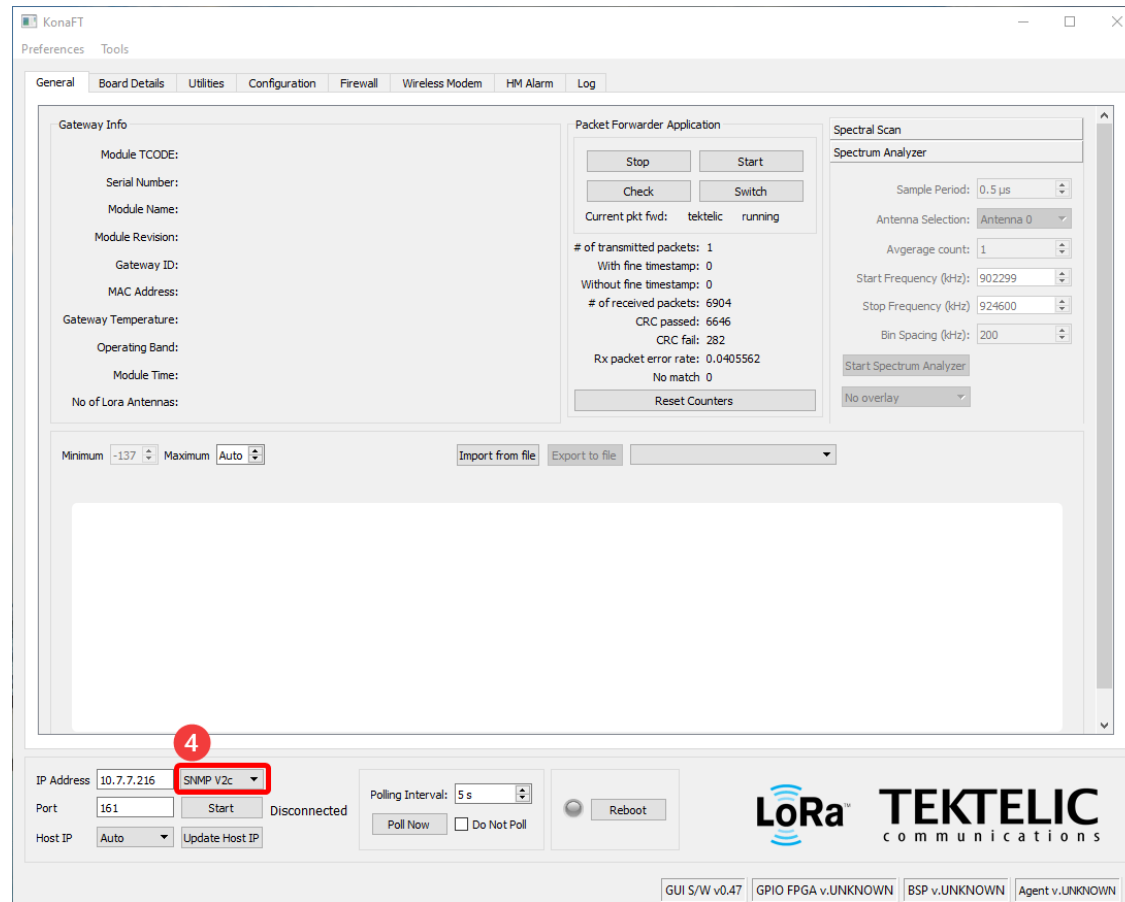
Connecting to your Gateway (Cont.)

Figure-3 SNMP Drop-down menu

Download Upgrade Package

All BSP upgrade packages can be found on the TEKTELIC FTP server. You can find out <u>the latest releases here.</u> Instructions to access the FTP are as follows:

1. Configure your FTP client to **"Use explicit FTP over TLS if available".**
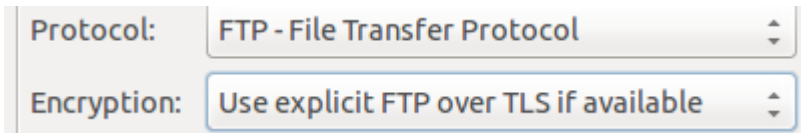

Figure-4 FTP client settings

2. Use the following credentials to access the server.
   - Site: **74.3.134.34**
   - Username: **customer**
   - Password: **vU6_ATR3**
3. Navigate to the **"Universal_Kona_SW"** directory and download the BSP package of your choice.

