Gallagher Controller 7000 vCR9.40.251031b

Release Note

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1 Introduction

The Gallagher Controller 7000 is a processing board for a security access system. It is built using the Linux Kernel 6.1.141.

The Controller 7000 can operate on their own, or can have an optional Gallagher Reader Module or Gallagher HBUS Module connected.

Note: The Controller 7000 can be configured to use 802.1x authentication. Refer to the topic *"Configuring a Controller 7000 or 7000 Single Door for 802.1x"* in the Command Centre Configuration Client online help for further detail.

2 Reason for version

This version of Gallagher Controller 7000 code (vCR9.40.251031b) contains a number of enhancements for vEL9.40 of Gallagher Command Centre. For further information refer to the *Gallagher Version 9.40 Feature Summary* and the *Gallagher Controller 6000 and 7000 Hardening Guide* (both located in the 'Documentation' directory of the Command Centre installation files).

3 Compatibility

This version of Gallagher Controller code is compatible with the Gallagher Controller 6000, 7000 and 7000 Single Door.

3.1 Gallagher Command Centre compatibility

This version of Controller code can be used in conjunction with version vEL9.40 (or later) of Gallagher Command Centre.
Note: Compatibility of Controller 7000 variants with Controller code and Command Centre versions:

Controller 7000 variant	Compatible Controller code version	Compatible Command Centre version
Standard	vCR9.00.231018c (Full Release or later)	vEL9.00.1291 (Full Release or later)
Enhanced	vCR9.00.241108a (MR5 or later) and vCR9.10.241108a (MR4 or later)	vEL9.00.1291 (Full Release or later)
High Sec	vCR9.20.250213a (MR2 or later)	vEL9.20.1043 (Full Release or later)
2 Door Standard	vCR9.00.250529a (MR7 or later), vCR9.10.250530a (MR6 or later), vCR9.20.250826a (MR3 or later), and vCR9.30.250528a (MR1 or later)	vEL9.00.3371 (MR7 or later), vEL9.10.3194 (MR6 or later), vEL9.20.2337 (MR3 or later), and vEL9.30.1871 (MR1 or later)
Starter Kit Standard		
2 Door Enhanced		

3.2 Component compatibility

The most recent code versions are as follows:

- Gallagher Command Centre - vEL9.40
- Gallagher Reader Plug-in Module - vPL5.00.001
- Gallagher F31/32/41/42 Fence Controller - vHC5.00.003
- Gallagher HBUS Module - vHP5.00.001
- Gallagher HBUS Reader STM (small flash) - vHM4.50.017
- Gallagher HBUS Reader STM - vHN5.00.0307
- Gallagher HBUS Reader Renesas - vHMA5.00.037
- Gallagher HBUS Keypad Reader STM - vHK5.00.007

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Gallagher HBUS Keypad Reader Renesas	-	vHKA5.00.007
Gallagher Z10 Tension Sensor	-	vTW5.00.002
Gallagher T20 Terminal	-	vHT5.70.040
Gallagher HBUS IO STM	-	vHI5.00.007
Gallagher HBUS IO Renesas	-	vHIA5.00.007
Gallagher Reader Bluetooth® BGM111	-	vHBT1.00.010
Gallagher Reader Bluetooth® BGM220	-	vHBTA1.02.050
Gallagher HBUS Contact Card Reader *	-	vHSC5.40.001
Gallagher Class 5 End-of-Line Module (ELM) VaultIC *	-	vCF5.00.007
Gallagher Class 5 End-of-Line Module (ELM) Edgelock *	-	vCFE5.00.007

*Applicable to the Controller 7000 High Sec variant only.

4 Upgrading the Gallagher Controller

Ensure you have upgraded Gallagher Command Centre before upgrading your Controller(s).

Note: Please make sure that the Gallagher Controller does not lose power during an upgrade as this may result in a Controller that no longer functions. In this scenario you would need to return the unit to the Field Service department.

