

Roger Access Control System 5

Application note no. 034

Document version: Rev. A

Integration with Aperio wireless locks

Note: This document refers to RACS v5.5 (VISO 1.5.2 or higher)

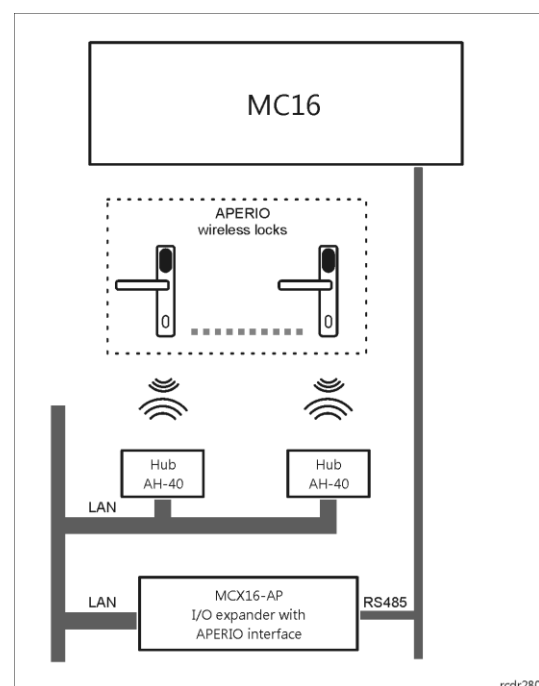
Introduction

Aperio (ASSA ABLOY) wireless locks are battery supplied devices with internal locking mechanism and built-in reader for Mifare® or other proximity cards. These devices can be installed on doors and connected to RACS 5 system to offer access control. In order to connect them to MC16 type (e.g. MC16-PAC) access controller it is necessary to use MCX16-AP expander as an intermediary device.

Integration principles

MC16 access controller can operate with multiple MCX16-AP expanders on RS485 bus (ID=100-115) in parallel with other MCT/MCX series devices. The expander can operate with two AH40 hubs, which can communicate wirelessly with up to 8 locks each. However the MC16 type controller depending on its version can control up to 16 doors (locks). Additionally the number of locks which can be operated by MCX16-AP depends on its license file stored on memory card.

The integration enables the use of Aperio locks as Access Terminals in RACS 5 access control system. It is possible to define users with their proximity cards and PINs and to assign them with Authorizations. Additionally MC16 controller can block particular locks or open them permanently using Door Modes. The state of batteries can be reported in RACS 5 system.

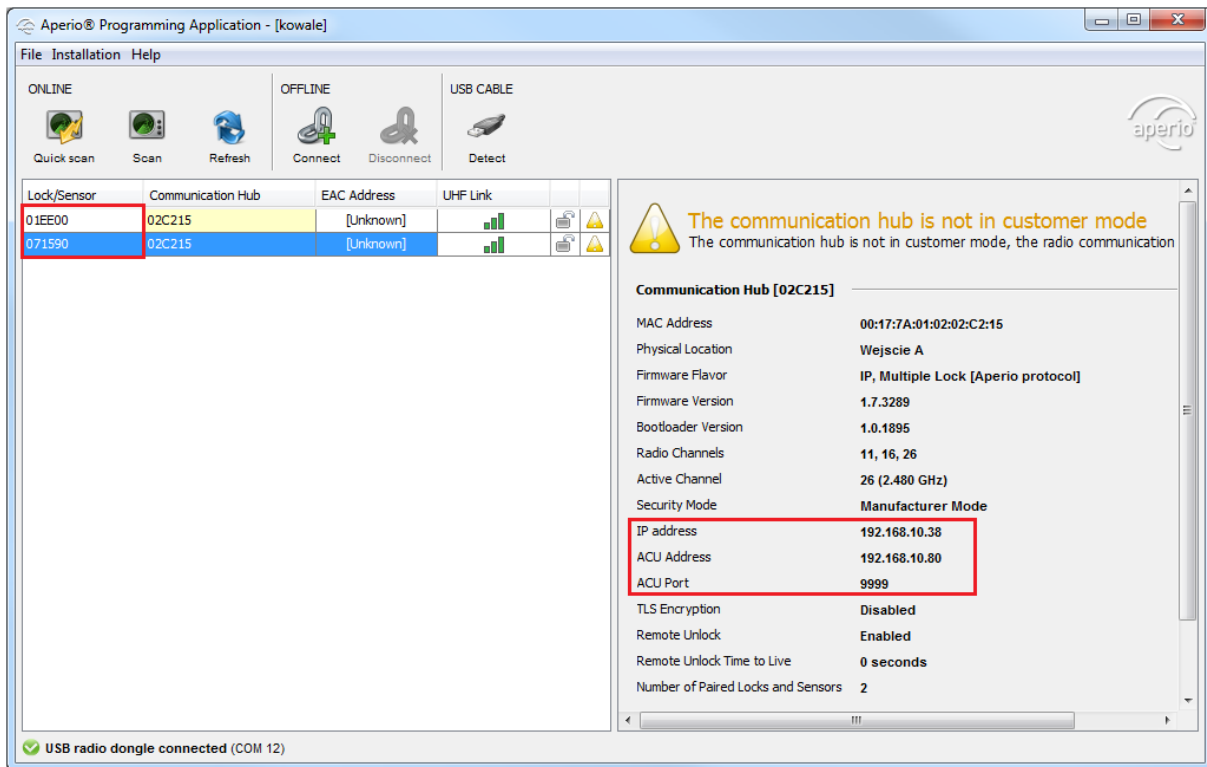


Aperio installation and configuration.

Install Aperio devices according to ASSA ABLOY guidelines. Locks and hubs as well as their logical connections are configured with Aperio Programming Application and Aperio USB Radio Dongle. More information on Aperio devices is given in their manufacturer manuals (e.g. ST-001322-F).

