



# **APERIO<sup>™</sup> ASSA ABLOY** WIRELESS READERS & COMMUNICATION HUBS

System Galaxy 11.8.6 | 2024

System Galaxy	
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Integrating System Galaxy with Aperio Wireless Readers & Communication Hubs with RS-485 Serial Communication using a Galaxy 635-CPU & 600-DSI Board	This document describes how to wire & configure the Aperio Readers and Communication Hubs to work with the Galaxy DSI RS-485 Board, as well as how to program wireless readers into the System Galaxy software. This guide does not supersede the manufacturer's documentation for installing its products, which are not manufactured by Galaxy Control Systems.
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## **DOCUMENT HISTORY**

DATE	HISTORY
APR 2013	1 <sup>st</sup> Edition published with SG 10.2 release which introduced the Aperio product integration.
OCT 16, 2014	2 <sup>nd</sup> Edition published for SG10.4 Release, included a correction to the system registration for branded wireless locks.

# 1 Introduction to Aperio<sup>™</sup> Wireless Technology

This guide includes known requirements, install/configuration and operation instructions <u>that specifically apply</u> <u>to the integration</u> between the Aperio<sup>M</sup> Technology and System Galaxy.



ABLOY

**REFERENCES:** See the *Additional Galaxy Documentation section* for a list of other Galaxy manuals that cover the hardware and software installation and configuration that is outside the scope of this guide.

**REFERENCES:** See Assa Abloy's Documentation for requirements and instructions that are outside the scope of this guide.

## 1.1 COMPATIBILITY AT A GLANCE

System Galaxy version 10.2 supports Aperio<sup>™</sup> Communication Hubs & Aperio Wireless Readers.

- 1. System Galaxy software v10.2.0
- 2. 635 panel(s) running CPU Flash v5.0 (or higher); supports up to 64 devices per panel/CPU
- 3. Dual Serial Interface (DSI) Board (matching the CPU Flash; auto-flashed at installation)
  - » two (2) RS-485-Channels per board (supports max. 16 doors per channel; Aperio stipulations apply)
  - » supports max. 15 AH30 Hubs<sup>1</sup> per channel @ max. distance of 4,000 cable feet from DSI
- 4. Aperio AH30 [1-to-8] Communication Hub and wireless readers
  - » AH30 supports up to 8\* Wireless Readers @ max. of 45 feet\* from the Hub
  - » two Hubs required if installing more than 8 doors per DSI channel
  - » supports 26bit Wiegand format
    - MIFARE 13.5 MHz Smart Card (CSN/UID)
    - HID iClass 13.5 MHz Smart Card (CSN/UID; HID Secure Sector 26bit/Corp 1000; Sector read)
    - 125 KHz Wiegand Proximity Card
    - Magnetic Swipe is not supported
- 5. Aperio Programming Software/USB Dongle\* (U.S. Version) to configure AH30 Hubs & Aperio Readers



**NOTE:** physical obstructions and device interference can reduce the RF-range of the HUB. This can decrease the reliable RF distance to a reader/door, or reduce the number of readers that can be supported by a Hub. **With Galaxy, you can install up to 15 AH30 Hubs on a DSI board's 485-channel** to enable greater reliable RF coverage and increase the number of readers (max. 4,000 cable ft. distance inherent to an RS-485 bus applies).



FOOTNOTE 1: Galaxy is fully compatible with AH15 (1 to 1) Hub in eligible European markets.

**IN THIS GUIDE:** See the *REQUIREMENTS section* for a full list of known requirements to integrate the Aperio product line with System Galaxy (hardware and software).

**IN THIS GUIDE:** See the UNSUPPORTED FEATURES section in Chapter 3 for a list of unsupported Reader/Door programming options.

## 1.2 SYSTEM INTEGRATION AT A GLANCE

#### **RELIABLE COMMUNICATION**

*System Galaxy software* communicates with Galaxy *635 Access Control Panels* over Ethernet network. Inside the Control Panel, the *Dual Serial Interface (DSI) Board* connects to Aperio Communication Hubs using the *RS-485 Network Channel* on a two-wire, multi-drop configuration (up to 4,000 cable feet max distance). The *Aperio Comm Hub* communicates with *Aperio Locks/Readers*\* using wireless radio frequency (RF) (max distance is subject to Aperio stipulations for maintaining reliable RF signal range).

#### **IMMEDIATE CARD AUTHENTICATION**

When an *authentic access credential* is presented to an Aperio lock, its reader transmits the card data to the Aperio Comm Hub. The Aperio Hub then transmits the card data to the Galaxy Access Control Panel. The Galaxy access control panel immediately determines the cardholder's access privileges based on rules stored within the panel, regardless of whether the panel has a current connection to the System Galaxy software. The panel decisions the credential (grant or deny access) and the decision is transmitted back to the Hub.

If SG monitoring software is online when transactions occur, the panel simultaneously transmits the events, including access decisions to the software. During online monitoring, the live events display on the monitoring screen and are also available through system reports.

If the SG monitoring software is offline, the panel logs the events to its memory until the software is online and can pick up the stored events. Stored events are available through the software's system reports.



#### Figure 1 – SYSTEM CONCEPT DIAGRAM

**NOTE:** The diagram above shows all 16 doors supported by two AH30 HUBS. Aperio allows up to 15 HUBS on each 485-network bus. Therefore you can add up to 15 hubs to each DSI section as needed to provide reliable RF-coverage for up to 16 locks/doors per section (up to 30Hubs and 32 lock/doors per DSI board).

**NOTE:** System Galaxy integrates with any Aperio wireless reader/lockset that is compatible with the Aperio AH30 1-to-8 Communication Hub (or AH15 1-to-1 Hub in eligible European markets).

**NOTE:** Galaxy can integrate panels supporting wireless technologies into the same system with all other access control devices and standard hardwired readers (stipulating up to 64 devices per control panel).

\*

\*

## 1.3 ADDITIONAL GALAXY DOCUMENTATION

The current versions of Galaxy manuals are found on the Galaxy technical website and are also located on the System Galaxy installation suite (DVD/CD). Most Galaxy manuals are also installed on the System Galaxy communication server.



