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BSP Upgrade via TEKTELIC OAM Server



Introduction

Reference guide to upgrade BSP on Kona GW using **TEKTELIC OAM Server**.

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Prerequisites

- Kona GW with BSP versions that include **TEK MQTT Bridge** package

Kona GW Variant	BSP versions that supports TEK MQTT
Kona Micro GW	v2.3.4 and onwards
Kona Macro GW	v3.1.5 and onwards
Kona Mega GW	V3.3.0 and onwards
Kona Enterprise GW / Micro PoE	Any version works.

Table-1 List of BSP version with TEK MQTT Bridge for Kona GW

- Ensure that TEK MQTT Bridge is installed on the GW and configured for TEKTELIC OA&M.
- To verify TEK MQTT Bridge is configured or not, click on GW Information option. It should list all the information as shown in Figure-1.

Prerequisites (Continued)

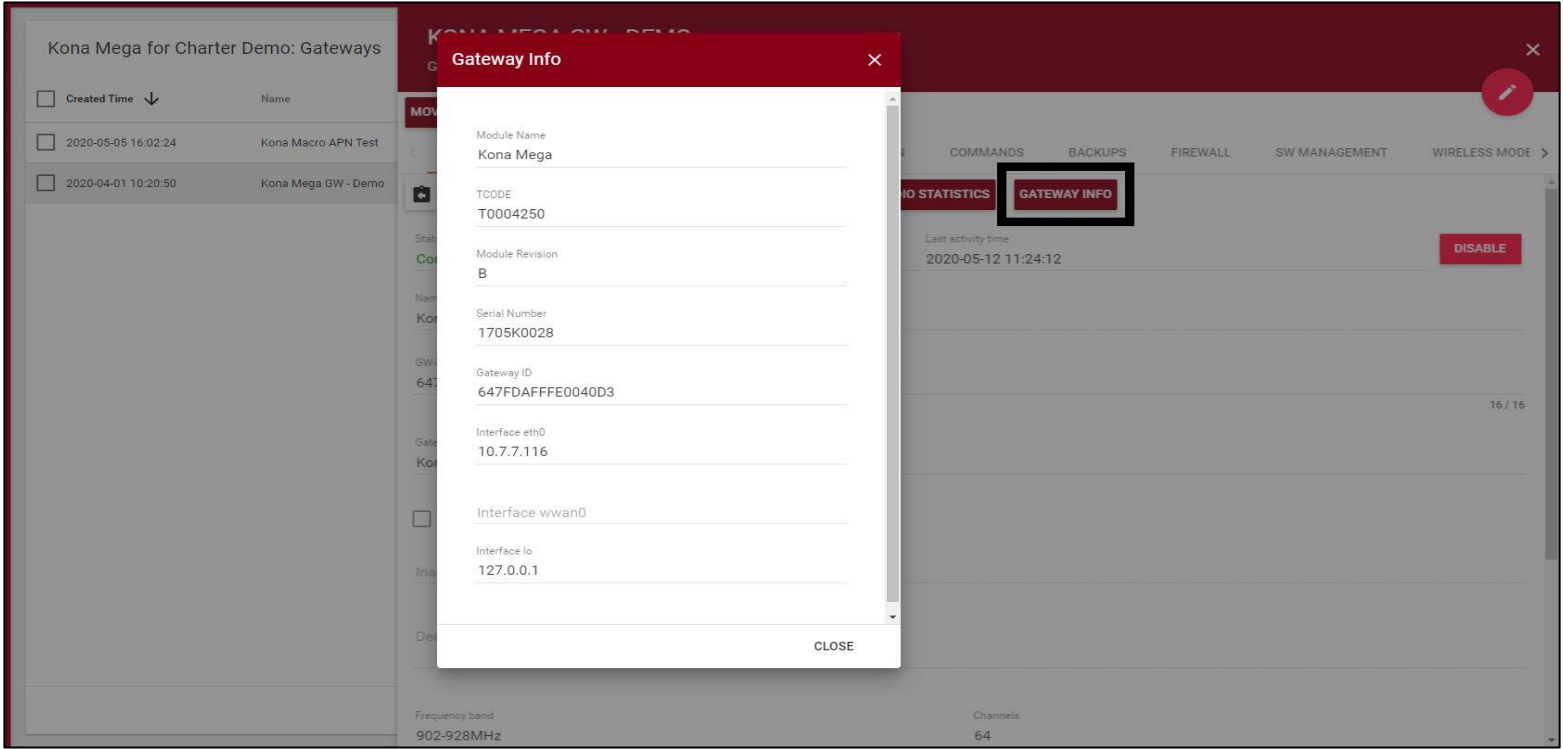


Figure-1 GW Information on TEKTELIC OAM server

Prerequisites (Continued)

To determine the current BSP version on the gateway, there are two methods.

Tektelic Network Server/OAM:

1. Go to **SW Management** tab
2. Click on **Read Versions**
3. In the list, verify the information in third row mentioned against **Release** shown in Figure-2. It will report the BSP version found on the gateway.

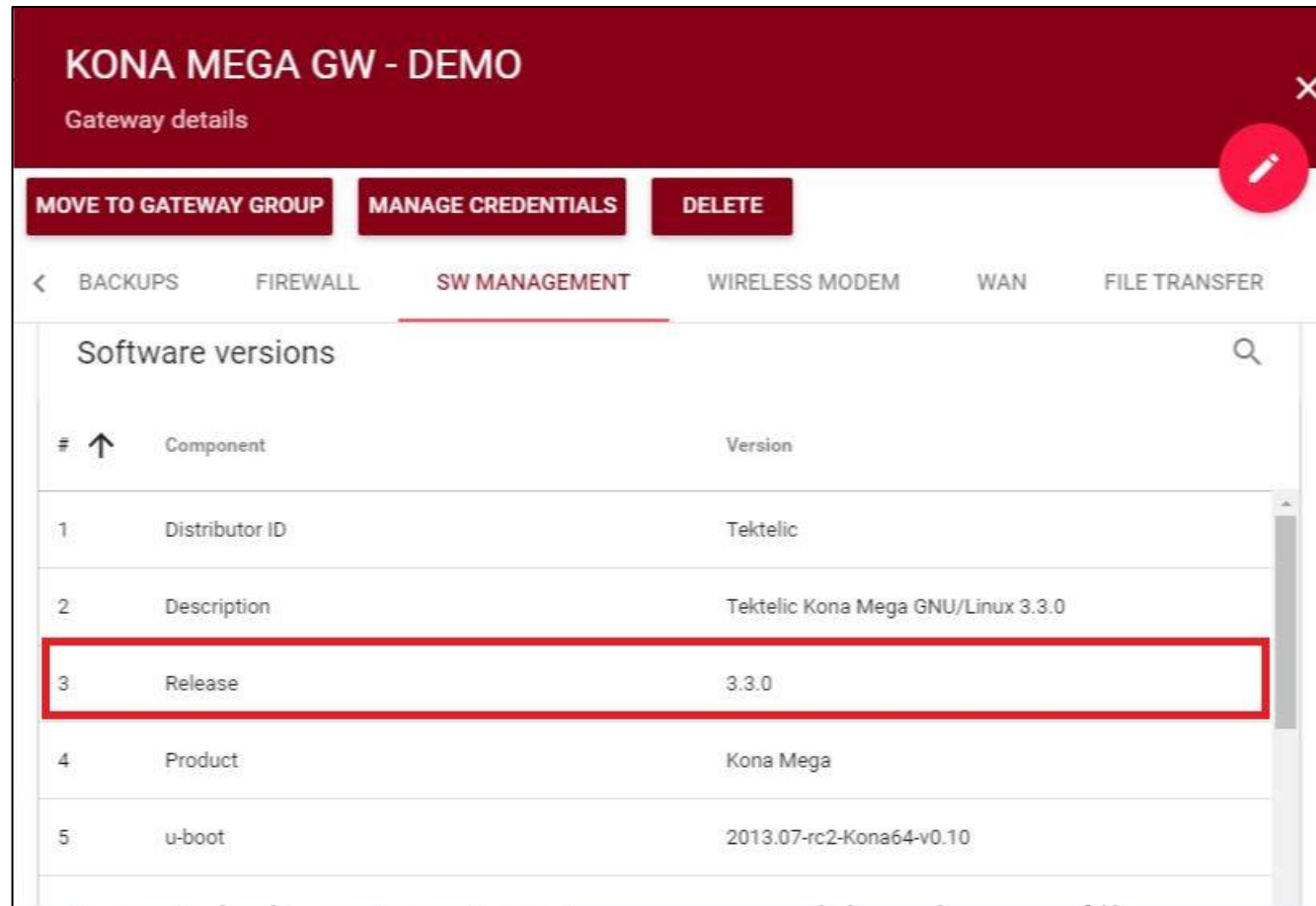
On the Gateway:

1. SSH into the gateway with the appropriate credentials. See the table below for details.
2. Enter the command: **system_version**

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

Prerequisites (Continued)



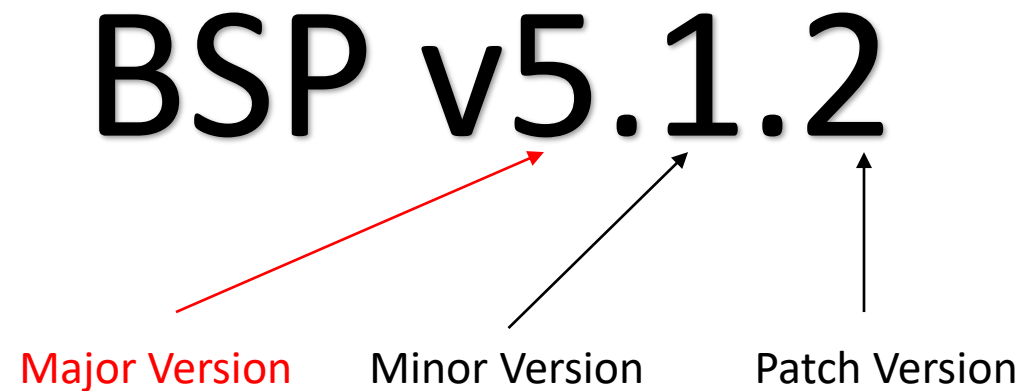
The screenshot displays the 'KONA MEGA GW - DEMO' interface, specifically the 'SW MANAGEMENT' tab. The interface includes a header with the title and a close button, and a sub-header with 'Gateway details'. Below this are three action buttons: 'MOVE TO GATEWAY GROUP', 'MANAGE CREDENTIALS', and 'DELETE'. A navigation bar contains tabs for 'BACKUPS', 'FIREWALL', 'SW MANAGEMENT' (which is active and underlined), 'WIRELESS MODEM', 'WAN', and 'FILE TRANSFER'. The main content area is titled 'Software versions' and contains a table with the following data:

#	↑	Component	Version
1		Distributor ID	Tektelic
2		Description	Tektelic Kona Mega GNU/Linux 3.3.0
3		Release	3.3.0
4		Product	Kona Mega
5		u-boot	2013.07-rc2-Kona64-v0.10