Go to the **Software** tab of the Controller Property Pages and assign the latest software package, (e.g. vCR9.40.251031b), click **Apply** and then the **Upgrade Now** button.
The upgrade should happen. You can monitor the upgrade via the progress bar on the **Software** tab and then a Controller version event in the Event Viewer reporting that the Controller is running the new version.
Notes:

- If you are upgrading multiple Controllers, to simplify the process, the Controller Upgrade feature can be used instead. For further detail refer to "Upgrading Multiple Controllers" in v9.40 of the *Gallagher Command Centre Configuration Client User Guide* (part number C209000).
- During a Controller upgrade it is normal for the Run LEDs to turn off intermittently, for approximately 5 seconds at a time.
- Following an upgrade, it is safe to remove power from a Controller once the Run LED is functioning normally, (i.e. 1 Hz flash mode).
- The T2x will have a longer than normal expected upgrade time when the Controller is upgraded. All T2x variants will function normally during the upgrade but once the upgrade is complete they will reboot.

  Understanding the download process
  If you have more than three T2x's attached via HBUS to a Controller 7000 the following information is important to read to understand the total upgrade time as multiple files will be upgraded on the T2x's.

  The download is a round-robin process and downloads the first file to the first three terminals before downloading the first file to the next three terminals, once all terminals have the first file the download of the second file starts on the first three terminals and so on for the remaining files.

  Once the T2x receives all files it will reboot, the point here is the upgrade time will be increased for each terminal based on how many terminals are attached to the Controller.
  Upgrade progress can be monitored on the **Connections** tab of the HBUS Terminal or HBUS Alarms Only Terminal.

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4.1 Before you begin

Before you begin an upgrade to vCR9.40, ensure you do the following:

- Turn DIP switch 3 OFF.
- Remove any customisations installed.

4.2 Procedure

1. Do you want to upgrade the Controllers to vCR9.40 using a USB Flash Drive?
   If **no**, go to Step 2.
   If **yes**, go to ***4.3 Upgrading Controllers to vCR9.40 via USB Flash Drive***.
2. Upgrade to v9.40.

4.3 Upgrading Controllers to vCR9.40 via USB Flash Drive

1. In Command Centre, enable the **Perform upgrade via USB** option for an individual Controller 7000 (on the **Software** tab) or as the site default for all Controller 7000s (on the **Software** tab of the Server Properties).
2. Assign the 9.40 GGLSec Software package to the Controller.
   Refer to "Adding a new version of Device Software" in v9.40 of the *Gallagher Configuration Client online help file* for the procedure.
3. Click on the **Upgrade Now** button.
   A "USB Upgrade required" event is generated in Command Centre.
4. Add the 9.40 GGLSec file, (located in the 'Setup\Program Files\Gallagher\Command Centre\Device Software' directory of the Command Centre installation files), to a USB Flash Drive.
5. Insert the USB Flash Drive into the Controller, and wait for the Controller to go into slow flash and eventually 7 flash state.
   Once the Controller goes into 7 flash state, a "USB Upgrade complete" event is generated in Command Centre.
6. Remove the USB Flash Drive once 7 flash state occurs.
   The Controller will reboot.
7. If DIP switch 2 is on, perform a revalidate certificate override on the Controller.
   The Controller should come online with Software fully installed.

How to know if the download has failed

The Controller will return to a normal 1-flash state, and the following alarm will be generated in Command Centre:
"[Controller] - USB Upgrade Aborted".

If this happens, the USB Flash Drive that you are using is more than likely incompatible. You will need to use a different USB Flash Drive, formatted using FAT, and containing only the Controller 7000 GGLSec file.

5 DIP switch/Networking

- DIP switch 2 is used for BootP and DHCP configuration.
- DIP switch 3 is used for Default IP configuration.
- The Controller will accept IP address offers from standard DHCP servers by default.
  You can use DIP switch 4 to disable the behaviour, which may be necessary if you want to use BootP to set up a Controller and there is a DHCP server on the network.
- Router configuration is a must if Controllers are configured to use IPv6.
- If you are using pure IPv6 configuration, you need to perform a **Push Configuration** (via the Controller context menu in Command Centre) to get the Controller online.

