PBG0216K   22 March 2023

T-Gen2 Firmware V2.9 Release

This bulletin provides details regarding T-Gen2 firmware V2.9. It also includes details regarding using Windows 10 to update T-Gen2 firmware.

T-Gen2 V2.9 Features

T-Gen2 V2.9 firmware now supports the latest WINSTAR OLED display used in the latest T-GENs with rev 9 PCBs. Otherwise, it has identical functionality and features as V2.8. This firmware must be used with the latest rev 9 T-Gen2 which have V6.0 bootloaders. It also may be used with all previous T-Gen2s. Update instructions are included with the V2.9 firmware and later in this bulletin.

Compatibility

SmartConfig or SmartConfig Lite V2.8 or higher is required for T-Gen2 V2.0 (or later) for preparation of site-specific configurations. It also supports the existing T-Gen2 units with V1.xx firmware. It's recommended to obtain the latest version of SmartConfig or SmartConfig Lite to take advantage of the latest features.

Existing T-Gen2 units with V1.xx firmware can be upgraded to V2.00 (or later) by using the upgrade process below. The existing configuration (default or site-specific) will be supported, but preparing and installing a new configuration based on a V2 template is recommended as this will allow use of the new features.
In a system with Slave T-Gen2 it is necessary for the master and all slaves to have the same firmware (i.e., all have V2.xx or the earlier V1.xx), as a V2.xx T-Gen2 cannot be used with V1.xx T-Gen2. Thus it may be necessary to upgrade an existing system or T-Gen2 to V2.00 (or later) if a Slave T-Gen2 is being added.

Check T-Gen2 Firmware Version

It is possible to determine the installed firmware on a working T-Gen2 as follows:
1. Use the NEXT button to step through the T-Gen2 OLED menu until the Software option is shown, then press the SELECT button.
2. A Firmware option will be shown. Press the SELECT button again.
3. The OLED will display the T-Gen2 firmware version and CRC.
4. Press BACK three times to return to the base display.

Checking the T-Gen2's MPU version

You can tell which MPU your T-Gen2 is fitted with as follows:
1. If your T-Gen2 was manufactured before Oct 2022 it will have a K64 MPU.
2. If your T-Gen2 is currently running V2.7 or earlier firmware it will have a K64 MPU.
3. When in Boot Mode "K60" will be displayed if the MPU is a K60, otherwise the MPU will be a K64.

4. On T-Gen2's fitted with the K60 MPU there should be a 'K60' label fitted by the USB socket.

Firmware V2.7 or earlier will only run on T-Gen2s with the K64 MPU.

For V2.8 and higher firmware releases both a K60 and a K64 firmware version are provided.

Obtaining T-Gen2 Firmware & SmartConfig Lite V2.9

The new T-Gen2 firmware (SF0534) and SmartConfig Lite V2.9 (SF0323) can be obtained from the Fireplace: www.vigilant-fire.com.au.

Click on **Resources | Downloads ANZ** and then **Goto T-Gen2.** Right click on **SF0534** for the T-Gen2 firmware or **SF0323** for SmartConfig Lite and save the file on your PC. SF0534 is a zip file that contains the necessary files for updating or programming the T-Gen2. Instructions for installing SmartConfig Lite can be found in the latest version of Product Bulletin PBG0209.
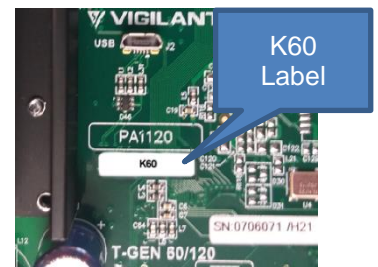
Upgrading Existing T-Gen2 Firmware

There are two types of T-Gen2 firmware in version V2.9:

- the standard type
- the "K60" type.

You must download the correct type to your T-Gen2.
Check your T-Gen2's PCB. If it has a label with "K60" you will require the K60 firmware type.