Uploading Upgrade Files

1. Go to Tools ➜ File Transfer
2. Click on Browse and select the upgrade package.
   a. *<mark>**DESELECT**</mark>* **the decompress checkbox if you access the gateway via admin account.**
3. Upon selecting the file to be uploaded to the Gateway, click Upload
4. A prompt will ask for a username and password. See below for details.

Username	Password	Notes
root	9-Digit Serial number of the Gateway (i.e. 1618B0052)	• Applies to gateways with serial numbers that start with 21 and below.
admin	9-Digit Serial number of the Gateway (i.e. 1618B0052)	• Commonly found on **older ENTERPRISE gateways.**
admin	Random string of characters provided on the test report.	• Applies to gateways with serial numbers that start with 22 and above. • **Some units in this category may still have root as the user and the serial number as the default password.**

Table-2 Username and Password

NOTE: If the password is not on the test report, contact Tektelic Support and provide the following:
- T-code (i.e. **T000XXYY**) and serial number (i.e. **1212A3434**)

Uploading Upgrade Files (Continued)

5. As upgrade file will start uploading on the GW, you can monitor the status of upload shown in Figure-5.
6. After upload finishes, **wait for 2-3 minutes** as the uploaded zip file will be unzipped on the Gateway.
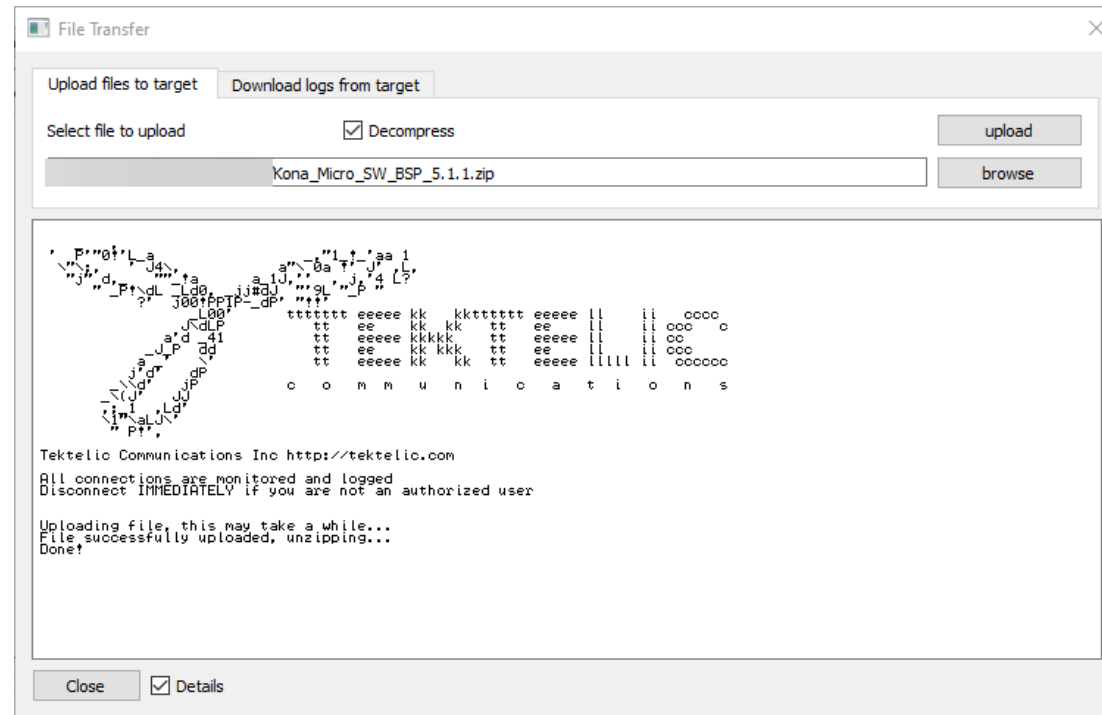

Figure-5 File Transfer

Uploading Upgrade Files (Continued)

Gateways that use the **admin credentials** to access the gateway have additional steps to perform, as **the admin account does not have sufficient permissions** to administrate and maintain the gateway.