OFFLINE DOCUMENTATION	System Galaxy Install Suite (DVD/CD)
SG v10 System Specification Guide	Describes system specifications for SG database, software, hardware, and OS as well as 3 <sup>rd</sup> Party integrations; includes system architecture guidelines.
SG v10 Software User Guide (Edit 10.2)	Describes how to configure and operate the features of the software
635/600 Hardware Install Guide (Edit 10.2)	Describes how to install and configure the hardware and its peripheral devices (readers, inputs, outputs).

System Galaxy Integration to Aperio Wireless

## 1.4 INTEGRATION REQUIREMENTS



**REFERENCE:** See Assa Abloy's documentation for manufacturer's requirements and install instructions that are outside the scope of this integration guide.

## 1.4.1 SYSTEM GALAXY HARDWARE REQUIREMENTS

- 1) 635-series Control Panel/CPU running S28 Flash version 5.0 or higher.
  - a) IMPORTANT: DO NOT INTERRUPT POWER to the CPU or DSI (any daughter boards) while boards are flashing! You will flash the CPUs after you have installed the SG Software on the main communication server and done any initial programming at the panel and software. Once the CPU flash is complete, it will wait 10-seconds to begin the autoflash of the daughter boards. Daughter boards will flash in random sequential order, one board at a time.
  - b) IMPORTANT: Galaxy supports a maximum of 64 devices per control panel (CPU) calculate using table below
    - » All types of readers = count as 1 device per each reader regardless of which board they are wired to.
    - » Any board used for a purpose different than supporting a reader, is counted as 1 device for the board.

Galaxy Interface Board ( by usage)	Device Equation	Total
DPI (supports 2 readers per board)	<b>2 Readers X</b> no. of DPI boards	
DSI 485 (Aperio wireless devices)	no. of wireless readers	
Galaxy 485 Unit (supports 2 readers per unit)	<b>2 x</b> no. of 485 units	
		GT

- 2) 600-series Dual Serial Interface (DSI) board running S28 Flash version 5.0 or higher.
  - a) The DSI board supports the following
    - » The Galaxy DSI board supports up to 16 doors per 485-channel (i.e. two 485-Channels per board which means up to 32 readers per board; max 64 devices per panel).
    - » The Galaxy DSI allows up to 15 Hubs per 485-channel.
    - » An Aperio AH30 Hub supports up to 8 readers per Hub (@ max. 45 feet from the Hub\*).



**NOTE:** physical obstructions or device interference can reduce the RF-range of a HUB. This can decrease the reliable RF distance to a reader/door, or reduce the number of readers that can be supported by a Hub. **With Galaxy, you can install up to 15 AH30 Hubs on a DSI board's 485-channel** to enable greater RF coverage and increase the number of readers (the max. distance 4,000 cable ft. inherent to an RS-485 network is applicable).

- b) Max. RS-485 line distance is 4,000 cable feet per DSI-channel (to last Hub); 22 AWG two-wire overall shielded, twisted pair.
- c) *Line Impedance Termination Resistors* are not mandatory on the 485-network, unless line impedance is an issue. Termination resisters would be installed on both extreme ends of the network, if needed.
- d) MIFARE & HID iClass smart cards, and 126 KHz Proximity cards are supported in Wiegand format; ABA is not supported.
- e) The Wireless Reader numbers must be unique and valid on the DSI 485-channel (1-16 is valid; zero not valid)

## 1.4.2 SYSTEM GALAXY SOFTWARE REQUIREMENTS

- 1) System Galaxy Software (SG) version 10.2 (or higher)
  - a) If you are doing a new install of hardware and software, you must check that each CPU is running the correct S28 Flash version 5.0 that is released with SG 10.2.0. Boards shipped from the factory could have a different version of flash than the software you are installing. CPUs must run the correct flash version for the Software.
  - b) If you are upgrading an existing system, you will first upgrade the database and software on the servers and workstations to SG 10.2.0. Then you will upgrade your CPUs to the correct version S28 Flash version 5.0 after you have completed the initial hardware programming and added the loops and panels to the software.

See Chapter 2 of this guide for quick instructions on installing hardware equipment.

See Chapter 3 of this guide for quick instructions on configuring SG software.

See the Installation Help instructions on the DVD-1 splash screen for installation steps and links to manuals.

See the 635/600 Hardware Guide for extensive instructions on installing and flashing hardware.

See the SG Software User Guide for extensive instructions on configuring and operating software, including enrolling cardholders.

- 2) Installer must configure the [Max # DSI-Based Readers] in System Registration to be installed. This is part of the License Agreement and Product Registration Code. The [Max Readers] count must include the DSI-based reader count. All Product Levels support registering wireless readers (Professional, Corperate, Enterprise).
- 3) SG Operators can send LOCK and UNLOCK commands from the System Galaxy software to the Aperio locks (NOTE: a Hub may induce a delay of few seconds due to heartbeat timer).
- 4) The normal software registration must be must be performed for new installs (or current for existing systems).
  - a) You must be registered for the correct number of doors in the System Registration screen.
  - b) Your maintenance expiration date must be valid (not expired) in order to upgrade your system. DO NOT ATTEMPT TO UPGRADE YOUR DATABASE UNTIL YOU HAVE A VALID EXPIRATION DATE.
- 5) SG Cluster/Controller/Board programming screens:
  - a) You must add the Loop/Cluster to the software (extended card mode is supported if the reader supports it). Aperio readers do not support access override option due to the nature of the *HUB to wireless reader* communication.
  - **b)** You must add the 635 controllers and boards to the software. On the *CPU boards tab* the model # should = 635 (the Aperio reader option is only available on 635 CPUs)
  - c) Once the Cluster and Control Panel are added, you should open the Loader from the hardware tree and verify that the CPUs are running v5.0 S28. Flash the CPUs if necessary.



**SUPPORT:** Contact authorized dealer/technical support for assistance with flashing panels if you have a large system or are upgrading an existing system that is SG9.0 or older.