Note for earlier versions or standard type, there will be no label and requires the Standard type firmware.

K60 T-GEN60

You will require a PC running Windows with a free USB port and a micro USB cable to connect to the T-Gen2.

WARNING:
It is highly recommended to use a laptop PC running off its battery (i.e., not plugged into the mains) when using the USB port on the T-Gen2 and connect the USB lead to the T-Gen2 with the T-Gen2 turned off. This minimises the chance of damaging the USB port on the T-Gen2 due to the Earth monitoring (which typically results in the 0V on the T-Gen2 being at +12V relative to the PC).

Using Windows 10
When using a Windows 10 or later PC with a T-Gen2 with boot loader version older than V4 do not power the T-Gen2 down between step 4 (deleting the old .bin file) and step 5 (copying the new .bin file). If this should happen the T-Gen2 may start to continuously reset and the display will flash on and off about once a second. Should this happen refer to the instructions regarding using Windows 10 later in this bulletin.

1. With the power to the T-Gen2 turned off connect the micro USB cable to the PC and T-Gen2. Turn on the power to the T-Gen2 and verify the "TGEN2 BOOT" or "TGEN2 K60" disk is available on the computer (use Explorer to show the available disk drives).

2. Activate the Boot Mode on the T-Gen2:
   While holding down the BACK and NEXT button, power up the T-Gen2 (or use the Diagnostics | ReBoot T-Gen2 command). A message 'T-Gen2 Boot Mode' and a 120 seconds count down timer will be shown.

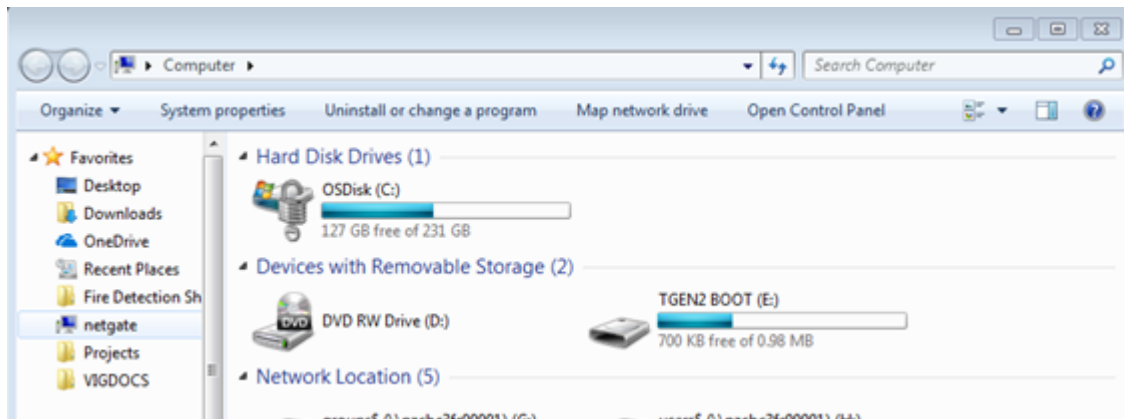   If K60 is displayed on the bottom line you must download the K60 type of the firmware.