Notes:

- Write down 6 character identifiers of detected locks. It is necessary to enter them later when MC16-AP expander is configured with RogerVDM software.
- According to the figure below, *IP address* is AH40 hub IP address, *ACU address* is MCX16-AP expander IP address while *ACU port* is port used for communication of expander with hub.
- Do not switch hub into Customer Mode and do not enable TLS encryption as it is not supported currently.

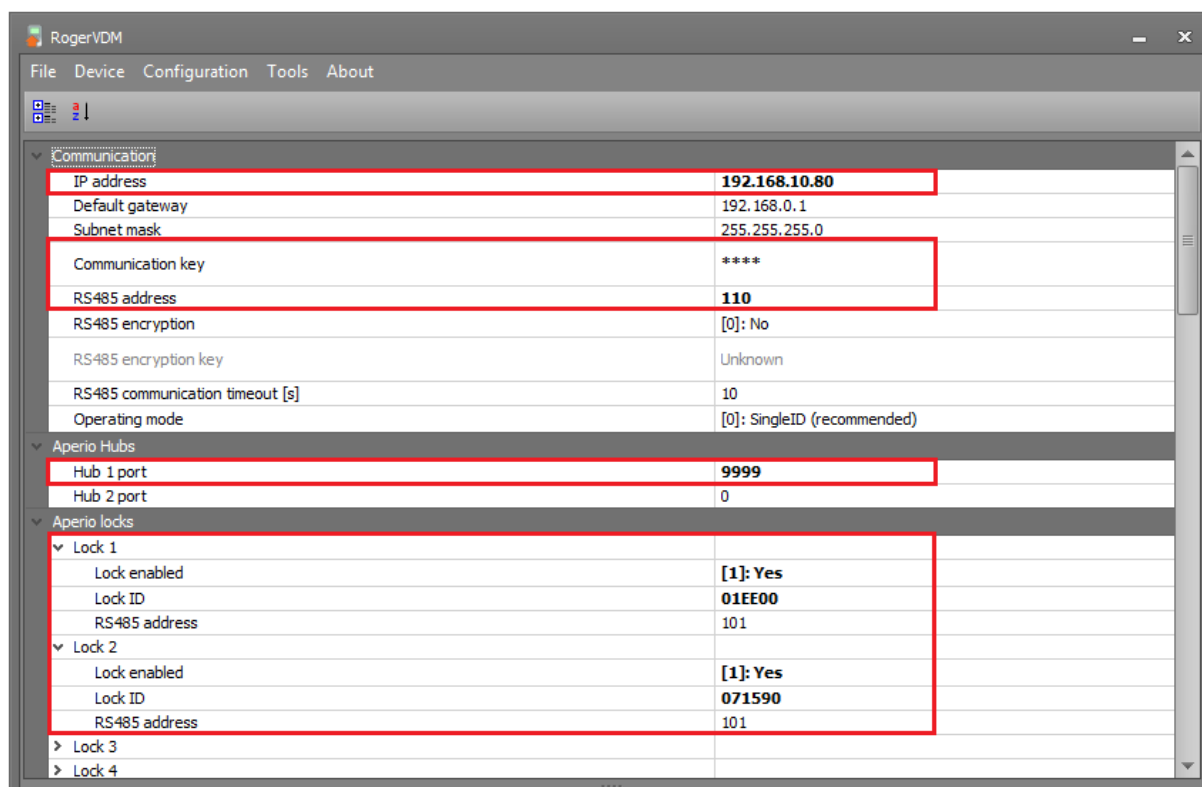


RACS 5 preliminary configuration

Low level configuration (RogerVDM)

It is necessary to make low level configuration of MC16 controller and MCX16-AP expander before RACS 5 system is started. Low level configuration of MC16 controller is explained in AN006 Application note which is available at www.roger.pl. Such configuration mainly concerns IP address and communication key. In case of expander define:

- Expander IP address for communication with AH40 hub(s) (equivalent of *ACU address* parameter in Aperio Programming Application).
- Communication key for securing communication between expander and RogerVDM.
- Expander address on RS485 bus in range of 100-115.
- Ports for communication of expander with hub(s) (equivalent of *ACU Port* parameter in Aperio Programming Application).
- 6 character identifiers of lockers operated by expander.
- Comments can be put for locks to make their further identification in VISO software more convenient.



High level configuration (VISO)