Figure-2 SW Management tab

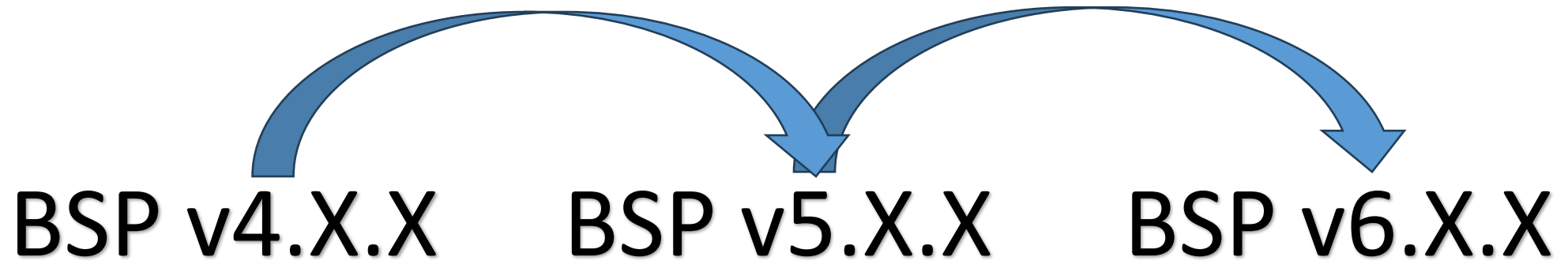
Intermediate Upgrades

- Depending on the BSP version, you may have to upgrade your Kona Gateway multiple times. You would upgrade to the **Intermediate BSP versions**, then to the Final BSP version.
- Intermediate upgrades are **always** between each **Major Version** released.



Intermediate Upgrades (Continued)

- This slide outlines the process for **determining intermediate BSP upgrades**.
- Each intermediate upgrade **should be in-between Major BSP versions**.
- For a baseline reference, please see the next slide.
- You may choose to upgrade to the latest Major version and Minor version. (i.e. BSP v2.1.3 -> v3.3.7 on Micro)



The above graphic outlines the intermediate upgrade process:

1. BSP upgrade from v4.X.X to v5.X.X
2. BSP upgrade from v5.X.X to v6.X.X

NOTE: When performing multiple BSP upgrades, [the upgrade files and package will need to be removed before each upgrade.](#) This will ensure the gateway will have enough space for each upgrade.

Intermediate Upgrades (Continued)

- This slide shows the intermediate BSP upgrades as a baseline reference.

Gateway	Initial BSP Version	Intermediate BSP versions	Final BSP Version
Kona Micro	Older than v2.1.x	v2.1.3	v3.x.x and newer
Kona Micro PoE	v2.x.x	v2.5.1	v5.x.x and newer
Kona Macro	Older than v3.1.x	v3.1.5	v4.x.x and newer
Kona Mega	Older than v3.1.x	v3.1.4	v4.x.x and newer
Kona Enterprise	v1.x.x	v2.0.1	v3.x.x and newer

Table-1 Intermediate upgrades for Older BSPs

For example, if your Kona Macro has BSP v1.6.5 and you wish to upgrade it to a later version i.e. v5.X.X, the upgrade process must follow the below steps:

1. BSP Upgrade from v1.6.5 to v3.1.5
2. BSP Upgrade from v3.1.5 to v4.0.3
3. BSP Upgrade from v4.0.3 to v5.X.X

Download Upgrade Package

All BSP upgrade packages can be found on the TEKTELIC FTP server. You can find out [the latest releases here](#). Instructions to access the FTP are as follows:

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

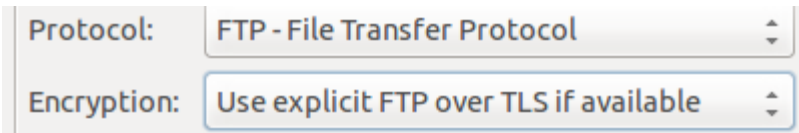


Figure-1 FTP client settings

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

Upload Upgrade Package

To upload the newly downloaded BSP onto GW using TEKTELIC Network Server:

1. Go to the File Transfer tab by scrolling right to **File Transfer** tab
2. Click on the **Browse** option to locate the BSP upgrade zip file located on the system. Check mark the **Decompress** option seen next to the Upload File option
3. Once located the files, click on **Upload File** option to upload the zip file as shown in Figure-2.