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6 Recommendations

It is recommended that all components related to doors, (e.g. sensors, readers, etc.), are hosted by the same Gallagher Controller as the door. Splitting components over several Controllers is unsupported configuration.

If components are split over several Controllers then a network failure may result in incorrect door status, door open too long alarms, etc. Also, when one Controller restarts some parts of doors may report incorrect status.

Performance of access control will also be poor in this case.

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Appendix A: Upgrading Site / Controller Database Re-sync

Background

This appendix is intended to highlight when a Controller Database Re-sync is required. It is also intended to highlight the need for care and planning ahead when re-syncing controllers on large sites.

There are a number of reasons why you would perform a database re-sync, (e.g. a new controller has been installed, there have been cardholder database changes).

It is always required for you to read the release notes before upgrading a site as additional information may be posted on this process.

Planning and managing a Controller Database Re-Sync using Status and Overrides window

1. When any controller is brought online for the first time or after upgrading, the cardholder database will be empty. As cardholders badge at a door the controller will query the server for the cardholder records, and the controller will then hold that record if indeed the cardholder is allowed through the door. If the controller was not able to contact the server it will deny access if it does not have the cardholder record.

   A Database Re-sync will need to be completed to avoid this situation where the controller cannot contact the server, and to populate the cardholder database. If the server later goes offline it will not matter.

2. On a large site it is recommended to re-sync one controller at a time.
   The reason for this is because on large sites a re-sync can make the server very busy, too many re-syncs at once can cause the server to be so busy it is not able to respond to controllers that are requiring access information for cardholders in a timely manner and this can result in unauthorised cardholder alarms and access denied at the door.

3. To monitor when a controller has finished the re-sync you can use the Controllers Status and Overrides window to report how many messages (updates) are pending for the controller.
   Note: It takes about a minute to destroy and recreate a blank card database on Controller 7000. During this time, no access attempts can be processed. Once the database has been created, access attempts perform normally, whilst the resync continues in the background.

4. When a Database Re-sync is requested the messages pending count will gradually increase until all cardholder information the controller needs to know about is queued up, this information will start flowing down to the controller. It is important to note the amount of messages pending does not directly represent the amount of cardholders being sent to the controller. Depending on the amount of messages pending the controller can take between a few minutes to over an hour to re-sync.

5. Do not perform a Database Re-sync on the same controller twice; within a short time, this will duplicate the amount of work at the server and controller.

If you require additional information or advice then please contact Gallagher Security Technical Support.

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Unix SMB/CIFS implementation.

trivial database library
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NOTE: If you use tdbs under valgrind, and in particular if you run tdbtorture, you may get spurious "uninitialized value" warnings. I * think this is because valgrind doesn't understand that the mmap'd area may be written to by other processes. Memory can, from the point of view of the grinded process, spontaneously become initialized.

I can think of a few solutions. [mbp 20030311]

1 - Write suppressions for Valgrind so that it doesn't complain about this. Probably the most reasonable but people need to remember to use them.

2 - Use IO not mmap when running under valgrind. Not so nice.

3 - Use the special valgrind macros to mark memory as valid at the right time. Probably too hard the process just doesn't know.