- 6) SG Programming Serial Channel: Each DSI Section (485-channel) must be configured in System Galaxy.
  - a) You must select the 'ASSA ABLOY Aperio' option in the Channel Mode droplist. (option is only visible for 635 CPUs)
  - b) You must select the DSI board number and section number that you want to enable readers for before you check the reader checkboxes. Enable only the door numbers that you actually installed by clicking on the checkbox beside the reader number in the list. Leave "uncheck" any door numbers that you did not install.
  - c) In the reader properties screen the reader name will indicate which DSI board number, Section, and reader number you are choosing.
- 7) SG Programming Door/Reader Reader Properties screen: Each Door Reader must be configured in System Galaxy.
   a) Map the correct HUB / Reader number to the Galaxy door by looking at the reader name, board number/section.
  - b) All disabled options are not available for the Aperio wireless readers.

## 1.4.3 APERIO HARDWARE REQUIREMENTS

- 1) You must use the *Aperio Programming Software & the Wireless USB Dongle* to configure the readers and hubs.
  - a) The Aperio Software must be installed on a PC/Laptop that is within the range of the HUB/Readers.
  - **b)** The **Aperio USB Dongle** must be installed/connected to the same PC/Laptop as the Aperio Software during reader and hub configuration. Drivers that support this dongle must be installed.
  - c) PC/Laptop (USB Dongle) must have unimpeded RF communication with the hubs and readers to successfully configure them. *If you have trouble configuring the Aperio hardware, try moving the PC/Laptop closer or place it in a location that is unobstructed by physical objects, people or other electronic / wireless devices.*



**IMPORTANT:** Be aware that ASSA ABLOY offers *FCC-compliant software* and *EU-compliant software*. Likewise, the Aperio Hubs, Readers are manufactured to meet FCC-compliance or EU-compliance. You must use the version of Aperio software (U.S. or European) that matches the type of readers you have. U.S. FCC-compliant versions of the Aperio product cannot be configured by the EU-compliant software.

**IMPORTANT: All U.S. installations must use/install the** *U.S. Aperio hardware to be FCC-compliant*. EUcompliant versions of Aperio use different RF channel frequencies which are not authorized in the U.S.

#### 2) Configuring the AH30 HUB:

- a) Single-lock (1-to-1) Hub version 4.3.15220 has been tested compatible with SG 10.2
- **b)** Multi-lock (1-to-8) Hub version 4.4.16313 has been tested compatible with SG 10.2
- c) Each Hub must have a unique/valid binary unit address on the 485-network bus (1-15 is supported in Galaxy). This is set on the dipswitch on the back of the hub see Chapter 2 for a description of setting the binary address at the hub. Note: setting the HUB to zero (i.e. all binary switches OFF) disables the hub from communication with doors or with the DSI board.
- *d)* The AH30 HUB supports up to 8 wireless readers, provided reliable RF communication is established (AH15 1-to1 HUB supports one reader/door and is compatible with Galaxy in eligible European markets).
- e) Aperio AH30 Hub & Readers come preconfigured with three (3) default RF frequencies (channels 11, 16, 25).
- f) The same three channels must be set at both the Hub and the readers that will connect to it.
- g) If you change the channels used in the hub to get reliable communication, you must set readers to match.

#### 3) Pairing and Configuring the Aperio Wireless Readers:

- a) Each Wireless Reader must be "paired" with the hub after the hub has been given a unique and valid binary address and installed and powered up on the 485-network. This is done with the Aperio Software and Dongle.
- b) Each reader's three default RF channels must match the there channels set in the Hub.
- c) Each reader will be auto-assigned a unique number when it is paired to the hub; readers are number in the sequence that they are paired. This hub+reader numbers must be remembered so you can properly map the reader in System Galaxy reader properties screen. Table below is an example see appendix of this guide.

LOOP# / UNIT #	DSI BOARD ID	SECTION #	HUB ADDRESS	No. of Locks 'paired' to HUB	Galaxy reader numbers
LOOP 1 / UNIT 1	DSI 5	1	1	3	1, 2, 3
и и	и и	2	1	6	1, 2, 3, 4, 5, 6
LOOP 1 / UNIT 2	DSI <b>3</b>	1	1	8	1 thru 8
и и	и и	"	2	3	9 , 10, 11
и и	<i>u u</i>	"	3	5	12 thru 16

As you can in this example, see Panel 1 has only 1 hub on both sections. Panel 2 has three hubs on section 1.

# 2 Installation & Wiring of Galaxy DSI and Aperio Hardware

This section covers installation and wiring instructions that are specific to integrating the Aperio hardware with the GALAXY DSI Board. The main 635-series Hardware Guide should be followed for installing controllers in general.

## 2.1 ABOUT INSTALLING GALAXY HARDWARE

This section highlights the requirements of installing the hardware that are specific to Aperio integration.

You must properly install the Controller (using a 635 CPU board and 600 DSI board) according to the instructions in the 635 Hardware Guide.

#### 2.1.1 THE GALAXY HARDWARE PANEL & CPU

- 635-series Controller (access control panel)
  - 1. 635 CPU Board with v5.0 S28 flash code (or higher)
  - 600 DSI Board with v5.0 flash (or higher) using the RS-485 port / section Supports up to 16 HUBS per RS-485 section/port with two 485-sections per board. Supports up to 16 doors per RS-485 section/port with two 485-sections per board.
  - **3. 600 DIO Board** with v5.0 flash (or higher) (board is optional/only used if door alarms will trigger outputs)
- When you install the Galaxy panel, you must configure the 635 CPU with a compatible network address and related parameters. Each controller must have a unique unit number on the Loop/Cluster to which it is assigned.
  - When installing and configuring a 635-CPU, you will need:
    - 1. the PC/Laptop must be connected to the same Ethernet segment as the 635 CPU and daughter boards, in order to configure the over the Ethernet.
    - 2. the PC/Laptop must use the <u>635 Web Config Tool</u> to auto-detect all 635 CPUs that are physically connected to the same Ethernet segment, based on the MAC address
- You can find detailed install instructions in the Galaxy 635/600 Hardware Guide, located on the install DVD-1, is
  installed with the software on the main communication server and also located on the Galaxy website at
  www.galaxysys.com. Click on the Support link on the left side menu, then click Technical Support; then locate the
  Documentation at the bottom of the Tech Support page.