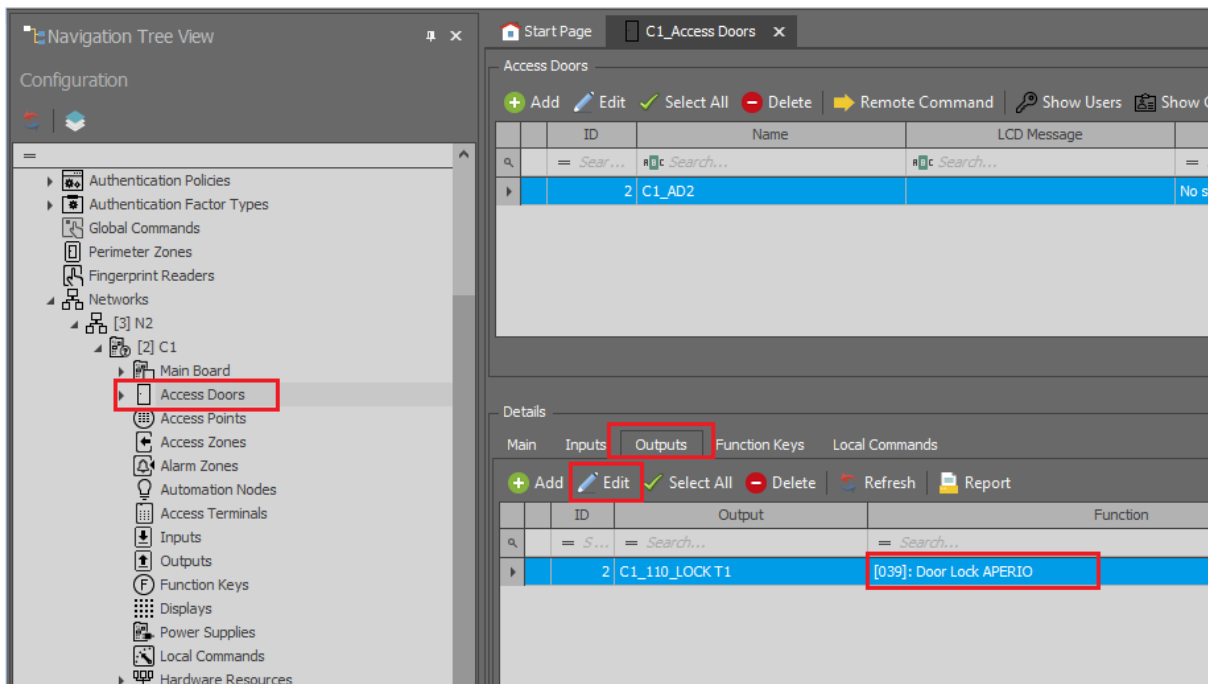
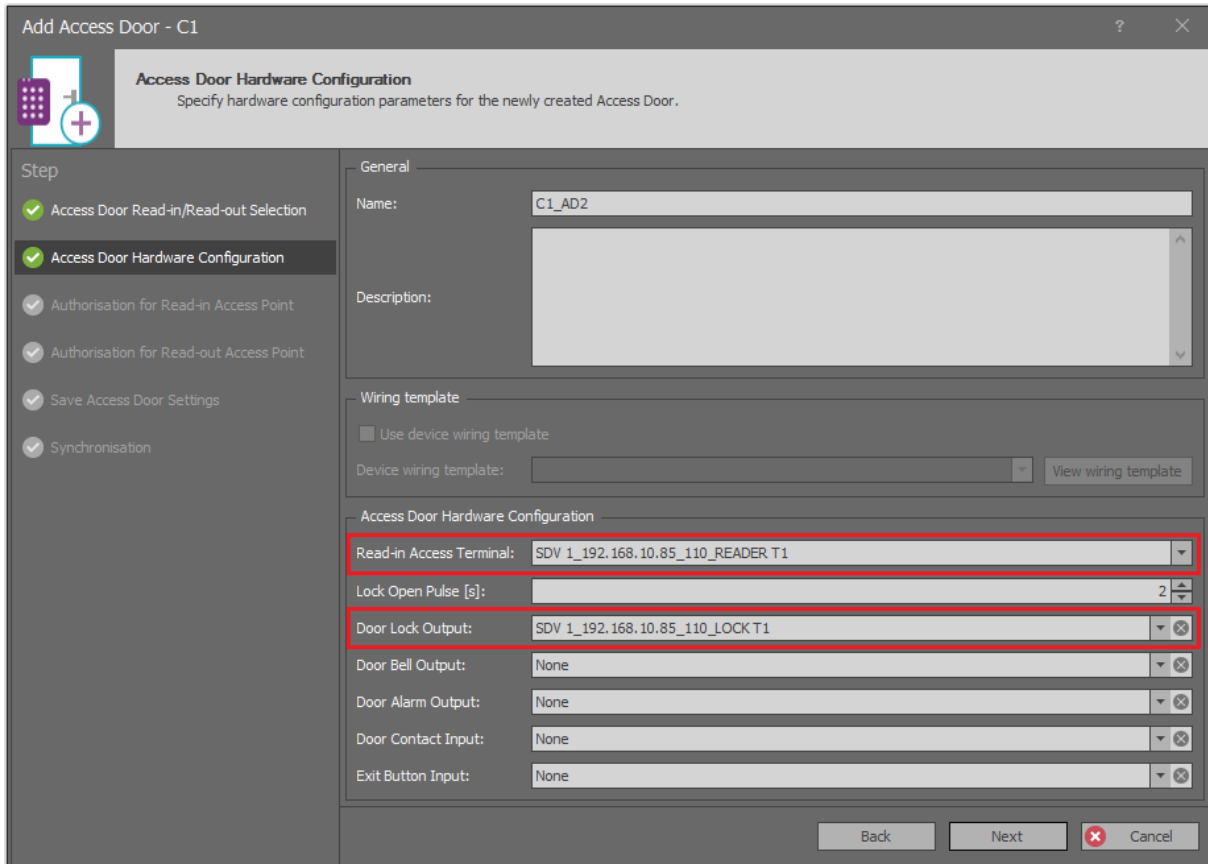
Make preliminary configuration of RACS 5 system according to AN006 Application note in regard of connection with database, configuration of RACS 5 services and detection of controller and its peripheral devices. The expander does not require specific configuration in VISO software. It is enough to detect it along with its MC16 controller.

Access Doors and Authorizations

The whole logic connections of outputs, Access Terminals, Access Points and Access Doors can be done step by step in VISO software in the same way as in case of MC16 access controller and MCT readers. Nevertheless the most simple and convenient method is to use Add Access Door wizard selecting *Wizards* command in the top menu of VISO software. This wizard enables also to configure access Authorizations in RACS 5 system and such Authorizations can be assigned to users. If the Authorization is supposed to enable access in defined periods (e.g. 8:00AM till 4:00 PM) then it is necessary to define schedule(s) in advance, selecting *Schedules* command in the navigation tree of VISO software.