1. Login to the gateway via SSH. Credentials can be found here.
2. Create a new folder: **sudo mkdir /lib/firmware/bsp**
3. Unzip the uploaded upgrade package: **sudo unzip /dev/shm/<upgrade-package-name>.zip -d /lib/firmware/bsp**
4. (Optional) Remove the upgrade package to conserve space: **sudo rm /dev/shm/<upgrade-package-name>.zip**

Editing Configuration File

The configuration file tells the gateway where the upgrade files are. The steps below will create the configuration file on the gateway.

1. Go to **Board Details ➔ SW Management** tab
2. Find **Upgrade Servers** as shown in Figure-4.
3. Click on **Read Server Config** to see check for any existing entries.
4. Verify the existing entries according to the next slide. Add them if they do not exist via **Add Entry.**
5. Click on **Write Server Config** to save these changes
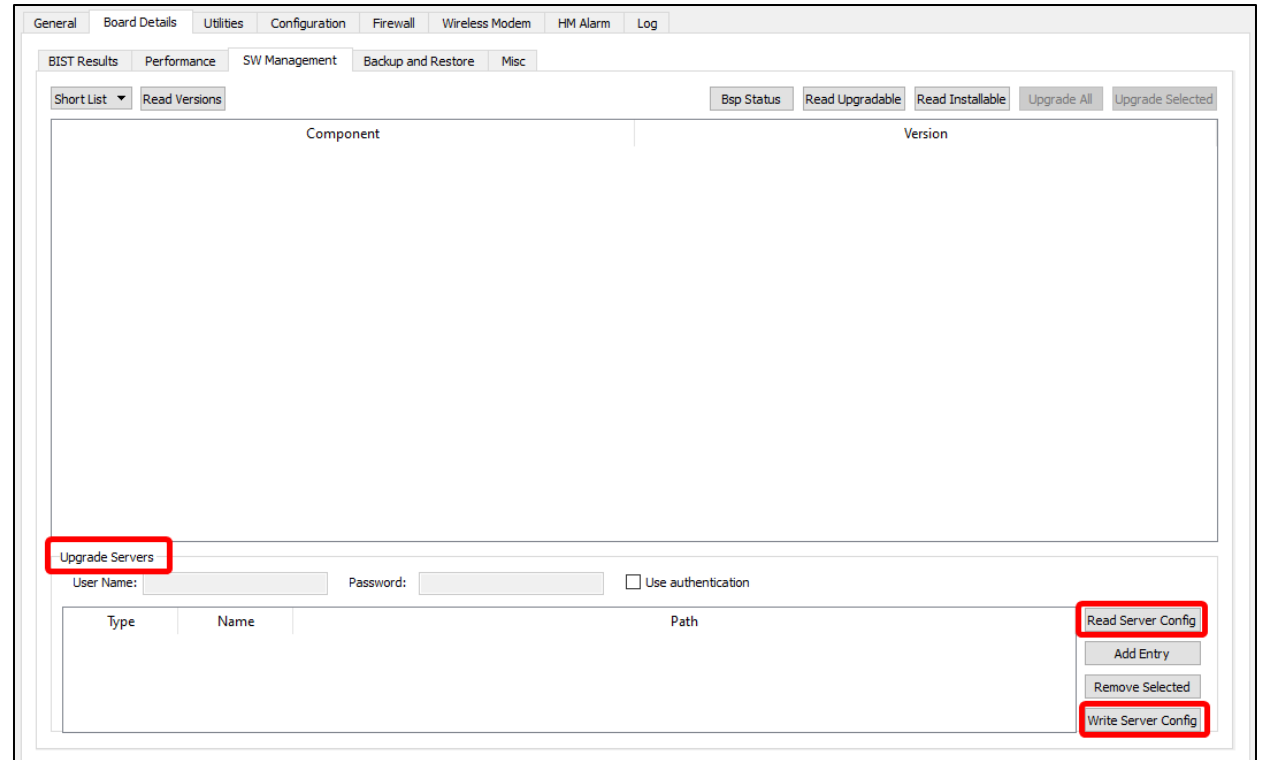6. Click on **Read Server Config** to verify the saved changes