NOTE: Uploading the zip file can take up to 30 minutes.

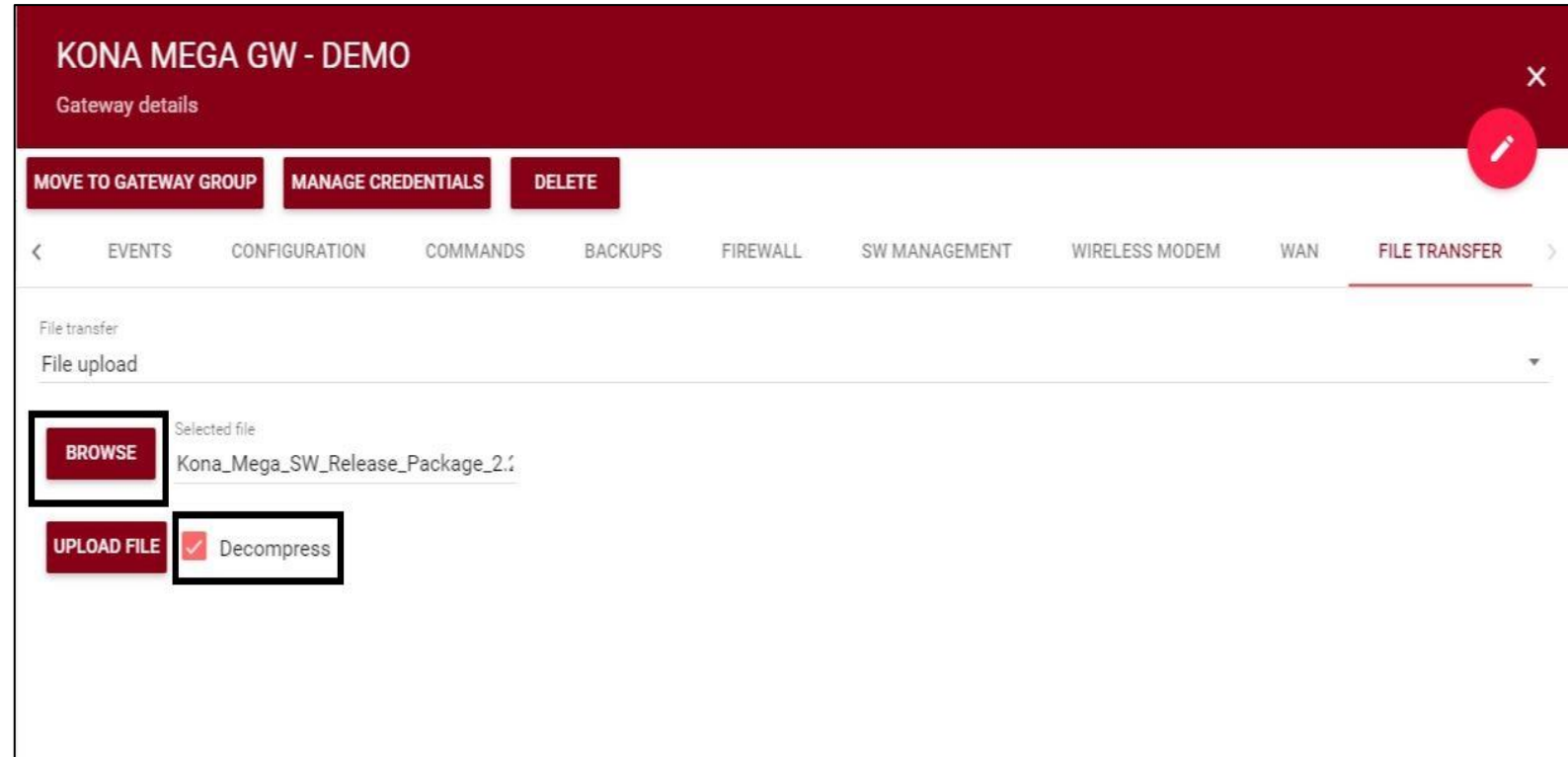


Figure-3 File Transfer





Configuration

1. Once successful uploading of the file, go to **Configuration** tab. Screen shown in Figure-3 will appear.
2. Click **the pencil icon** of the **Upgrade Servers row** to edit it.
3. Upon clicking the pencil, screen shown in Figure-4 will appear.
4. Unselect the **Use group configuration** option and Select **JSON** in **Content Type** field.
5. In the **Content** field, copy text from the [support portal article](#) and paste it under **Content**.
 - For **Kona MICRO / ENTERPRISE**, copy the text from attachments indicated in the “**For Kona MICRO / ENTERPRISE**” section.
 - For **Kona MACRO / MEGA**, copy the text from attachments indicated in the “**For Kona MACRO / MEGA**” section.
6. Click on **Save**.

Configuration (Continued)

The screenshot displays the 'KONA MEGA GW - DEMO' configuration page. At the top, there are three buttons: 'MOVE TO GATEWAY GROUP', 'MANAGE CREDENTIALS', and 'DELETE'. Below these are navigation tabs: 'GATEWAY DETAILS', 'LOCATION', 'EVENTS', 'CONFIGURATION' (selected), 'COMMANDS', and 'BACKUPS'. A red circular edit icon is visible in the top right corner of the page header.

The main content area is titled 'Configurations' and contains a table with the following data:

Type ↑	Scope	Last sync time	Sync status	
General	Group	2020-04-01 16:26:16	Synced	 
Upgrade Servers	Group	2020-04-01 16:26:16	Synced	 

The 'Upgrade Servers' row is highlighted with a thick black border, and its edit icon is enclosed in a red square. Below the table, there is a pagination control showing 'Page: 1', 'Rows per page: 15', and '1 - 2 of 2'.

Figure-4 Editing Configuration