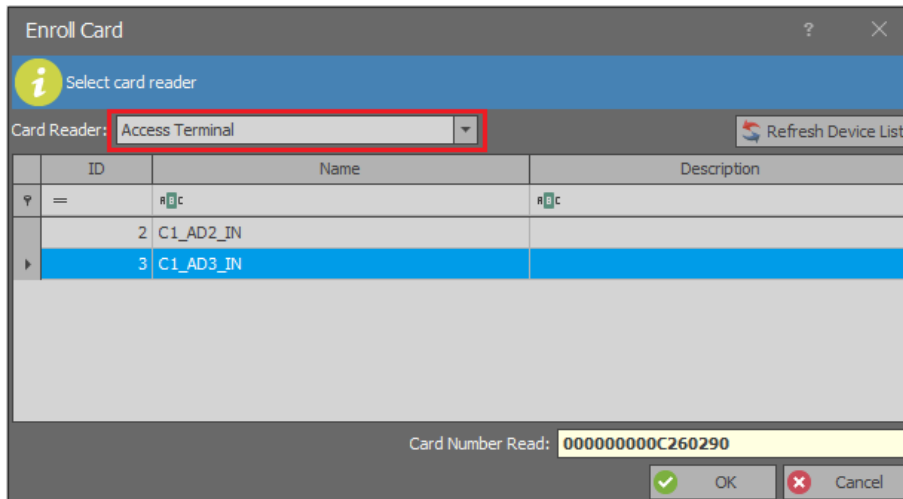
Add Access Door wizard is described in AN006 application note which is available at www.roger.pl. Following notes must be considered when Access Door with Aperio lock is configured:

- Doors with Aperio locks are read-in doors.
- *Read-in Access Terminal* and *Door Lock Output* are located in APERIO objects on the list.
- Lock opening time after access granted is defined within configuration of lock with Aperio Programming Application using *Lock open time* parameter. The time configured with parameter *Lock Open Pulse* is ineffective.
- When the configuration with Add Access Door wizard is completed then it is necessary to manually modify function of Access Door output used for door opening. The wizard will apply default function [31]: *Door lock*. It must be changed to [39]: *Door Lock APERIO*.



Users management

The most convenient method to enrol Users and assign them with Authorization(s) is to use Add Person Online wizard which is available after selection of *Wizards* command in the top menu of VISO software. More wizards such as *Edit Person Online* and *Delete Person Online* are available in the same location. If Access Point with Aperio lock is defined in the system then such lock can be used to read card number when user's Authentication Factor is defined.



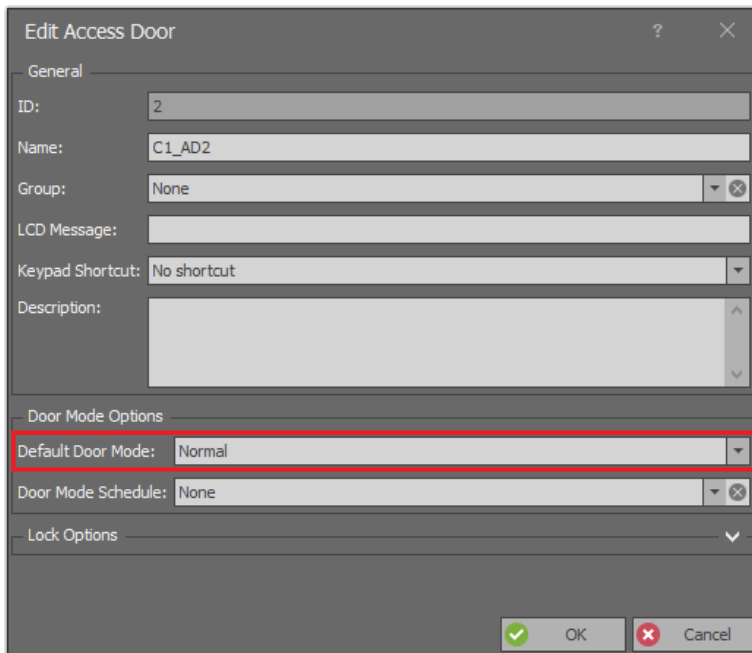
Door Modes

Door Modes can be used for additional control of doors with Aperio locks. Following modes are available in RACS 5 system:

- Normal – default Door mode for which Authorization is required to open the door
- Unlocked –door is completely opened so it is enough to use handle as no user identification is required
- Conditional Unlocked –door is in Normal mode and when access is granted for user with access Authorization then it switches to Unlocked mode
- Locked –door is completely locked for all users regardless of their Authorizations

Door Mode can be controlled by schedule, input, function key or Authentication Factor (card, PIN, etc.) and Remote command. Default Door Mode is assigned within Access Door properties with respective parameter.

Note: In case of Aperio locks V3 their responsiveness for remote commands has been significantly improved. The actual execution of command usually takes up to 10 s and it can be modified using the parameter *Polling Interval* (10 s by default). It must be also noted that the greater is the responsiveness of a lock the quicker its battery is unloaded.



The screenshot shows the 'Edit Access Door' dialog box with the following fields:

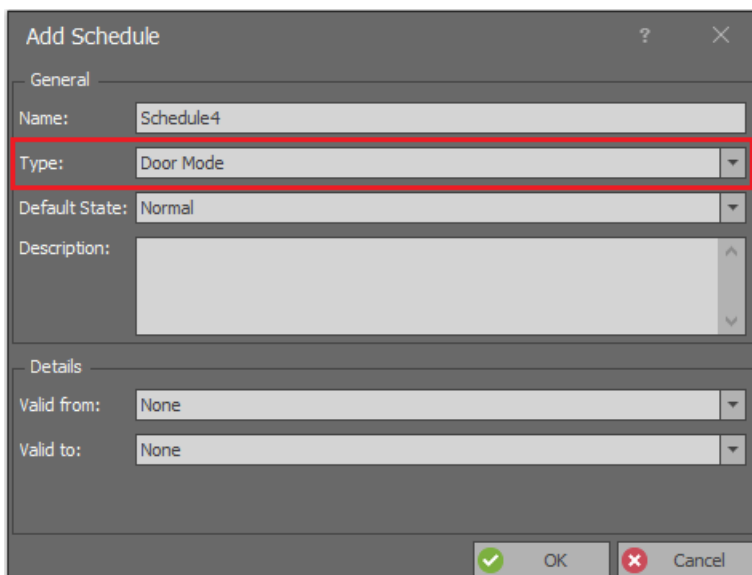
- General
 - ID: 2
 - Name: C1_AD2
 - Group: None
 - LCD Message:
 - Keypad Shortcut: No shortcut
 - Description:
- Door Mode Options
 - Default Door Mode: Normal (highlighted with a red box)
 - Door Mode Schedule: None
- Lock Options