Figure-6 Upgrade Servers

Editing Configuration File (Continued)

The following entries are used when upgrading to the Universal BSP v7.0.x.
To edit an entry, double-click the field and copy-paste from the table below.

Type	Name	Path
src/gz	bsp	file:///lib/firmware/bsp/bsp
src/gz	gpio-fpga	file:///lib/firmware/bsp/gpio-fpga
src/gz	fe-fpga	file:///lib/firmware/bsp/fe-fpga
src/gz	networking-extra	file:///lib/firmware/bsp/networking-extra
src/gz	python-extra	file:///lib/firmware/bsp/python-extra
src/gz	utils	file:///lib/firmware/bsp/utils
src/gz	webserver	file:///lib/firmware/bsp/webserver

Table-3 Upgrade Servers Entries for the Universal BSP (v7.0.x+)

Initiating BSP Upgrade

This slide will detail the standard method for upgrading gateways.

1. Go to the **SW Management** tab.
2. Click on **Read Upgradable** option. It will list down all the packages which needs to be upgraded shown in Figure-5.
   - If no packages appear, ensure the files have been uploaded to the location corresponding to the paths specified.
     - By default, KonaFT will upload the files to **/lib/firmware/bsp/**
     - To verify the location of files, SSH into the GW and run the command: **ls /lib/firmware/bsp**
3. A prompt showing the title **BSP Upgrade Detected** will appear. Click on **YES** to initiate the upgrade process of BSP on the GW.
4. While BSP is upgrading, Upgrade status message will display the status of the process as shown in Figure-6.

Note: BSP Upgrade may take up to 15-30 minutes.

Initiating BSP Upgrade (Continued)

Figure-7 BSP Upgrade Prompt

Initiating BSP Upgrade (Continued)

Figure-8 BSP Upgrade Status

Initiating BSP Upgrade (Continued)

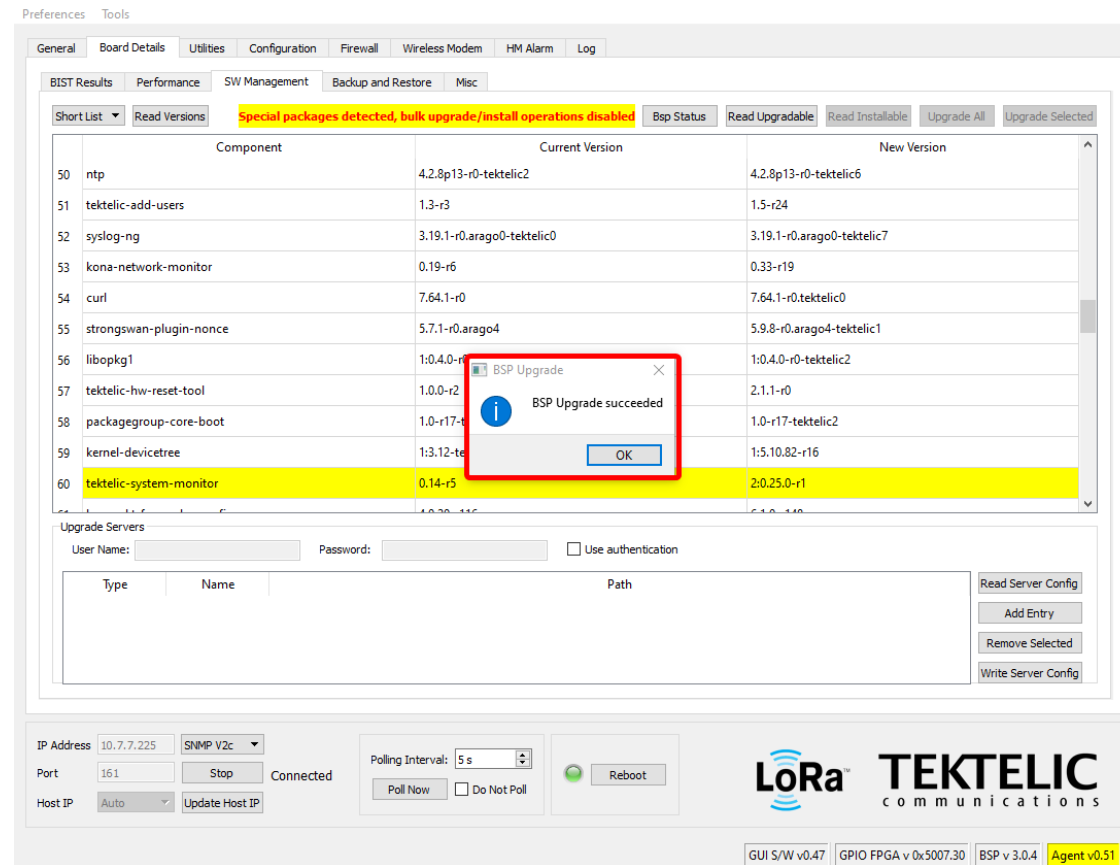Upon the successful completion of the BSP upgrade, **BSP Upgrade Succeeded** message will be shown.

