Gallagher Command Centre

T2x Terminal Downloads and Debugging

Technical Information Paper

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Document History

Edition	Date	Author	Comment
1.0	15/05/2018	VishnuK	General Release

1 Background

This document contains information on the T2x download process and some useful debugging information.

2 T2x Download Process

A T2x device firmware is made up of 7 components, each stored in its own file.
They are:

	Version Prefix	Description	Approximate Size (KB)
1.	vHT	Manifest – This file Contains the list of firmware files that are included this version	3
2.	vHTBS	Bootstream – Operating system	6,502
3.	vHTGA	GGL applications – Manage Internal Gallagher services	870
4.	vHTQT	Qt library - Library	18,094
5.	vHTRT	Root File system – Operating system	8,562
6.	vHTWA	Web application	292
7.	vHTST	STM32 micro – Manages HBUS, Tamper, Card reading	225

Note: Newer Multi Tech T20's additionally has Bluetooth Module which gets upgraded if the Bluetooth module firmware version on the Controller is different to the T20 reported current version.

8	vHBT	Bluetooth Module – Manage Bluetooth Connection	131

Upgrading one T2x (all firmware)

The download sequence is:

- T2x starts responding and reports its current version
  Controller downloads new vHT file from Command Centre Server
- T2x downloads new vHT file from Controller
  Controller downloads new vHBT file from Command Centre Server
- T2x downloads new vHBT file from Controller
  Controller downloads new vHTBS file from Command Centre Server
- T2x downloads new vHTBS file from Controller
  Controller downloads new vHTGA file from Command Centre Server
- T2x downloads new vHTGA file from Controller
  Controller downloads new vHTQT file from Command Centre Server
- T2x downloads new vHTQT file from Controller
  Controller downloads new vHTRT file from Command Centre Server
- T2x downloads new vHTRT file from Controller
  Controller downloads new vHTWA file from Command Centre Server
- T2x downloads new vHTWA file from Controller
  Controller downloads new vHTST file from Command Centre Server
- T2x downloads new vHTST file from Controller

T2x reboots after few minutes and starts running the new versions of firmware

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Upgrading multiple T2x's (all firmware)

The controller only downloads to a **maximum of 3 HBUS devices** at once.

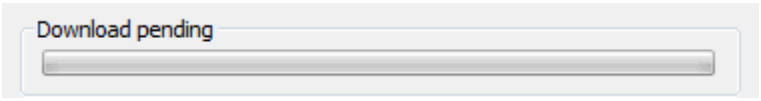
Note - if the Controller has already upgraded 1 or more T2x's then it will not need to download the firmware again from the Command Centre Server for subsequent T2x's that are configured.
When each **T2x finishes downloading** a firmware file, **the next T2x in the download queue starts** downloading the file, up to the maximum of three T2x's at any one time.

e.g: 6 x T2x's numbered T2x_1 to T2x_6:

- T2x's start responding and report their current version's
- Controller downloads new vHT file from Command Centre Server
  T2x_1, T2x_2, T2x_3 download new vHT file from Controller
  T2x_4, T2x_5, T2x_6 download new vHT file from Controller
- Controller downloads new vHBT file from Command Centre Server
  T2x_1, T2x_2, T2x_3 download new vHBT file from Controller
  T2x_4, T2x_5, T2x_6 download new vHBT file from Controller
- Controller downloads new vHTBS file from Command Centre Server
  T2x_1, T2x_2, T2x_3 download new vHTBS file from Controller
  T2x_4, T2x_5, T2x_6 download new vHTBS file from Controller
- Controller downloads new vHTGA file from Command Centre Server
  T2x_1, T2x_2, T2x_3 download new vHTGA file from Controller
  T2x_4, T2x_5, T2x_6 download new vHTGA file from Controller
- Controller downloads new vHTQT file from Command Centre Server
  T2x_1, T2x_2, T2x_3 download new vHTQT file from Controller
  T2x_4, T2x_5, T2x_6 download new vHTQT file from Controller
- Controller downloads new vHTRT file from Command Centre Server
  T2x_1, T2x_2, T2x_3 download new vHTRT file from Controller
  T2x_4, T2x_5, T2x_6 download new vHTRT file from Controller
- Controller downloads new vHTWA file from Command Centre Server
  T2x_1, T2x_2, T2x_3 download new vHTWA file from Controller
  T2x_4, T2x_5, T2x_6 download new vHTWA file from Controller
- Controller downloads new vHTST file from Command Centre Server
  T2x_1, T2x_2, T2x_3 download new vHTST file from Controller
- T2x_1, T2x_2, T2x_3 reboot after few minutes and start running the new versions of firmware
  T2x_4, T2x_5, T2x_6 download new vHTST file from Controller
- T2x_4, T2x_5 and T2x_6 reboot after few minutes and start running the new versions of firmware