Buttons: OK, Cancel

Door Mode control by schedule

Door Modes can be controlled by schedule defined as below:

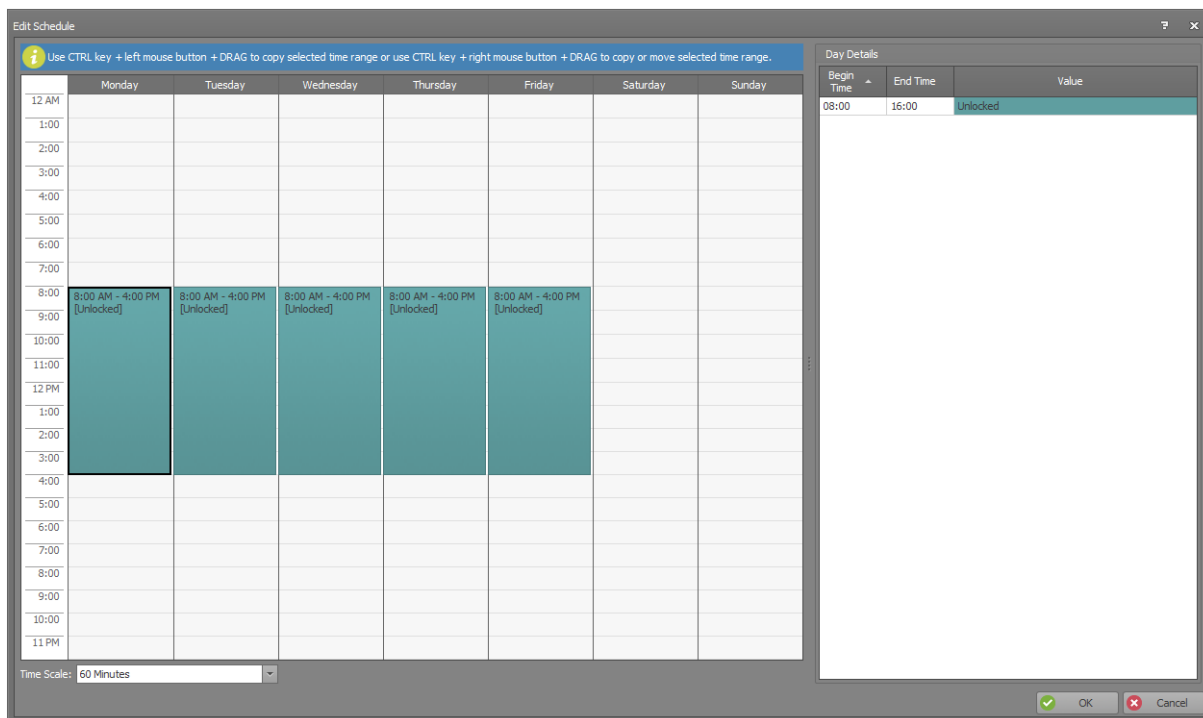
- In the navigation tree of VISO software double click *Schedules* command and select *Add* button.
- In the opened window name the schedule and select *Door Mode* in *Type* field.
- In the bottom select *Calendar Days* tab and *Edit* button to define periods with required Door Modes.
- Assign the schedule within Access Door properties in the field *Door Mode Schedule*.



The screenshot shows the 'Add Schedule' dialog box with the following fields:

- General
 - Name: Schedule4
 - Type: Door Mode (highlighted with a red box)
 - Default State: Normal
 - Description:
- Details
 - Valid from: None
 - Valid to: None

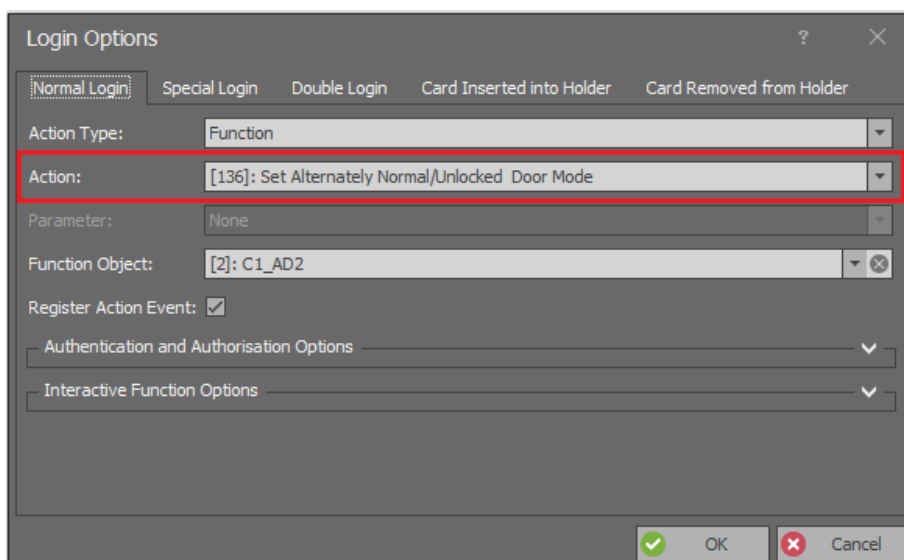
Buttons: OK, Cancel



Door Mode switching with card/PIN

Door Mode can be switched by user identification with Authentication Factor (card, PIN). In such case it is necessary to assign adequate function for normal login. In order to enable switching of Aperio lock from Normal Door Mode to Unlocked Door Mode (office mode) and vice versa:

- In the navigation tree of VISO software within particular MC16 access controller double click *Access Points* command and select the point with Aperio lock from the list.
- In the bottom select *Login Options* tab and then *Edit* button.
- Select *Normal Login* tab and assign the function *[136]: Set Alternately Normal/Unlocked Door Mode*.