## 2.1.2 WIRING APERIO HUBS TO GALAXY DSI-BOARD

A 485 DSI board can have up to 16 doors on each RS-485 Section. There are two (2) RS-485 channels on a DSI board. Multiple HUBS can be connected in a daisy-chain fashion to the DSI 485-channel in order to provide RF coverage to all doors. An AH30 Hub can connect to up to 8 doors. You can add up to 15 Hubs if needed.

#### **IMPORTANT NOTES**

- You must install wire jumpers on the DSI 485-channels [T to R -] and [T + to R +]
- You must wire **T+ to terminal A** of the Hub, and **T- to terminal B** of the Hub.
- You must ground the drain-wire of the cable only one end.
- Configure a unique and valid Binary address for the Hub on the 485-channel using the dipswitch. See the Binary Dipswitch Addressing Chart on next page for assistance with numbering.
- The AH30 HUB unit should be powered on its own (separate) power supply.



#### Figure 2 – WIRING GALAXY DSI (485-Channel to AH30 HUB)

### 2.1.3 ADDRESSING THE APERIO HUB

#### You can support up to 15 Hubs on each DSI 485-channel and up to 8 doors per AH30 Hub.

#### **IMPORTANT NOTES**

- Configure a unique/valid address for each Hub using the Binary dipswitch on back of hub.
- Addresses 1 thru 15 are valid to Galaxy (Zero or all OFF will disable the hub).
- You must "pair" the readers to the Hubs using the Aperio Programming Software. See the next section for details.

## Figure 3 – BINARY ADDRESSING CHART

ADDRESS	DIPSWITCH
1	only A0 = ON
2	only A1 = ON
3	A0 & A1 = ON
4	only A2 = ON
5	A0 & A2 = ON
6	A1 & A2 = ON
7	A0, A1 & A2 = ON
8	only A3 = ON
9	A0 & A3 = ON
10	A1 & A3 = ON
11	A0, A1 & A3 = ON
12	A2 & A3 = ON
13	A0, A2 & A3 = ON
14	A1, A2 & A3 = ON
15	A0, A1, A2 & A3 = ON
16	NOT SUPPORTED
0	All OFF = disabled



## 2.2 PAIRING WIRELESS READERS TO APERIO HUBS

You must mate or "pair" each wireless Reader to a HUB using the Aperio Programming Software. The Aperio software will auto-number each reader in the order that they are 'paired' to a hub. Thus, the first reader to be paired (or mated) to any hub will become reader #1 at that hub. Likewise, the second reader to be paired to the same hub will become reader #2 **at that HUB**. As far as Aperio is concerned, the numbering restarts at 1 for each additional Hub on the same bus.

**BE AWARE:** Each hub on the same 485-network bus will auto-number its readers beginning with 1, even if another hub already has 1. System Galaxy considers the HUB address along with the reader number to avoid duplicate reader numbers in the system. For example, [Hub-2 Reader-1] is treated logically within SG software and assigned the next sequential number after the last reader at Hub-1 ~ thereby avoiding duplicate readers.

#### **IMPORTANT NOTES**

- You can pair up to 8 doors (Reader/locks) to each AH30 Hub.
- IF one HUB cannot provide reliable RF signal coverage to all 8 readers, you can add more Hubs.
- Each Aperio *Hub/Reader-pair* must be map to a unique Door/Reader in System Galaxy. *See the section in Chapter 3 about mapping the Hub/Reader to the Galaxy Doors.*
- AH30 Hubs & Readers must use the same 3 RF Frequencies and valid version of firmware. See the Requirements section in Chap. 1 and the Aperio Documentation for instructions.



#### Figure 4 – GALAXY READER MAPPING OF 'PAIRED' HUBS

## 2.2.1 STARTING THE APERIO PROGRAMMING SOFTWARE

The Aperio software and Dongle are used to configure Hubs, link or pair locks with Hubs, update firmware, and change the default RF channels that will be used by the hubs and readers/locks.



1) Double-click the Aperio Software icon (or start Aperio from the program menu).



2) The software will open with a blank screen.

#### Figure 5 – Starting the Aperio Software

<i>P</i> 1	perio I	<sup>o</sup> rogram	ming Applic	ation	
File	Views	Settings	Help		
				Communicating with USB Radio	
				Piedse walk	

## 2.2.2 LOG-IN TO THE APERIO DATABASE

You must initially create a database name and password when you runt he Aperio software the first time. After that you must choose the Aperio database file and log in with the password you created before you can configure Hubs and link (pair) reader/locksets.

- 1) From the menu, select File > Open
- 2) Choose the database name that you created initially
- 3) Click [Open].
- 4) Enter the **password** and click **OK**.

#### Figure 6 – Signing-into the Aperio Database

🤌 Open	
Installation Select the installation to open	
Mifare	~
Open Cancel	

🔑 Enter Password 🛛 🛛 🔀
Password Please enter installation password
Password
OK Cancel

### 2.2.3 SCANNING FOR HUBS

The Aperio software will use the Dongle to scan for any Hubs that are within the 45 foot radius. All hubs that are in the area will be listed in the Aperio software screen.



**IMPORTANT:** the Aperio Dongle and its driver(s) must be installed on the same PC/Laptop that is running the Aperio Programming Software and the Hub must be with the 45 foot range \* and must have power applied to the device.



**NOTE:** physical obstructions and device interference can reduce the RF-range of the HUB. This can decrease the reliable RF distance to a reader/door, or reduce the number of readers that can be supported by a Hub. **With Galaxy, you can install up to 15 AH30 Hubs on a DSI board's 485-channel** to enable greater reliable RF coverage and increase the number of readers (max. 4,000 cable ft. distance inherent to an RS-485 bus applies).