Figure-9 BSP Upgrade Success Status

Installation of Geo-location features

NOTE for Kona Gateways with Geo-location features:

- Starting from BSP 4.3.X, all BSP upgrade packages will include the files required for the Geo-location feature. If you require files from a lower BSP version, please raise a ticket on https://support.tektelic.com

- After the upgrade files are uploaded to the gateway, below is the high-level procedure to install geo-location features.

1. Use this guide and follow all the steps to upgrade BSP.

2. Click the **Read Installable** button located near the **Read Upgradable** button in the top right.

3. Select the row with **"gl"** as the package name, then click **Install Selected** to install the package.

4. Install Success message will appear on bottom left corner upon successful installation.
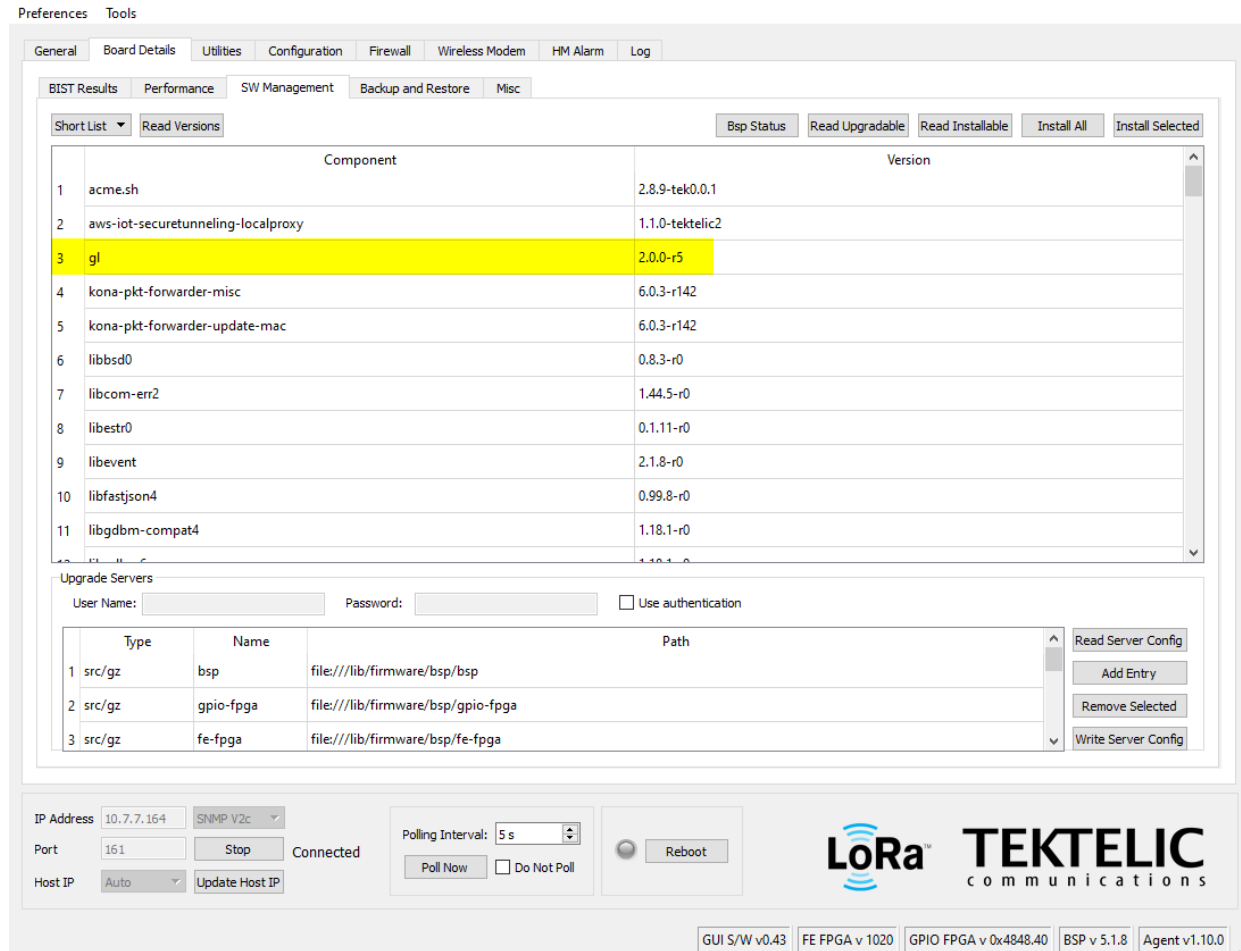
Installation of Geo-location features

Figure-10 Geolocation package

Conserving Gateway Space

When a gateway requires multiple BSP upgrades, you will need to remove the upgrade files and backup created. This will ensure that the gateway will have enough space to create a backup and perform the upgrade. **If the gateway does not have enough space to perform an upgrade or backup the system, the upgrade will throw an error and will not proceed.**

Because each new BSP release may contain new versions of the packages, they will not overwrite existing upgrade files. Hence, we will always recommend removing upgrade package and associated files.