T20 Standard Reader/Terminal Full upgrade will take about 25 minutes but for PIV T2x Reader, the full upgrade will take around 2 Hours. **T2x doesn't need full upgrade** for every release, **it only downloads** the firmware that is **different** from the **current version**. **Most commonly upgraded** firmware's are **vHTST, vHTGA and vHTWA** which takes about 2 minutes for Standard T20 and 10 minutes for PIV T2x Reader/Terminal.

Check the progress bar on the T2x Reader Connections properties page to confirm if the download is complete.



- Waiting for download to start

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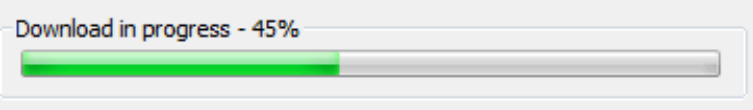
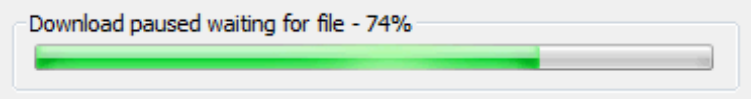


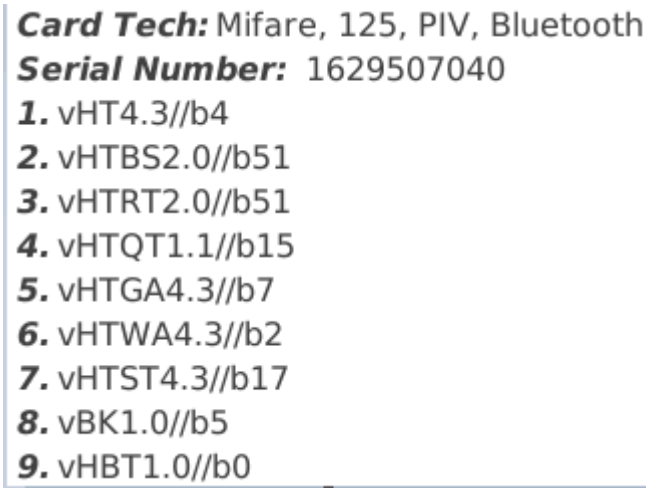
- Download is in progress



- Download is paused due to other HBUS devices in the queue downloading firmware.

To view the firmware versions and supported Card technologies, press the '#' key for 3 seconds

The T20 information screen displays as below



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3 T2x Feature Compatibility

Variant	Cardax IV supported from:	HBUS Functionality	HBUS Access supported from:	HBUS Alarms Management supported from:	HBUS Fence Management supported from:	Mobile Connect Bluetooth functionality supported from:	Mobile Connect NFC functionality supported from:
T20 Mifare Terminal	vHT1.0.69 (v7.20)	Access Control Alarms and Fence Management	vHT2.0 (v7.20)	vHT3.0 (v7.30)	vHT4.0 (v7.40)	None	vHT4.05 (v7.80)
T20 Multi Tech Terminal	vHT1.0.69 (v7.20)	Access Control Alarms and Fence Management BLE Access Control	vHT2.0 (v7.20)	vHT3.0 (v7.30)	vHT4.0 (v7.40)	vHT4.03 (v7.60)	vHT4.05 (v7.80)
T20 Alarms Terminal	None	Alarms and Fence Management	None	vHT3.0 (v7.30)	vHT4.0 (v7.40)	None	None
T20 Mifare PIV Reader	None	PIV Access Control PIV Alarms and Fence Management	vHT2.01 (v7.21)	vHT3.0 (v7.30)	vHT4.0 (v7.40)	None	vHT4.05 (v7.80)
T20 Multi Tech PIV Reader	None	PIV Access Control PIV Alarms and Fence Management	vHT2.01 (v7.21)	vHT3.0 (v7.30)	vHT4.0 (v7.40)	None	vHT4.05 (v7.80)
T21 PIV Reader	None	PIV Access Control PIV Alarms and Fence Management	vHT4.02 (v7.50)	vHT4.02 (v7.50)	vHT4.02 (v7.50)	None	vHT4.05 (v7.80)