- 1) Click [SCAN] or [SCAN ALL] to find the Hubs on specific or all channels.
- 2) The Scanning Process bar will display while scanning happens. Hubs should be within 45 feet of the Aperio Dongle /PC.
- 3) Once scanning completes, the detected Hubs and any 'paired' locks will display.

	p				
Installation 🔀					
Scan Scan All	Upgrade Firmware	]			
Lock Scanning will be r	nade on the following channe	el(s):11, 12, 13, 14, 15, 16, 17,	18 <mark>, 19, 20, 21, 22, 23</mark>	, 24, 25	
	Scanning				
	Please Wait	0%			
		Scanning			
		Getting detailed informa	ation from device 78A.	7	
			100 %		
	🥟 Aperio Program	ming Application -	e]		
	Eile Views Settings	Help			
	Installation 🔀				
	Scan Scan A	Upgrade ware			
	Lock	Communication Hub	UHF Link		
	018C59	0278A7	@@ <b>@</b>	6	

#### Figure 7 – Scanning for Hubs & Locks

## 2.2.4 SELECTING A HUB TO CONFIGURE

The Aperio software will automatically link or 'pair' a lock with the selected Hub when you use an authentic credential to excite the reader/lock.

- 1) Click one time on the desired HUB to highlight it.
- 2) Then right-click the highlighted HUB and on the popmenu, select **Communication Hub > Configure...**
- 3) Pick the option to 'Pair the Hub to the Lock'
- 4) Click the [NEXT] button at the bottom of the screen to advance to next screen.

#### Figure 8 - Selecting a Hub to Configure

🤌 Aperio Programming	Application - [Mifa	re]		_
File Views Settings Help				
Installation 🔀				
Scan Scan All	Upgrade Firmware			
Lock	Communication Hub	UHF Link	Communication Hub	
018C59	0278A7	Lock [018C59]	MAC Address 00:17:7a:01	1.02.02.78.27
01273F	0278A7	Communication Hub [0278A7] 🕨	Configure	
		Link Quality Measurement	Retrieve comhos system information	
			Ad channels to PAP	Multiple Lock
		🤌 Configure Com	munication Hub [0278A7]	
		Select action Select an action	and click 'Next'	
		Select configur	ation action	
		O Update configu	ration	
		Pair Communica	ation Hub with an Aperio Lock	
		Current configura	tion	
		MAC Address	0278A7	
		Lock MAC Addre	ss [unknown]	
		Physical Location	1	

## 2.2.5 PRESENTING A CARD TO A LOCK

The Aperio lock must be within 45 feet from the Aperio Hub and the Aperio Dongle (PC/Laptop).

- 1) Present an authentic credential to the desired lock/reader.
- 2) Wait for the reader LED to indicate it picks up the HUB. Note that the color of the LED may not be green depending on whether the lock has already been set up beforehand.
- 3) Click the [NEXT] button at the bottom of the screen to begin the linking process.

#### Figure 9 - Presenting a Card to the Lock

Configure Communication Hub [0278A7]		$\overline{\mathbf{X}}$
<b>Show a card</b> Show a card to the Aperio Lock and await visual indication from the lock leds. Click 'Next' to complete pairing.		
	Back Next	Cancel

## 2.2.6 LINKING (PAIRING) THE HUB & LOCK

The Aperio lock must be within 45 feet from the Aperio Hub and the Aperio Dongle (PC/Laptop).

- 1) The linking process will take a few seconds.
- 2) Once the pairing is complete, the software prompts the user that it was successful. If the pairing is not successful, the software will show that result and the installer will have to return to the main screen and start the pairing process again.
- 3) Click the [CLOSE] button at the bottom of the pairing screen and return to the main screen.
- 4) The lock will now be listed with a green dot to indicate it is successfully connected.

#### Figure 10 – Successful Results - Lock Added To Hub



## 3 CONFIGURING SYSTEM GALAXY SOFTWARE

## 3.1 CONFIGURING THE CONTROLLER AND DSI IN THE SOFTWARE

The System Galaxy software must be programmed with the information about the Galaxy Controller, DSI Board and Readers.

The following subsections describe configuring the System Galaxy software for Aperio Wireless readers. The main SG software manual describes the programming of cards, access rules, schedules, etc.

#### 3.1.1 ABOUT SYSTEM GALAXY COMMUNICATION SERVICES

The System Galaxy software and core GCS Services must be running in order to load programming to the controller or send door commands:

- System Galaxy Software used to ...
  - » program the Loop/cluster and panel settings, add DSI board, configure the DSI channel for the HUB-485, etc.
  - » load card data, access rules, schedules/holidays, reader properties, etc.
  - » monitor doors / events, send door commands, etc.

#### **XP System Tray Icons**

Windows-7 PCs do not show icons when services automatically start.

<u>yhoi</u>

- **GCS Event Service** (XP systray icon looks like a globe) . The access control panels initiate their connections to this service.
- GCS Client Gateway Service
- GCS Communication Service
- GCS DBWriter Service

#### 3.1.2 SIGNING-IN - SYSTEM GALAXY SOFTWARE

- 1) Double-click the SG icon on the desktop of the Communication server
- 2) Enter the login name and password for a Master level operator

#### Figure 11 – Sign On/Off: Logging into System Galaxy

Sign On/Off		×
Operator Name:		
Password:		
Sign On (	Sign Off	Close

## 3.1.3 REGISTERING SYSTEM GALAXY FOR WIRELESS READERS

All product levels support the registration/licensing of wireless locks for branded readers.

To open the System Registration screen you must be signed in as a master operator.

- 1) Open the Registration Screen: select Configure > Options > Registration > System
- 2) Select the correct Product Level
- 3) Enter appropriate information and option settings
  - a. **NEW INSTALL/SYSTEM REGISTRATION: y**ou must select the correct product level according to the purchased license agreement. You must configure all options according to the agreement. The <u>Max</u> <u>Readers count</u> the <u>Max DSI-Based Readers</u> count must match the purchase agreement.
  - b. UPGRADING REGISTRATION /ADDING WIFI READERS: you must update ...
    - the Max Readers count (this is the total number of readers in the system including the total number of wireless readers)
    - the Max DSI-Based Readers count (this is the total number of wireless readers)
- 4) Enter the correct Registration Code.
- 5) **Click [Apply] to save changes.**



## 3.1.4 ADDING THE LOOP/CLUSTER IN SYSTEM GALAXY

Add the Loop/cluster before adding the access control panel:

- 6) Click on the Loop button on the toolbar; {Or from the menu, select *Configure > Hardware > Loops/Clusters.*}
- 7) When the Loop Properties screen opens, click [Add New].
- 8) Type in a loop name.
- 9) Set Loop Type to "600" (select 600 even if you have a 635 model CPU).
- 10) Set Connection Type to "TCP/IP".
- 11) Enter the IP address of the Event Server (the PC running the GCS Event Service)
- 12) Remote Port should be "4003"
- 13) Enter the computer name of the Communication Server (the PC running the GCS Communication Service). You can click the [This Computer] button if you are programming this on the communication server.
- 14) Click [ Apply ] to save settings.