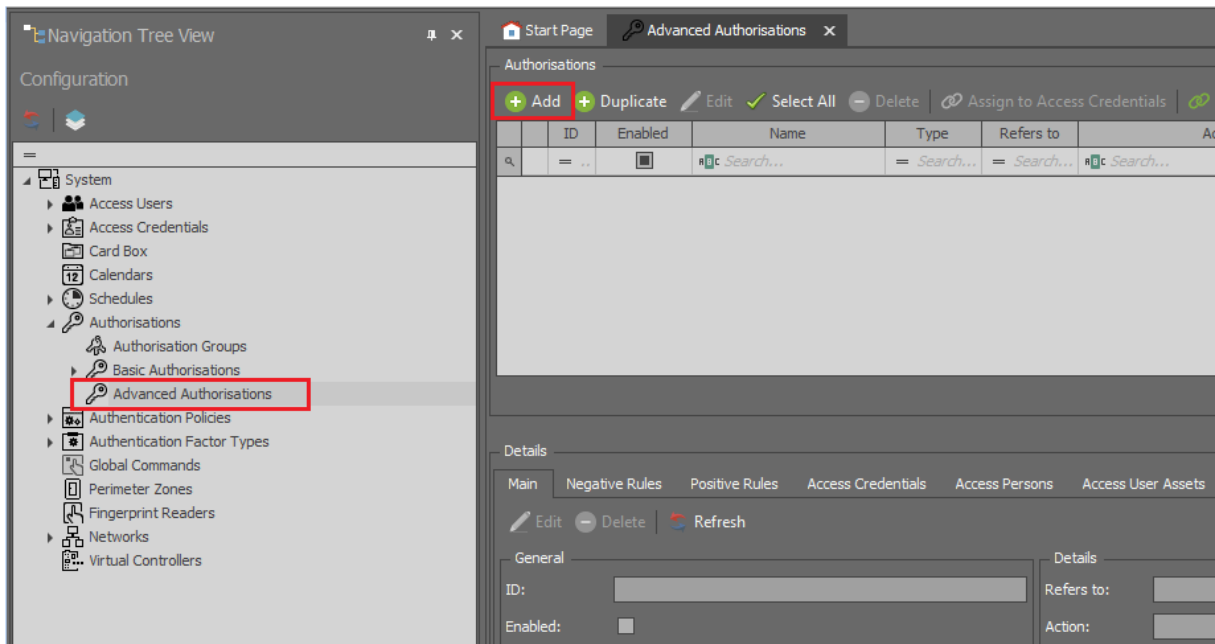


Note: In case of Aperio locks Login Options other than Normal Login are not supported.

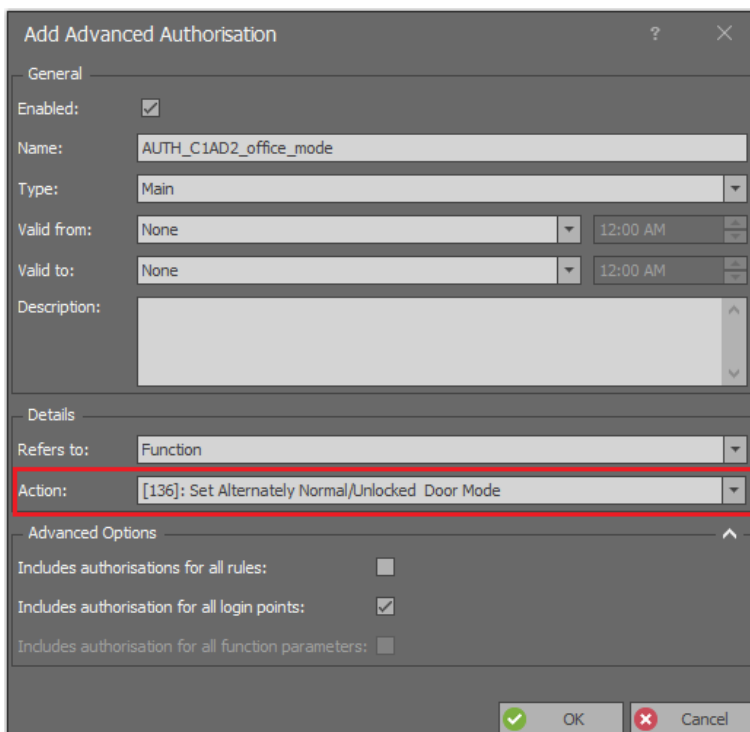
In order to use the function *[136]* it is necessary to create adequate Authorisation and assign it to a user. The Authorisation which is automatically created with Add Access Door wizard concerns the

function [151]: *Grant Door Access with Normal Lock Pulse*. In order to create Authorisation for function [136]:

- In the navigation tree of VISO software expand *Authorisations* command, double click *Advanced Authorisations* command and in the opened window select *Add* button.



- In the opened window name the Authorisation and assign the function [136]. Close the window with *OK* button.



- In the bottom select *Positive Rules* tab and then *Add* button.
- In the opened window in *Function Parameter* area, in *Range* field select *Specified* and indicate Access Door with the name *C1_AD2*. If the Authorisation is supposed to be limited in

time then in *Time Range* field select *Specified* and in *Schedule* field assign any previously created General Purpose Maintained schedule. Close the window with *OK* button.

The screenshot shows the 'Add Rule' dialog box with the following settings:


- General:**
 - Enabled:
 - Type: Place where function will be executed
- When:**
 - Time Range: Always
 - Schedule: [Empty]
- Function Parameter (highlighted in red):**
 - Range: Specified
 - Type: Access Door
 - Value: [2]: C1_AD2

Buttons: OK, Cancel

- Upload settings to controller.
- Assign the Authorisation to user(s) with Add Person Online wizard or with any other method.