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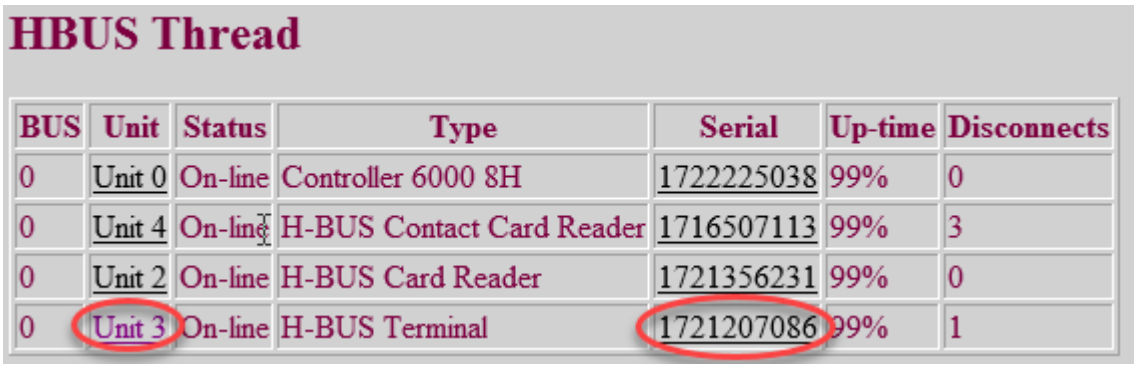
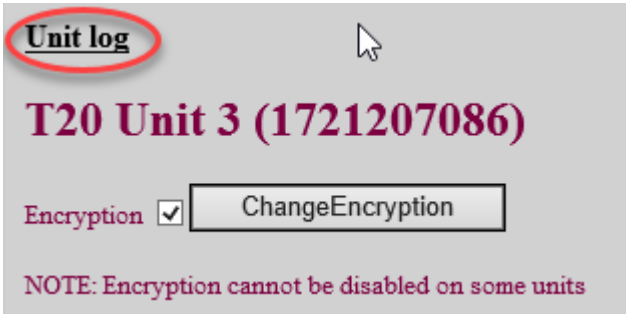
4 T2x Debugging

Follow the steps below to get the logs out of the T20

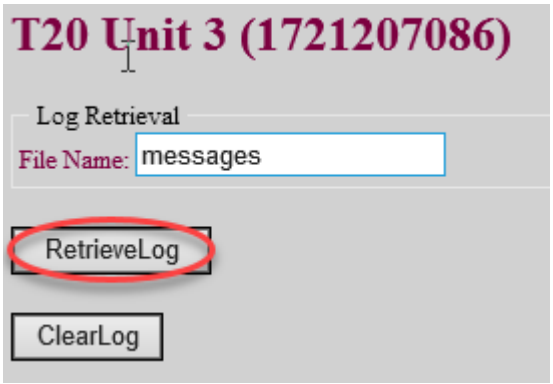
- Logon to diagnostic webpage of the Controller 6000
- Click on HBUS Manager
- Select a HBUS Terminal. HBUS device can be identified using its serial number as shown below.



- Click on the Unit Log



- To get the latest messages from T20 leave the File Name as "**messages**" and hit **RetrieveLog** button



- You will see "Hit back and refresh to view the log" message. Hit back and wait for couple of minutes before you hit refresh. This gives enough time for controller to download the logs from T20 and display it in the webpage. A full log file will be around 256Kb.
- T20 can hold up to a total of 50 logs that can be retrieved for debugging purposes. Logs are recycled using FILO (First In last Out) method. The log file names are messages, messages.0, messages.1 and goes up to messages.49.

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