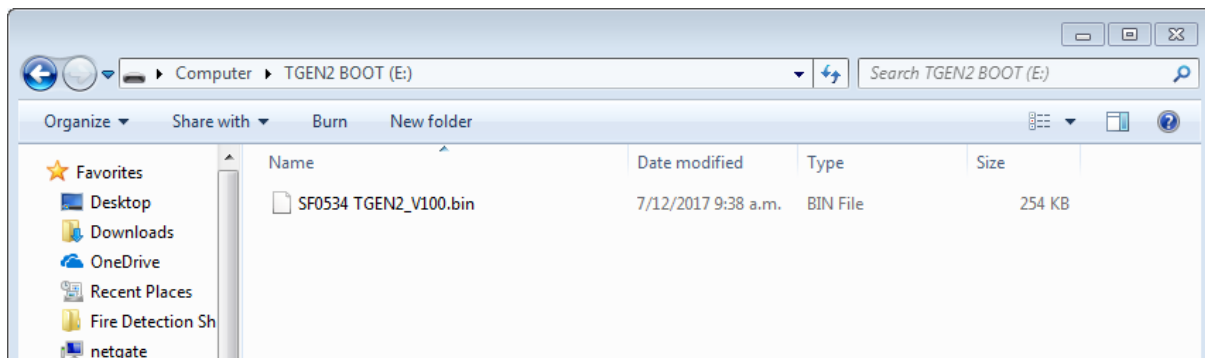 | TGEN2 Boot Mode |
   | V5.0   106 |

   Boot Mode - Standard T-Gen2

   | TGEN2 Boot Mode |
   | V5.0 K60   106 |

   Boot Mode - K60 T-Gen2

   The T-Gen2 will remain in Boot Mode for two minutes, so complete the following process quickly.

3. Open the TGEN2 BOOT or TGEN2 K60 drive and copy the existing firmware .bin file to a backup folder on your computer. This may be used for a firmware roll-back if required.

4. Delete this .bin file from the T-Gen2 drive. There should be no files left and the T-Gen2 OLED display will show 'No Valid APP'.

5. Copy the new .bin file to the empty T-Gen2 drive. If downloading V2.8 or newer firmware make certain you download the correct version for the MPU on your T-Gen2.

    Note the file name includes the MPU type as follows:
       TGEN2_K60_V2.90.bin   K60 MPU Version
       TGEN2_K64_V2.90.bin   K64 MPU Version

6. Once completed, the T-Gen2 will automatically reboot using the new firmware. If an attempt is made to copy an invalid firmware file to the T-Gen2 the copy process will fail, and the drive will be closed.

Note: The T-Gen2 boot mode will end when the timer expires, so these steps need to be completed in that time. The T-Gen2 will restart the existing application if one is present. Repeat the process if the timer expires before completing the installation of the new firmware. To roll-back or undo the upgrade, follow the same instructions but use the backup .bin file made in step 3.

If the Windows folder closes immediately after the new file is copied (dropped) into it, then the file is not compatible with T-Gen2 (or is corrupted) and the process needs to be repeated with the correct file.

If the K60 firmware is mistakenly downloaded to a standard T-Gen2 the T-Gen2 will reboot, but the firmware will not run and the T-Gen2's display will remain blank. Turn off the power

to the T-Gen2 for a few seconds, then power up the T-Gen2 while holding down the BACK and NEXT buttons. It will enter Boot Mode and you can then download the correct firmware.

If the standard firmware is mistakenly downloaded to a K60 T-Gen2 the T-Gen2 will not recognise the new firmware and not reboot. Turn off the power to the T-Gen2 for a few seconds, then power up the T-Gen2 while holding down the BACK and NEXT buttons. It will enter Boot Mode, and you can then download the correct firmware.

The SmartConfig Lite User Manual LT0345 contains information on updating and programming the T-Gen2 and includes steps to erase the firmware if the T-Gen2 USB drive is not presented to the PC when the USB cable is plugged in.