Composite control of Access Door

In RACS 5 system it is possible to assign more than one function for particular Login option. Therefore card reading or PIN entering may start a series of functions or only selected functions depending on Authorisations assigned to particular user. In order to define Local command that would enable normal access granting based on the function [151] and switching to Unlocked Door mode based on the function [136]:

- In the navigation tree of VISO software within particular MC16 access controller double click Access Door command and select C1_AD2 door.
- In the bottom select *Local Commands* tab and then *Add* button.
- In the opened window select the button  to create the command.
- In the next window in the *Name* field of *General* area enter exemplary name *C1_Local Command1_C1AD2* and select the option *Multifunction* with *Function Limit* = 2 so two individual functions could be included within the command i.e. temporary door opening and permanent door opening. Close the window with *OK* button.
- In the opened window in the *Function* field assign the function [136]: *Set Alternately Normal/Unlocked Door Mode*. Additionally select options *Authorisation for Place of Login Required* and *Authorisation for Place of Action Required*. Close the window with *OK* button.

Add Local Command

General

Name: C1_Local Command1_C1AD2

Description:

Additional Options

Activity Schedule: Always

Multifunction:

Function Limit: 2

Event log

Register event upon Control command is used:

Use event Control command: None

OK Cancel

Assign Local Command

General

Local Command: C1_Local Command1_C1AD2

Function: [136]: Set Alternately Normal/Unlocked Door Mode

Register Action Event:

Authentication and Authorisation Options

User Authentication Required:

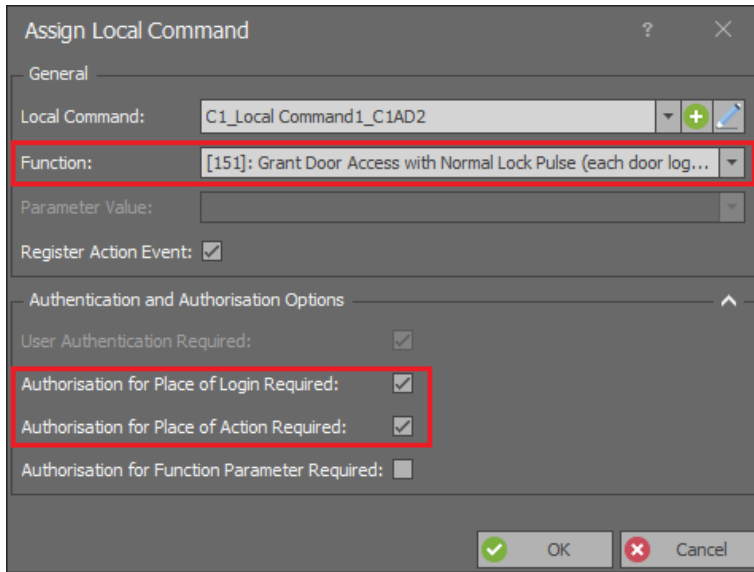
Authorisation for Place of Login Required:

Authorisation for Place of Action Required:

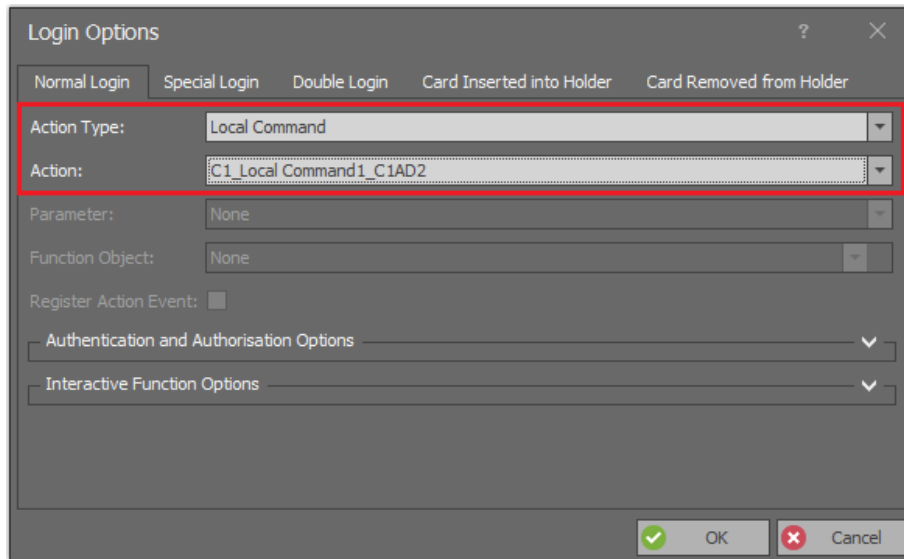
Authorisation for Function Parameter Required:

OK Cancel

- In the navigation tree of VISO software within particular MC16 access controller double click *Access Points* command and select point with default name *C1_AD2_IN*.
- In the bottom select *Local Commands* tab and then *Add* button.
- In the opened window select previously created *C1_Local_Command1_C1AD2*, assign the function *[151]* and select options *Authorisation for Place of Login Required* and *Authorisation for Place of Action Required*. Close the window with *OK* button.



- In the bottom select *Login Options* tab and then *Edit* button.
- In the opened window select *Normal Login* tab and for *Action Type* select *Local Command* while for *Action* select already created command with the name *C1_Local_Command1_C1AD2*. Close the window with *OK* button.
- Upload settings to controller.