#### Figure 12 – Loop/Cluster Properties: Configuring the Loop

n #	1 Order by	ID 🛛 🔘 Order by N	ame Add New
U #	Main Building		Edit
Name:	03000010		Delete
oerial #:	600 -		Apply
ystem Type:			Cancel
Communication Card	Settings Share Options LE	D Options Advance	ed
Communication Card	Settings Share Options LE	D Options Advance	ed
Communication Card : Connect using: Event Server IP:	Settings Share Options LE TCP/IP 63.122.126.193	D Options   Advance	ed • Event Servers
Communication Card : Connect using: Event Server IP: Remote Port:	Settings Share Options LE TCP/IP 63.122.126.193 4003	D Options   Advance	ed • Event Servers

## 3.1.5 ADDING A CONTROLLER & DSI BOARD IN SYSTEM GALAXY

Add the 635 Controller (access control panel) to the loop/cluster:

- Open the Controller Properties screen: click on the Controller button on the toolbar, {...or from the SG menu, select Configure > Hardware > Controllers (600) }
- When the Controller Properties screen opens, select the Loop/Cluster name you just created in the previous step.
  - 1. Click [ Add New ] to add the controller.
  - **2.** Enter the Controller serial number (found on the CPU board). This can be a valid serial number of any CPU in this loop/cluster.
  - **3.** Enter a user-friendly *descriptive* Name for the control panel. The software automatically assigns a controller name (shown below), However, you can change the name to one that describes the location or purpose of the panel (i.e. Lobby controller, or East Wing, 1<sup>st</sup> floor, etc.).
  - 4. Click the [Get Board Info] button: the Board Info screen will open and display the list of boards in that panel (you must be in Edit mode to add the board info).
  - 5. Click the [Save] button to add the boards.
  - **6.** Configure the other panel options as needed. You would only use Alarm I/O Groups here if you were monitoring the controllers alarm events.
  - 7. Click [ Apply ] to save the panel configuration.

#### Figure 13 - Controller Properties: Configuring the 635-series Controller

uster/Loop:	(Main building	- Add	New
ontroller ID:	1 Order by ID 💿 Order b	yName E	dit
ame:	Cluster #-1 Unit #-1	De	lete
ame.	Cluster #. 1, Onic #. 1	Ap	ply Reports
pass loading:			
nterface Boards	CPU Boards Alarm I/O Groups Options		icei
Board/Section	n # Description	Sections	Add Board
÷ 2	Dual Reader Interface (600)	2	
÷ 5	Dual Serial Interface Board	2	Edit Board
÷ 10	Dual Reader Interface (600)	2	Delete Board
÷ 16	Dual Reader Interface (600)	2	
			Section In Use
			Section Not In Use
			Get Board Info

## 3.1.6 CONFIGURING THE SERIAL CHANNELS IN SYSTEM GALAXY

You must have added the DSI board in the controller property screen in order to be able to configure the serial channels. All the readers on a channel must be the same format (e.g. all Wiegand or all ABA). You cannot mix reader technology. This means you cannot have both ABA and Wiegand on the same DSI port/channel.

- Open the Serial Channel Property screen : Configure > Hardware > Serial Channel from the SG menu bar,
  - 1. Select the Cluster/Loop Name and the 635 Controller Name
  - 2. Select the appropriate DSI Board & section number (e.g. Board 1; Sect 1) from droplist.
  - 3. Click Edit button and set the Channel Mode to ASSA ABLOY (must be using a 635 CPU to see ASSA) **NOTE:** setting a channel to 'Unused' will disable the channel.
  - 4. **"Check" the appropriate reader numbers** that you added to the currently selected 485-bus regardless of how many hubs are on the bus. You should not need to skip any reader numbers.
  - 5. Click **Apply** to save changes.

**NOTE:** refresh/restart the Hardware Tree to see your readers. Do this by selecting **View > Hardware Tree >** from the menu.

#### Figure 14 – Serial Channel Properties: Configuring the DSI Serial Channels

	Cluster: Control Unit:	Main Building All Controllers	Edit Apply Cancel
	Description: Channel Mode:	Cluster: 001, Con Serial Channel Cl ASSA ABLOY A	t: 002, Brd: 6, Sect: 1 uster: 001, Cont: 002, Brd: 6, Sect: 1 perio
		Reader #	Name Cluster: 001, Cont: 002, Brd: 6, Sect: 1, Reader: 1 Cluster: 001, Cont: 002, Brd: 6, Sect: 1, Reader: 2
'check' the same amount of readers as you installed on the currently selected 485-Channel, regardless of how many Hubs you installed <i>(Ex: If you installed a</i> <i>total of 8 readers, then check readers 1-8).</i>		<ul> <li>✓ 3</li> <li>✓ 4</li> <li>✓ 5</li> <li>6</li> <li>7</li> <li>8</li> <li>9</li> </ul>	Cluster: 001, Cont: 002, Brd: 6, Sect: 1, Reader: 3 Cluster: 001, Cont: 002, Brd: 6, Sect: 1, Reader: 4 Cluster: 001, Cont: 002, Brd: 6, Sect: 1, Reader: 5 Cluster: 001, Cont: 002, Brd: 6, Sect: 1, Reader: 6 Cluster: 001, Cont: 002, Brd: 6, Sect: 1, Reader: 7 Cluster: 001, Cont: 002, Brd: 6, Sect: 1, Reader: 8 Cluster: 001, Cont: 002, Brd: 6, Sect: 1, Reader: 8
		10 11 12 13 14 15 16	Cluster: 001, Cont: 002, Brd: 6, Sect: 1, Reader: Cluster: 001, Cont: 002, Brd: 6, Sect: 1, Reader:

APPENDIX: See APPENDIX section for the Hardware Address Table to help with enabling the correct readers.