Using Windows 10

If the T-Gen2 has no valid firmware loaded when the T-Gen2 is powered up it will display its boot loader screen with the message "No Valid APP'".
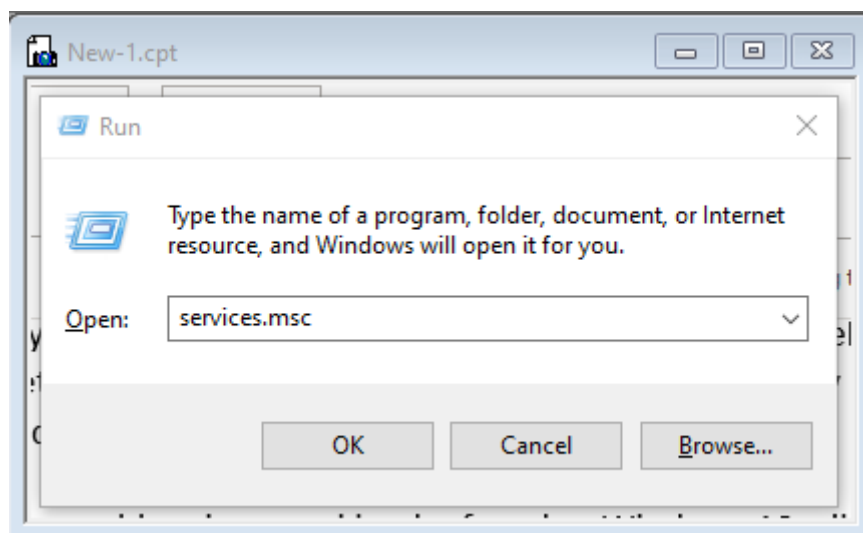
If you are using a Windows 10 or newer PC and you connect the USB lead to the T-Gen2 the T-Gen2 may begin to continuously reboot causing the display to flash on and off about once a second.
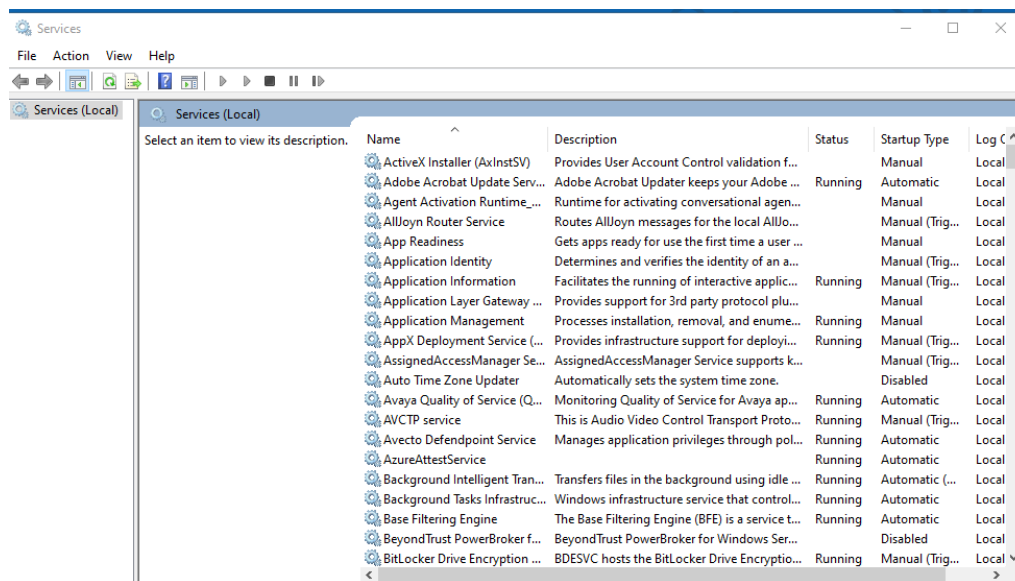
To fix this problem you can either:

   a. Use a PC running Windows 7 or earlier or a different operating system (e.g. Linux)
   b. Temporarily stop the "Storage Service" on your Window 10 PC.

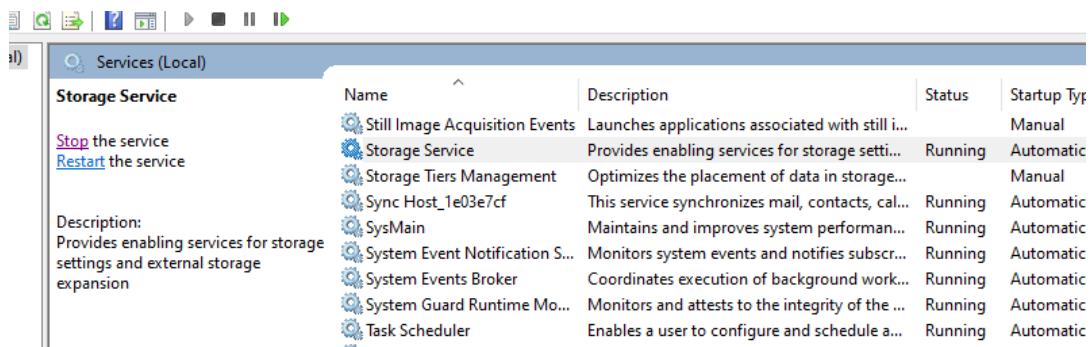To temporarily stop the Storage Service:

1.   In the Windows search box bottom left type Run and hit the Enter key. The Run dialogue box shown below will appear. Enter services.msc and hit ok.

The services window will appear as shown below.

2. Scroll down the list until you see Storage Service. Click on "Storage Service" in the Name column and then click on the "Stop the service" link top left.

The T-Gen2 will stop rebooting. You can now copy the new firmware into the T-Gen2.

Once you have finished updating the T-Gen2 click on "Start the service" on the Services window. This will restart the Storage Service. Note if you forget the service will automatically start again when you next power up your PC.

Resources

The SmartConfig Lite User Manual LT0345, used for updating and programming the T-Gen2, is included with SmartConfig Lite, or can be obtained from the Fireplace website.

www.vigilant-fire.com.au.

Click on **Resources | Manuals ANZ** and then **T-Gen2 60W and 120W** to see the LT0345 link.

Previous T-Gen2 Firmware Versions

V2.8
T-Gen2 V2.8 firmware comes in two types: Standard and K60. Note the K60 T-Gen2s have a "K60" label on their PCBs next to the USB socket to identify them. Note that apart from supporting both types of T-Gen2 the features are the same as V2.7.

V2.7
T-Gen2 V2.7 firmware includes the following improvements:
- When strobes are used with messages (e.g., messages triggered by a general purpose input) they are now correctly turned off when the message is turned off. On earlier software versions the strobe output could be left in the on state.

V2.6
T-Gen2 V2.6 firmware includes the following improvements:
- The amplifier monitoring has been updated to remove any faint click noises which may be heard on the speakers about every 30sec and reduce the chance of false Amplifier Monitoring faults due to excessive capacitance on the T-Gen2's100V Output (speaker line).
- A new diagnostic display has been added to help the user determine if there is excessive load capacitance on the speaker line which could cause Amplifier Monitoring faults.
- 'PS' is displayed on the main display on the OLED when the T-Gen2 is in power save mode.
- The priority setting is now used to determine which audio shall remain enabled when the T-Gen2 is in power save mode. Audio with a priority number of 1 - 40 will now be remain enabled, audio with a priority number of 41 - 99 will be disabled. Note the current fire alarm standards require non-emergency audio to be disabled when in power save mode.
- New "Power Save On" and "Power Save Off" events have been added to the history log.

V2.5
T-Gen2 V2.5 firmware includes the following improvements:
- When a general purpose input is configured for paging, it responds quickly to a user pressing the button on the paging microphone, to remove any noticeable delay to speech being output from the T-Gen2.
- If the T-Gen2 is powered by an external 24V supply which cannot provide the required maximum load current there is a small probability the T-Gen2's amplifier maybe damaged due to the +24V supply voltage continuously collapsing and recovering every few seconds (e.g. supply voltage collapses each time the T-Gen2 attempts to play the Evac tone). V2.5 software adds protection against this situation. Note this condition is unlikely, but might be encountered if a T-Gen2 system is powered from a power supply that is not rated to provide the required current.

V2.4
T-Gen2 V2.4 firmware supports both the earlier PCB and the latest issue E PCB. Note the issue E PCB uses a different brand of OLED display.

V2.3

T-Gen2 V2.3 firmware includes the following corrections:

- Fixes a problem that could have resulted in the T-Gen2 not playing tones or sounds.
- Improved read performance of sound files on some external SD cards.
- Improved file handling when opening sound files for playback.