Configuration (Continued)

The screenshot shows a dialog box titled "Edit configuration" with a close button (X) in the top right corner. The configuration type is "Upgrade Servers". There are two tabs: "CONFIGURATION" (selected) and "REMOTE CONFIGURATION". Under the "CONFIGURATION" tab, there is a checkbox labeled "Use group configuration" which is currently unchecked. Below this is a dropdown menu for "Content type" with "Json" selected. At the bottom, there is a text area for "Content" containing the following JSON code:

```
3   name : bsp ,  
4   "address": "file:///lib/firmware/bsp"  
5 } . f
```

At the bottom right of the dialog, there are two buttons: "SAVE" and "CANCEL".

Figure-5 Editing Configuration

SW Management (Legacy)

This slide is intended for upgrading gateways **v2.x.x to v3.y.y (on Kona Macro and Mega)** and **v1.x.x to v2.y.y (on Kona Micro)**. **For upgrading gateways in *any other case*, proceed to the next slide for the standard method.**

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-6.
3. Find **opkg-arch-config** and **tektelic-upgrade** packages and click on **Upgrade Selected** option.
4. Upgrade status message will be displayed on the same screen. Upon successful upgrade of the package, a message **Software upgrade succeeded** will be displayed.
5. Click on **Upgrade BSP** option to upgrade the version of BSP on the GW.
6. While BSP is upgrading, Upgrade status message will display the status of the process.
7. Upon successful BSP upgrade, **BSP Upgrade Succeeded** message will be shown. Alternatively, clicking on BSP Status can also provide the information on BSP upgrade. Upon successful upgrade, message shown in Figure-7 will appear.

NOTE: BSP Upgrade may take up to 15-17 minutes.