 $\bigcirc$ 

## 3.1.7 MAPPING THE HUB & READER IN SYSTEM GALAXY

You must map the Galaxy reader to the correct ASSA HUB & READER in the droplist that matches the actual number of the hub/reader that you installed.

- Open the Reader Properties screen: click on the Door button on the toolbar, {Or from the menu, select Configure > Hardware > Reader Ports}
  - 1) Select the cluster/loop name and the control panel that controls your DSI 485-Channel.
  - 2) Select the specific Reader Name you are programming and Click the Edit button.
  - 3) You can change the Reader Name (up to 65 characters) to something that describes the reader (i.e. Lobby, Room 101; supply closet). Note: The Reader Position is always displayed above the Reader Name field even if you change the reader name.
  - 4) The Reader Type field will be disabled, but it will display the ASSA ABLOY setting that you assigned in the Serial Channel properties screen.
  - 5) You must assign (select) the correct *HUB/Reader number* from the [ASSA ABLOY Address] droplist that should be mapped to the chosen reader shown in the *Reader Name field*.



Figure 15 – Reader Properties: Configuring the Reader Name

- » As you can see from the picture above, Board 6 is the chosen DSI board. And Section 1-1 has been selected. This means you are programming the Reader-1 on Section 1 of the DSI. (Likewise, Section 1-2 means the reader 2 on section 1; or Section 2-5 means the reader 5 on section 2 of the DSI).
- » Also the operator has chosen addressed Hub 01 with Reader 01 from the ASSA ABLOY droplist to be mapped to the Section1-Reader1 of the Galaxy DSI serial channel.

**APPENDIX:** See *APPENDIX section* for the Hardware Address Table to help with accurately mapping the Aperio HUB/READERS to the SG Reader Names.

## 3.1.8 SETTING READER GENERAL PROPERTIES FROM SYSTEM GALAXY



IMPORTANT: Reader options that are grayed/disabled are not available for a wireless reader.

The General Options tab also contains a list of check boxes, each of which are described below.

### Figure 16 – Reader Properties: Configuring the General Options

Buildir	luilding			*	Control Unit:	All Controlle	rs.		Edit		
r: 001,	001, Cont: 002,	3rd: 6, 9	Sect 1-	1					Apply F	Reports 🔻	
er: 001	: 001, Cont: 002	Brd: 6,	Sect: 1	-1	Notes:				Cancel		
ABLC	ABLOY Aperio			-							
ABLO	ABLOY Aperio							1			
lles	es		El	evator S	Schedules Graphic Sy			Symbols	Symbols DVR Camera Settings		
iming/S	ning/Schedules	100	Relay 2	2 Setting	is Alar	m Options	Passback	/Who's In	Group/Interlock Options	CCTV Events	
ed Ope	d Open Message		🕅 Tin	ne & Atte	endance Reade	il.		Door Supe	rvision		
Long I	ong Message		V Ev	ent Log I	E-Mail Enabled			No Superv	vision Resistors	*	
ed Mes				V Event Log BS.232 & TCP/IP Transmit Enabled					ASSA ABLOY Address:		
				U Event Log File Output Enabled							
UEXI	E XIL MESSAGE		EV EV	renicicogn	rile output Eria						
st To E	ToExit		Re	eader He	artbeat Enabled	1					
			Do	Not Dec	criment Limited	Swipe Usage (	Count				
			Choos	se LCD D	)isplay:						
uring P	ing Pre-Arm dela	i,	*** Ni	one ***			Ŧ	J			
Contacl	ntact closes		Elevat	tor Contro	ol Type:						
Enable Photo Verification			an Elevat	or Control Read	der	Ŧ	)				
em E ve	n Events										
			Do	or Critica	ality:		Con	iments:			
			^				~		A.		
			* •				*			* *	

#### 3.1.9 SETTING READER SCHEDULES FROM SYSTEM GALAXY

These options, and the schedules on which they rely, must be configured in the SG software, saved (applied) and then loaded to the access control panel.

The Schedules tab contains fields that affect the timing of the locking and unlocking at the reader. *Disabled* (grayed) features are not available for Aperio Wireless readers in SG 9/10.

#### NOTICE: Any reader option that is disabled is not available for a wireless reader.

**Auto Unlock Schedule:** when selected, the door or Wireless Reader will receive an unlock command from the access control panel when the schedule becomes active. The door will receive a lock command from the access control panel when the schedule becomes inactive. Also holidays can affect the unlock schedule. Schedules and Holidays must be created and loaded to control panel. *An auto-unlock schedule is used when a door should always unlock and relock at a specific time (e.g. 8am to 5pm)*. During the unlocked portion of the schedule, the door is open and no card access is required. During the locked portion of the schedule, an access card must have 'valid access privileges' in order to open the door.

**Disable Forced (schedule):** when selected, the system will not report a door forced condition at the door.

**Disable Open Too Long (schedule):** when selected, the system will not report a 'door open too long' condition at the door. This could be helpful during certain times when a door must be open for an extended period of time on a routine bases (e.g. a loading dock).

**Reclose Within (mm:ss):** the default is 15 seconds. This is the amount of time the controller will wait for the door contact to close at the door before generating a 'door open too long alarm'.

#### **Figure 17 – Reader Properties: Configuring the Timing/Schedules**

vator Schedules   Settings   Alarm Options Require Vali	Graphic Symbols Passback/Who's In id Card before auto unlock	DVR Came Group/Interlock Options	ra Settin
Settings Alarm Options	Passback/Who's In	Group/Interlock Options	0
	id Card before auto unlock		
PIN Mode:	High Security	Ŧ	
•			
•			
	•	•	

## 3.1.10 SETTING READER ALARM OPTIONS FROM SYSTEM GALAXY

Several device conditions can be configured to generate an Alarm Event in System Galaxy. The conditions are: **Door** Forced, Open Too Long, Invalid Attempt, Valid Access, and Passback Violation.

An **alarm event** is generated when a condition occurs at a door/reader that is configured to generate an acknowledgeable Alarm. The **alarm event** displays in the Alarm Event window in the order it occurs unless an **alarm priority** is assigned. If an alarm priority is assigned, the alarm message appears in the Alarm Event window sorted in the order of the assigned priority number.