These corrections are included in V2.3 which was released to production of new T-Gen2 in October 2020.

Existing T-Gen2 with V2.0 through V2.2 firmware should be upgraded to this version.

Existing V1.xx units do not have these specific problems.

V2.2

T-Gen2 V2.2 firmware includes the following corrections:

- A T-Gen2 supervising two branches of speaker wiring will now detect a fault on one of the branches. Commission testing will have identified this problem on affected sites.
- The strobe output will always turn off when the strobe is no longer required. Earlier versions could leave the strobe output in the last known state (either on or off).

These are included in V2.2 which was released to production of new T-Gen2 in March 2020.

Existing units with V2.1 or earlier should be upgraded to this version.

V2.1

T-Gen2 V2.1 firmware fixes an issue in V2.0 where a chime signal selected to play when a digital input triggers paging on Audio Input 1 or 2, is played for only the first activation after power-up. From then on, the chime is not played on activation of the paging input.

This is fixed in V2.1 which was released to production of new T-Gen2 in April 2019.

Existing units with V2.0 requiring the paging chime signal can be upgraded as described below.

V2.0

T-Gen2 V2.0 is a significant upgrade and releases many new features.

- Grade 2 operation as per AS 4428.16 with most optional functions available.
- Up to 20 zones of indication and control.
- User interface operation complies with AS 4428.16.
- Slave T-Gen2 and 100V Switching Module operation supports 3 simultaneous audio channels.
- 14A PSE and Grade 2 User Interface QBus modules supported.
- High Level Interface (HLI) with Vigilant MX1/MX4428/F3200 using RZDU allows transfer of 32 alarm signals and fault state.
- High Level Interface (HLI) with Simplex 4100ESi internal 4100Comms allows transfer of 32 alarm signals and fault states.
- 100V Switching Module and T-Gen2 100V outputs assignable to areas for non-emergency use and zones for emergency use.

- Slave T-Gen2 100V output and Strobe output separately assignable to an area and zone.
- Non-emergency Audio inputs and User functions mappable to each area.
- Cascade table defines phased evacuation – different operation per alarm trigger.
- High priority functions (e.g., lockdown) available.
- Time-tagged Event History capture and display on OLED and stored on MicroSD card if present.
- Diagnostics display of voltages and currents from 14A PSE.
- T-Gen2 in Slave Mode allow digital inputs to be assigned functions like zone alarm trigger, play message.
- Improved sound level from front panel microphone (Speech and Paging).
- Improved fault detection/resilience on 100V and Strobe outputs.
- New default configurations including a Grade 2 choice.

V1.12
This release addresses two specific issues with the following symptoms:

1) The T-Gen2 may generate an amplifier fault when a long speaker cable is connected. The capacitance of the long cable causes the high frequency test signal generated by the T-Gen2 to be suppressed. The T-Gen2 amplifier supervision method considers this a fault and it is displayed on the OLED as "AMP Fault". The fault shows up 100 seconds after power-up of the T-Gen2 when the long cable is connected. Removing the long cable (leaving just the EOL) causes the fault to clear.

2) When using the PA microphone, the volume of the speech generated via the loudspeakers is low.

It is suggested any T-Gen2 with V1.00 firmware exhibiting these issues could be upgraded to V1.12. There is no impact to the existing configurations stored in the T-Gen2. However it is recommended an upgrade to V2.00 be made as this provides many new features.

V1.0
Original release for Grade 3 operation only.

Product Information

For ordering, please contact Johnson Controls Customer Service in Melbourne on 1300 725 688 or fdp.customerservice.anz@jci.com

For application or sales enquiries, please contact your local Johnson Controls sales representative.

For technical support or technical training enquiries, contact Johnson Controls Technical Support Centre on 1300 552 559 in Australia or 09 635-0617 in New Zealand.

Further information on the extensive range of fire detection products available from Johnson Controls is available on the **Fireplace** website at www.vigilant-fire.com.au.