SW Management (Standard)

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.
3. Click on **Upgrade BSP** option to upgrade the version of BSP on the GW.
4. While BSP is upgrading, Upgrade status message will display the status of the process.
5. Upon successful BSP upgrade, **BSP Upgrade Succeeded** message will be shown. Alternatively, clicking on BSP Status can also provide the information on BSP upgrade. Upon successful upgrade, message shown in Figure-7 will appear.

NOTE: BSP Upgrade may take up to 15-17 minutes.

SW Management (Continued)

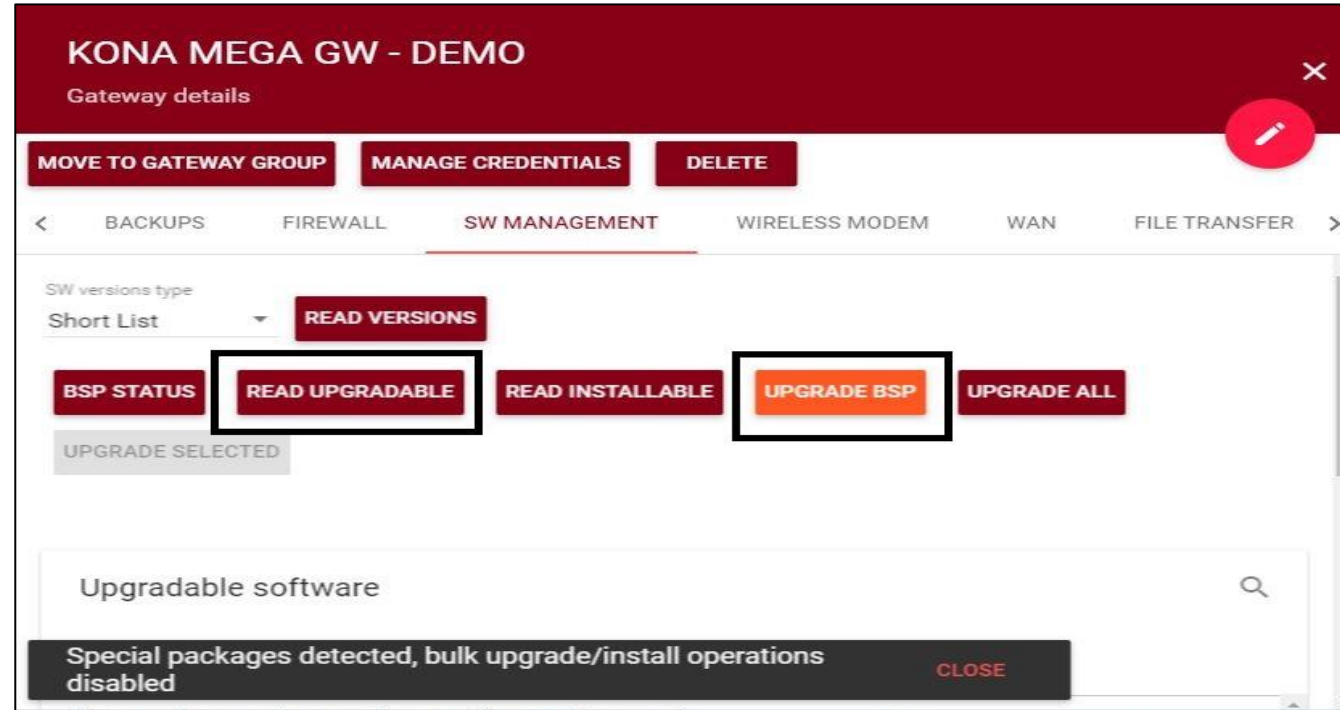


Figure-6 SW Management

SW Management (Continued)

To verify the BSP Upgrade, please follow [the instructions found on slide 5](#).

NOTE: If you are accessing the gateway via SSH and it is still undergoing the upgrade process, **DO NOT** modify nor administer any changes to the gateway.