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48. [52]Jack Sasportas <jack@innovativeinternet.com> Saved a Lot of space on the stuff in the html/pic/ subdirectory
49. [53]Ray Schnitzler <schnitz@unipress.com> Unixware1 port
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51. [55]Jeff Steinman <jss@pebbles.jpl.nasa.gov> Datum PTS clock driver
52. [56]Harlan Stenn <harlan@pfcs.com> GNU automake/autoconfigure makeover, various other bits (see the ChangeLog)
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@version 3.0 (December 2000)

Optimised ANSI C code for the Rijndael cipher (now AES)

@author Vincent Rijmen <vincent.rijmen@esat.kuleuven.ac.be>
@author Antoon Bosselaers <antoon.bosselaers@esat.kuleuven.ac.be>
@author Paulo Barreto <paulo.barreto@terra.com.br>

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Zlib

ZLIB DATA COMPRESSION LIBRARYzlib 1.2.11 is a general purpose data compression library. All the code is thread safe. The data format used by the zlib library is described by RFCs (Request for Comments) 1950 to 1952 in the files http://tools.ietf.org/html/rfc1950 (zlib format), rfc1951 (deflate format) and rfc1952 (gzip format).

All functions of the compression library are documented in the file zlib.h (volunteer to write man pages welcome, contact zlib@gzip.org). A usage example of the library is given in the file test/example.c which also tests that the library is working correctly. Another example is given in the file test/minigzip.c. The compression library itself is composed of all source files in the root directory.

To compile all files and run the test program, follow the instructions given at the top of Makefile.in. In short "./configure; make test", and if that goes well, "make install" should work for most flavors of Unix. For Windows, use one of the special makefiles in win32/ or contrib/vstudio/ . For VMS, use make_vms.com.

Questions about zlib should be sent to <zlib@gzip.org>, or to Gilles Vollant <info@winimage.com> for the Windows DLL version. The zlib home page is http://zlib.net/ . Before reporting a problem, please check this site to verify that you have the latest version of zlib; otherwise get the latest version and check whether the problem still exists or not.

PLEASE read the zlib FAQ http://zlib.net/zlib_faq.html before asking for help.

Mark Nelson <markn@ieee.org> wrote an article about zlib for the Jan. 1997

issue of Dr. Dobb's Journal; a copy of the article is available at http://marknelson.us/1997/01/01/zlib-engine/ .

The changes made in version 1.2.11 are documented in the file ChangeLog.

Unsupported third party contributions are provided in directory contrib/ .

zlib is available in Java using the java.util.zip package, documented at
http://java.sun.com/developer/technicalArticles/Programming/compression/ .

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A Perl interface to zlib written by Paul Marquess <pmqs@cpan.org> is available at CPAN (Comprehensive Perl Archive Network) sites, including
http://search.cpan.org/~pmqs/IO-Compress-Zlib/ .

A Python interface to zlib written by A.M. Kuchling <amk@amk.ca> is available in Python 1.5 and later versions, see
http://docs.python.org/library/zlib.html .

zlib is built into tcl: http://wiki.tcl.tk/4610 .

An experimental package to read and write files in .zip format, written on top of zlib by Gilles Vollant <info@winimage.com>, is available in the contrib/minizip directory of zlib.

Notes for some targets:

- For Windows DLL versions, please see win32/DLL_FAQ.txt

- For 64-bit Irix, deflate.c must be compiled without any optimization. With -O, one libpng test fails. The test works in 32 bit mode (with the -n32 compiler flag). The compiler bug has been reported to SGI.

- zlib doesn't work with gcc 2.6.3 on a DEC 3000/300LX under OSF/1 2.1 it works when compiled with cc.

- On Digital Unix 4.0D (formely OSF/1) on AlphaServer, the cc option -std1 is necessary to get gzprintf working correctly. This is done by configure.

- zlib doesn't work on HP-UX 9.05 with some versions of /bin/cc. It works with other compilers. Use "make test" to check your compiler.

- gzdopen is not supported on RISCOS or BEOS.

- For PalmOs, see http://palmzlib.sourceforge.net/

Acknowledgments:
The deflate format used by zlib was defined by Phil Katz. The deflate and zlib specifications were written by L. Peter Deutsch. Thanks to all the people who reported problems and suggested various improvements in zlib; they are too numerous to cite here.

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Jean-loup Gailly Mark Adler
jloup@gzip.org madler@alumni.caltech.edu

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