

TB9100 base station

Firmware Upgrades Using TFTP



Normally, TB9100 base station firmware is updated using the CSS. However, if the operating system kernel and/or base station application firmware not handled by the CSS need updating, this can be done remotely using telnet and TFTP, as described below. TFTP can also be used if the base station is unable to communicate with the CSS. If the bootloader needs updating, the reciter must be returned to the factory.

You need a user name and application password from Tait for logging in to the reciter's network board, firmware images of the appropriate version from the product CD, and a third party TFTP server installed on your PC. It is possible that you will also need a bootloader password. (If you need to obtain a TFTP server application, you can search the Web and select a suitable one.)

Kernel image names are of the form QBA20ASK* and application image names QBA20ASA*. The last part of each name contains the version number. The application image contains all the firmware specific to the base station application. This includes the firmware normally updated using the CSS and other files as well.

Updates are handled by a script that is part of the bootloader. Using variables, you tell the script the version you want.

Step 1: Preparation

1. Using the CSS, connect to the base station.
2. Read the base station configuration and save it to a file.
3. From the Software folder on the product CD, copy firmware.exe to your computer and execute it. This unpacks the files.
4. Copy QBA20ASK* and QBA20ASA* to the TFTP server's root directory.
5. Telnet into the base station.

Step 2: Copy your current environment values

At the prompt, enter `envread`, and then copy the display into Notepad and save it.

Step 3: Change the network parameters

Tell the reciter the IP address of the TFTP server from which it will obtain the files, for example:

```
envedit serverip 172.25.140.8
```

You may also need to change other parameters such as the netmask, gateway IP address or the reciter IP address, if you have taken the base station out of its normal environment.

Step 4: Verify that the base station is capable of TFTP upgrades

Enter the command:

```
envread asifload
```

If the response is "Error: "asifload" not defined," please contact your dealer or Tait Electronics Ltd.

Step 5: Verify connectivity to the TFTP server

Use ping to check that the base station can connect to the TFTP server.

```
ping <server address>
```

If ping does not work, try the ping command from your TFTP server. If this works, you may have Firewall software running on your server. It will need to be disabled for this exercise.

Step 6: Specify the upgrade versions

Set the variables `bootfile` and `jff_file` to specify the name of the kernel and the application files respectively that you want to upgrade to. Take the names from the files you unpacked and copied to the TFTP server. For example:

```
envedit bootfile QBA20ASK001201
envedit jff_file QBA20ASA010002
```

If you don't want to upgrade one of these items, specify the currently installed version. The script will only upload an item if the version you specify is different from the installed version.

To find out what the current version of the kernel is, use:

```
uname -r
```

The response displays the linux version followed by the Tait image name, for example:

```
2.4.22-QBA20ASK001201
```

To find out what the current version of the Tait application files is, use:

```
cat /usr/bin/tait/version
```

The response displays the image name, for example:

```
QBA20ASA010002
```

Step 7: Upgrade the kernel and/or applications

Enter the following commands:

```
envedit bootcmd 'run asifload'  
reboot
```

Monitor the tftp server log. Something should appear within one minute, indicating that the base station has contacted the server. When all of the file(s) have been transferred, wait for one minute before proceeding with the next step.

Step 8: Instruct the network board to boot the application files

1. Telnet to the base station.
2. Enter the following command:

```
envedit bootcmd 'run flash_jff'
```

Step 9: Restore the original network parameters

Once you have established that the base station is operating correctly, restore any network parameters you changed from the notepad file you saved.

1. Enter the following command:
`envedit serverip`
2. Enter commands to restore any other parameters such as the reciter's IP address.

Step 10: Use the CSS to complete the process

The TFTP process only upgrades firmware in the reciter network board. The rest of the base station firmware must be upgraded using the CSS.

1. Run the CSS and connect to the base station.
2. Carry out a firmware upgrade.
3. Program the base station with the configuration you saved in step 1 [on page 2](#). (This must be done manually after a TFTP firmware upgrade.)

Troubleshooting

This firmware upgrade procedure is robust; it can survive failure of the remote link and loss of the TFTP server. For the unlikely event that you actually have difficulties, the following tips aim to give assistance.

- If the link goes down or the TFTP server crashes, you may need to wait for up to two minutes after the situation has recovered before seeing anything in the TFTP log.
- If nothing appears in the TFTP server log even though the base station can ping the TFTP server, there is a problem at the base station. You need to go to the site and recover the base station, see [“Recovering from a failed TFTP upgrade” on page 6](#).
- The TFTP server may not alert you if it times out before the transfer is complete. Check the size of the transferred file; it should be about the same as the properties for the file. (Right-click the file and select Properties to get its size in bytes.) If it is smaller, wait for the base station to ask the TFTP server to resend.

Recovering from a failed TFTP upgrade

If the TFTP upgrade has not completed, you are unable to remotely connect to the base station. You will need hyper terminal or tera-term (whichever you are comfortable with). Go to the site and follow these steps.

1. Create a connection at 57600 baud, 8 bits, no parity, no flow control on COM1 of a PC.
2. Connect the PC COM1 to the serial port on the reciter in the TB9100 with a straight through PC cable.
3. Power cycle the Base Station and then keep hitting the enter or space key until you get a prompt like this:
=>
4. Type:

```
set bootcmd 'run flash_jff'  
save  
reset
```
5. You should now be able to telnet into the base station and restart the tftp upgrade process.

If you notice that the base station has started to tftp the kernel again, you have missed the opportunity to get into the bootloader (like setup on a PC) and need to power-cycle the base station again.