To install additional packages (such as **geolocation for Kona Macro** or **Basic Station**) follow the steps below:

1. Click on the **checkbox beside the Component** you wish to install.
2. Click on **Install Selected**.

NOTE:

- For **Geolocation features**, the Component name is **“gl”**.
- For the **Tektelic Basic Station**, the Component name is **“tektelic-bstn”**.

SW Management (Continued)

The screenshot displays the 'SW MANAGEMENT' section of the 'KONA MEGA GW - DEMO' interface. At the top, there are navigation tabs: GATEWAY DETAILS, LOCATION, EVENTS, CONFIGURATION, COMMANDS, BACKUPS, FIREWALL, SW MANAGEMENT (selected), and WIRELESS MODE. Below the tabs, there are several action buttons: MOVE TO GATEWAY GROUP, MANAGE CREDENTIALS, DELETE, and a red edit button. A dropdown menu for 'SW versions type' is set to 'Short List', with a 'READ VERSIONS' button next to it. Below this, there are buttons for 'BSP STATUS', 'READ UPGRADABLE', 'READ INSTALLABLE', 'UPGRADE BSP', 'UPGRADE ALL', and 'UPGRADE SELECTED'. A status message reads 'Upgrade status: BSP Upgrade Succeeded'. The main area is titled 'Upgradable software' and contains a table with columns for Component, Current Version, and New Version. The table lists seven components, each with a checkbox and a number in the first column.

<input type="checkbox"/>	# ↑	Component	Current Version	New Version
<input type="checkbox"/>	1	shadow-securetty	4.2.1-r3.arago0	4.6-r3.arago0
<input type="checkbox"/>	2	openssl-misc	1.0.2o-r0.arago0	1.1.1b-r0
<input type="checkbox"/>	3	syslog-ng	3.14.1-r4-1	3.19.1-r0.arago0-tektelic0
<input type="checkbox"/>	4	sqlite3	3:3.20.0-r0	3:3.27.2-r0
<input type="checkbox"/>	5	kernel-module-gobinetquectel-3.12.17-tektelic-1.9.12-kona64-g86122f9bb1	1:3.12-tektelic-1.9.12-r3.4	1:3.12-tektelic-1.9.12-r4.5
<input type="checkbox"/>	6	kernel-module-p8022-3.12.17-tektelic-1.9.12-kona64-g86122f9bb1	1:3.12-tektelic-1.9.12-r3.4	1:3.12-tektelic-1.9.12-r4.5
<input type="checkbox"/>	7	python3-debugger	3.5.3-r1.0	3.7.2-r0.tektelic0

Figure-7 BSP Upgrade

SW Management (Continued)

MACRO
Gateway details

MOVE TO GATEWAY GROUP | MANAGE CREDENTIALS | DELETE

< GATEWAY DETAILS | LOCATION | EVENTS | CONFIGURATION | COMMANDS | BACKUPS | FIREWALL

SW versions type
Short List

1 installable package selected

<input type="checkbox"/>	# ↑	Component	Version
<input type="checkbox"/>	1	acme.sh	2.8.9-tek0.0.1
<input type="checkbox"/>	2	aws-iot-securetunneling-localproxy	1.1.0-tektelic2
<input type="checkbox"/>	3	base-files	3.0.14-r89.arago4-tektelic19
<input checked="" type="checkbox"/>	4	gl	2.0.0+r5
<input type="checkbox"/>	5	kona-pkt-forwarder-misc	6.0.3-r142

Figure-8 SW Management tab

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, 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.

Conserving Gateway Space (cont.)

When managing your gateway through TEKTELIC CORE/OAM, all files, upgrade package, and backups can only be removed through SSH.

When a package is uploaded through TEKTELIC CORE/OAM, the package is uploaded to the directory **/dev/shm**

- 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**

Backups are always created as part of the BSP upgrade process. When doing multiple intermediate upgrades, backups should also be removed to conserve space.

1. Log into the gateway via SSH.
2. See the list of available backups: **system-backup -L**
3. Remove backups as desired: **system-backup -D [backup number]**

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