To check how much space you have on your gateway, run the following command: **df**
Generally, having 50% space free in **ubi0:rootfs** is enough to commence an upgrade.

```
root@kona-micro       :~# df
Filesystem            1K-blocks      Used Available Use% Mounted on
ubi0:rootfs              256512    229880     26632  90% /
devtmpfs                 242764        12    242752   0% /dev
tmpfs                    255168       104    255064   0% /run
tmpfs                     65536       492     65044   1% /var/volatile
ubi1:log                 192852     14136    173880   8% /var/lib/logs
```

Figure-11 SW Management tab

Conserving Gateway Space (Files)

The files and upgrade package can _only_ be removed through SSH.

When a package is uploaded through KonaFT, the package is uploaded to the directory **/dev/shm**
- **If the Decompress option is ticked,** the gateway will automatically remove the upgrade package.
- To remove the upgrade package, run the following command: **sudo rm /dev/shm/<upgrade-package-name>.zip**

All BSP upgrade files can be found in the following folder: **/lib/firmware/bsp**
- To remove the upgrade files, run the following command: **sudo rm -rf /lib/firmware/bsp**

Conserving Gateway Space (Backups)

Backups are always created as part of the BSP upgrade process. When doing multiple intermediate upgrades, backups should also be removed to conserve space.
Backups can be removed through 2 methods: SSH or KonaFT.