To use both function of Local command it is necessary define Authorisations for each function. The Authorisation for function [151] is created automatically when Add Access Door wizard is used but it can also be created manually in VISO navigation tree. Authorisation for function [136] is created in accordance with description given in section 'Door Mode switching with card/PIN'. In case of Local command created as above it is not practical to assign both Authorisation to single user but it can be arranged in such way that one user is assigned with the first Authorisation while the other user is assigned with the second Authorisation. In such case both user can start the Local command but only in such extent as it is enabled by their Authorisations. The other approach could be such that one user is assigned two Access Credentials, one with card and Authorisation for function [151] and the other with PIN and Authorisation for function [136]. In this scenario the card opens door temporary while PIN opens door permanently.

Remote control of Door Mode

Remote control of Door Mode is available from the level of VISO software. Remote commands can be started from the navigation tree, from the list of such objects as Access Doors, Access Points, etc. as well as from the level of map.

Remote command can be used only by VISO operator with proper rights. Such rights are defined by assignment of operator to user with Credential(s) including proper Authorisation(s) (e.g. for function [136]) at particular Access Door. Such association of user and operator is done in the properties of user in the tab *Remote Management* in the field *Operator*. The most simple method to grant all Authorisations to operator is to assign such operator to user with Access Credentials with enabled *Master exemption* option.

Battery status reporting

RACS 5 system enables centralized monitoring of Aperio locks batteries. Battery status is reported with such events as:

- [713]: Low battery
- [715]: Low battery returned
- [717]: Battery failure
- [719]: Battery failure returned

In order to configure logic object in RACS 5 system to enable battery monitoring:

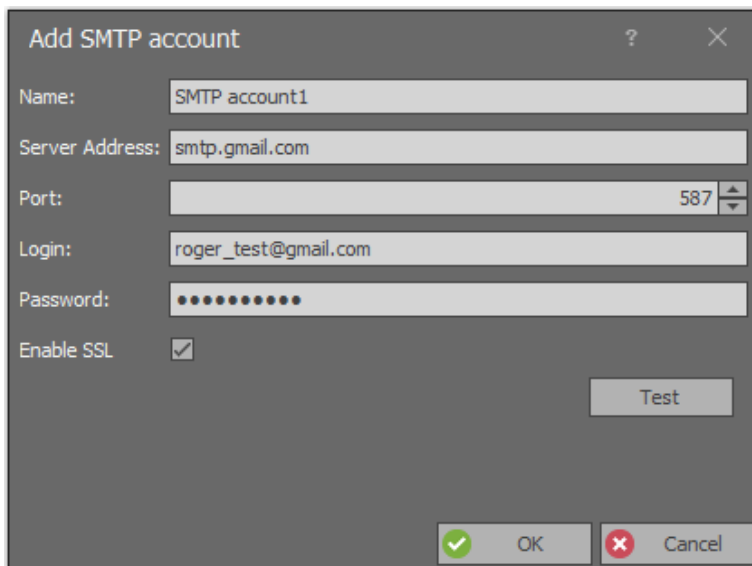
- In the navigation tree of VISO software within particular MC16 access controller double click *Power Supplies* command and then *Add* button.
- In the opened window select battery of particular Aperio lock. Close the window with *OK* button.

The screenshot shows the 'Add Power Supply' dialog box. The 'Object' field is highlighted with a red box and contains the text 'SDV 1_192.168.10.85_110_BATTERY T1'. Other fields include 'Name: C1_110_BATTERY T1', 'Device: APERIO 1', 'Name: BATTERY T1', 'Comment: Lock battery', 'Type: PWR 1/Unknown', 'IP Address: 192.168.10.85', and 'RS Address: 110'. The dialog has 'OK' and 'Cancel' buttons at the bottom.

- Create similar objects for remaining Aperio locks.
- Upload settings to controller.

When objects are created then battery statuses are signalled not only locally but also by events in RACS 5 database. Such events can be viewed after selection of *Event log* command and icon in the top menu of VISO software. Additionally it is possible to define alerts for selected events in RACS 5 system. The alerts can be manifested among others by message displayed in VISO software or e-mail automatically sent by RACS 5 Communication Service. In order to define e-mail sending when the event [713]: *Low battery* occurs:

- In the top menu of VISO software select *Tools* command and then *SMTP Accounts* icon. In the opened window select *Add* button.
- In the next window define parameters of SMTP account which can be used by RACS 5 system for e-mail sending (example below). Account settings can be verified with *Test* button. Close the window with *OK* button.



- In the top menu of VISO software select *Event Log* command and then *Event Types* icon.
- In the opened window select on the list event type for which action is to be generated i.e. [713]: *Low battery*.
- In the bottom select *Actions* tab and then *Add* button.
- In the opened window select *Send email as Type*, indicate previously created SMTP account, enter email recipient and other parameters. Close the window with *OK* button.

It is not necessary to start VISO software for the purpose of automatic e-mail sending when specific event(s) occurs. This functionality is ensured by Communication service of RogerSVC software package.

Add Action

Action

Active:

Type: Send email

Execution Site: Server Site Action

Description: Send email when event occurs. In subject and body you can use one of variables:
\$EventID, \$EventCode, \$CategoryID, \$LocationType, \$LocationID, \$SourceType, \$SourceID, \$AccessCredentialID, \$OptionType, \$Option, \$Function, \$ActionStatus, \$LoggedOn, \$Details, \$Comment, \$ControllerID, \$PersonID, \$GroupID, \$AssetID, \$UserExternalIdentifier

Filter: None

Event validity time: (none)

Parameters

SMTP Settings

Server: SMTP account1

Message Settings

From: roger_test@gmail.com

To: administrator@company.com

Title: Low battery in lock ID=\$LocationID

Text: Event [713]: Low battery occurred on \$LoggedOn at lock ID=\$LocationID
ID 1 - Lock 1 - Main entrance
ID 2 - Lock 2 - Meeting room
etc.

OK Cancel

Emergency door opening

Emergency door opening is used when the communication of lock(s) with master devices (hub, expander, controller) is lost. Cards and PINs for emergency door opening are defined when Aperio lock is configured with Aperio Programming Application.

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