#### IMPORTANT

- » These options, and any I/O Groups on which they rely, saved (applied) and loaded to the panel.
- » (OPTIONAL) You can assign an I/O Group to the condition. This is not required since Alarm Options are independent of I/O groups.
- » (OPTIONAL) You can also assign priorities to the Alarm Conditions.
- » The ACKNOWLEDGE check-box must be checked to make the event display in the Alarm Event window; also required for the *Priority* sorting to apply.

I/O Groups: The drop-down list shows all the available I/O Groups. By default, the field is set to \*\*NO I/O GROUP\*\*. When an I/O Group is selected, that I/O group will be activated whenever the condition occurs on the reader. I/O groups are used to activate outputs associated with the alarm condition.

I/O Offsets: This field contains the I/O Offsets for each condition.

Acknowledge: Select (check) this checkbox if the condition should appear as an alarm event (in alarm events window).

Priority: <u>The Acknowledge check-box must be selected before Priority will apply</u>. The priority field is an optional numeric field that accepts a value equal or less than 9999. This is the priority level of that will be assigned to the alarm event. Priority affects the order of the alarm events in the Alarm Events window. Alarms with higher priority number are sorted to the top of the screen regardless of the order they occur.

Instructions: <u>The Acknowledge check-box must be selected before Instructions will apply</u>. When this button is clicked, a window appears in which you can type in text instructions for responding to the alarm event.

Audio: <u>The Acknowledge check-box must be selected before Audio will apply</u>. The location of files must also be set up in the Multimedia tab of the Workstation Options window (Configure > Options > Workstation Options > Multimedia tab). One .wav file can be selected to play when the alarm event occurs.

#### Figure 18 – Reader Properties: Configuring the Alarm Options

General	Timing/Schedules	fules Relay 2 Settings		Alarm Options Passback/Who's In		Group/Interlock Options			CCTV
	1/0 G	roup the event is linked to	1/0	Offset	Acknowledge Schedule		Priority		
Door Forced Op	en: ** NO 1/0 1	Group **	•	** NE\	/ER **	•	0	Instructions	Audio
Open Too Long	** NO 1/0	Group **	•	** NE\	/ER **	•	0	Instructions	Audio
Invalid Attempt:	** NO 1/0	Group **	•	** NE\	′ER **	•	0	Instructions	Audio
Duress:	×× NO 1/0 1	Group **	-	** NE\	(ER **	7	0	Instructions	Audio
Passback Violat	ion: ** NO 1/0 1	Group **	•	** NE\	′ER **	•	0	Instructions	Audio
Reader Heartbe	at: ** NO 1/0 1	Group **	-	** NE\	(ER **	-	0	Instructions	Audio
Valid Access:	ccess: X** NO I/O Group **		•	V	alid Access Audio				
Valid Access [	Disarms I/O Groups:								
** NO 1/0 Gro	up **	• ** NO I/O Group **		•					
** NO 1/0 Gro	up ** .	<ul> <li>** NO I/O Group **</li> </ul>		•					

## 3.1.11 Setting Reader PASSBACK/WHO'S IN Options

Passback and Who's in are available for wireless readers. You must configure Schedules and Areas before you can set up these options in the Reader Properties screen.

See the main SG Software User Guide for instructions on Schedules, Areas, Who's In and Passback configuration.

Figure 19 – Reader Properties: Config	guring the Passback/Who's In
---------------------------------------	------------------------------

Loop: Reader Name: Reader Type	635  Cluster: 001, Cont: 001, Brd: 5, Sect: 2-4 IR PIM Wiegand Readers			T Con	trol Unit: es:	All Controlle	42	~ ^ ~	<u>E</u> dit Apply R Cancel	eports 🔻
Carried	Access R	ules	a/Proxj	2 C - War-	E	levator Sched	lules Prochaok Authola II		Graphic Symbo	ls
Passback Area From Area: Automatic Forg	ive:	** NO CHAN ** NO CHAN Never	GE ** GE **		•	Allow Passb	ack Access			
		** NO ABEA	**		•					

Disabled or grayed out options are not supported for Schlage readers

## 3.1.12 UNSUPPORTED Reader Options

The following reader options are not supported with Schlage wireless readers.

- Relay-2 configuration is not supported
- You cannot use an Assa reader for an elevator reader when wired through a DSI board
- Door Group and Door Interlock features are unsupported
- Duress is not supported
- Pin Schedule Mode is not supported

# 4 APPENDIX OF TABLES AND TIPS

## 4.1 READER MAPPING TO DEVICE ADDRESS TABLE

The following table is used during the install of the Aperio & Galaxy hardware. Take care to accurately record the addresses of Panels, Boards, Aperio Hubs and linked readers. This helps you configure the reader mapping scheme in the System Galaxy software. *Sample entries help you get started. Make copies of table as needed.* 

This table goes with chapter-3: enabling readers in Serial Channel screen and mapping in Reader Properties.

#### Figure 20 – MAPPING HUBS AND READERS IN SYSTEM GALAXY SOFTWARE

GALAXY	HARDWARE		APERIO	HARDWARE	SG SOFTWARE		
LOOP# / UNIT #	BOARD ID	SECTION	HUB ADDRESS	No. of Locks 'paired' to HUB	Enabling of DSI Readers	Mapping of reader numbers	
LOOP 1 / UNIT 1	DSI 5	1	1	2	Select Loop-1, then controller-1; and board-5 sect 1; Choose Aperio and enable (check) readers 1 and 2	reader assigned to Board 5; Sect 1-1; maps to HUB 1/READER 1 Board 5; Sect 1-2 maps to HUB 1/READER 2	
LOOP 1 / UNIT 1	DSI 5	1	2	8	3 thru 10 HUB 2/READER 1 thru HUB 2/READER 8	Board 5; Sect 1-3 thru Board 5; Sect 1-10*	

This hardware entry (shown above) is an example of how to record hardware addressing. Info in gray is an example of what you expect to see in the SG Reader Properties when you map readers to the Aperio hub/reader numbers.

		<u> </u>	<u> </u>	