SSH:
1. Log into the gateway via SSH.
2. See the list of available backups: **ls /backup**
3. Remove backups as desired: **sudo rm -rf /backup/<Three digit backup index>**

KonaFT:
1. Connect to the gateway.
2. In the top row of tabs, select **Board Details.**
3. In the row of tabs slightly below, select **Backup and Restore.**
4. Under Restore, select **Update Table.**
5. A list of backups will now appear. Click one and then select **Delete Selected** to delete the backup.
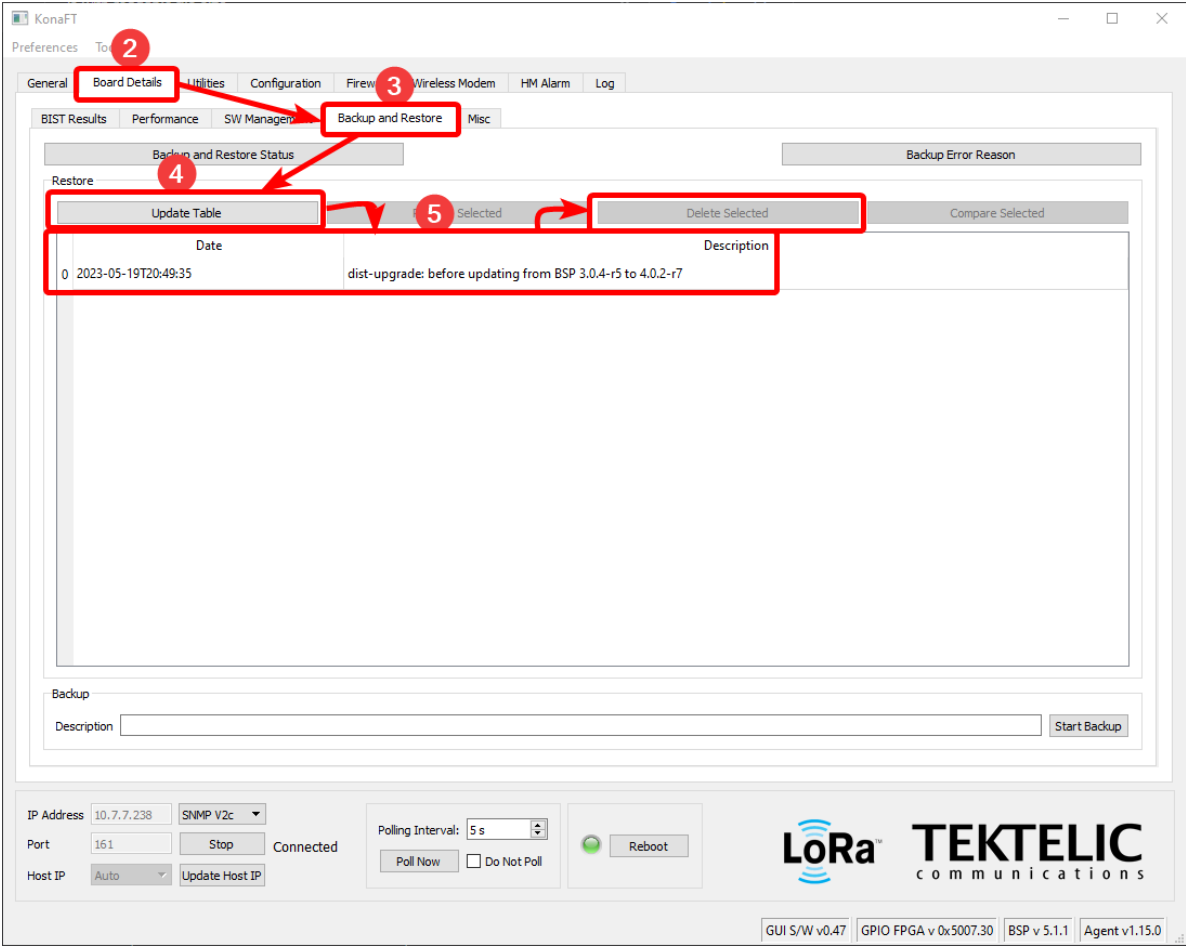
Conserving Gateway Space (Backups)

Figure-12 Deleting Backups

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