Intercom Integration in Protege GX

Application Note

ICTProtegeGX.®

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Contents

Intercom Integration in Protege GX

As part of providing a complete access control and automation solution, Protege GX offers integration with a range of intercom solutions, allowing automatic token generation for elevators, doors and control functions. Integrations are configured within the Protege GX system as an Intercom Service, with the following intercom solutions supported:

- Siedle
- Sentex Infinity Multi Point
- Sentex Infinity Single
- Enterphone
- SES Intercom
- MESH

The intercom service should also be set up in conjunction with the Moxa DE-211 or the Moxa DE-311 Serial-to-Ethernet products, which allow the serial communication of the intercom to be converted to Ethernet where necessary.

Scenario

For this application note, we are going to set up a simple scenario that demonstrates how to implement intercom integration in Protege GX. This will give you an idea of what to expect when it comes to setting up your own integration. In this example, we are implementing an intercom integration in a building where:

- There are 10 floors in the building, accessible by the elevator
- The ground floor is freely accessible at all times
- All other floors require valid credentials for access at all times
- There are 4 apartments per floor (Apartment A, B, C and D), except on the ground floor
- A single MESH intercom is used in the building, located at the front ground entrance
- A MOXA DE-211 Serial-to-Ethernet module is used for the intercom device
- The MOXA DE-211 module will communicate with the Protege GX controller via TCP/IP port of 4001

Prerequisites

Before attempting this integration, ensure the following requirements have been met:

- An operational Protege GX system with software version 4.2.181.10 or higher
- A Protege GX Din Rail System Controller

Configuring the Integration

The following instructions outline the steps required to configure the integration within Protege GX. These include:

- Creating floors for each physical floor within the building (see page 5)
- Creating floor groups and assigning the required schedule (see page 6)
- Creating access levels and assigning the required floor group (see page 7)
- Configuring the MOXA modules (see page 9)
- Configuring the Intercom Service (see page 13)
- Creating a user and assigning the required access level (see page 15)
- Connecting the Hardware (see page 17)
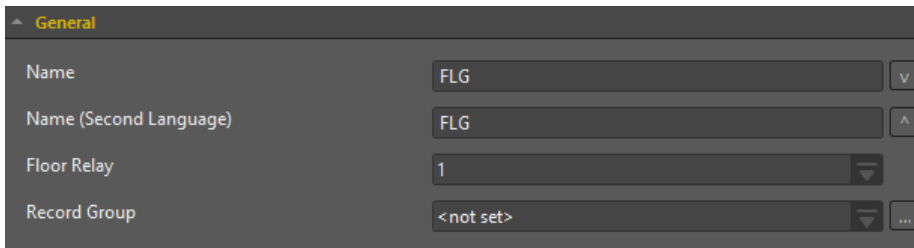
Programming the Floors

For this scenario, we want to create 10 floors in Protege GX, starting from the ground floor. Although the floor relays are not used directly, they must be programmed for internal reference. Floor relay numbers tell the Protege GX controller where the physical floors are located, enabling Protege GX to create a map of accessible floors.

While doing this, we need to ensure that we implement some simple naming conventions. In this application document, we are going to use short/abbreviated names that represent where the floor is located in the building. For example:

- FLG: Floor Ground
- FL2: Floor 2

To create the Floors

1. Navigate to **Programming | Floors**, click **Add** and name each floor clearly in numerical order.

2. Set the **Floor Relay** number. In this scenario, the lowest physical level is the Ground Floor, so it has a value of 1 while Floor 9 has a value of 10. This offset in the floor relay numbering is required so the correct floor mapping is generated in Protege GX.

3. Click **Save**.

Note: Rear elevator doors must be programmed with their floor relay settings starting from 65, e.g. Ground Floor (Rear), Floor Relay: 65.

We have assigned the floor relays as follows:

Floor Name	Floor Relay	Physical Floor Location
FLG	1	Ground Floor
FL1	2	First Floor
FL2	3	Second Floor
FL3	4	Third Floor

Floor Name	Floor Relay	Physical Floor Location
FL4	5	Fourth Floor
FL5	6	Fifth Floor
FL6	7	Sixth Floor
FL7	8	Seventh Floor
FL8	9	Eighth Floor
FL9	10	Ninth Floor

Programming the Floor Groups

For this scenario, we want to create floor groups for each group of apartments (based on the floor they reside on) in Protege GX, starting from the first floor. Visitors using the intercoms will only be granted access to the floor of the apartment they are visiting.

We are going to use short/abbreviated names that represent which floor the floor group can access. For example:

● Intercom FL2 FLG: Intercom Floor 2 Floor Group
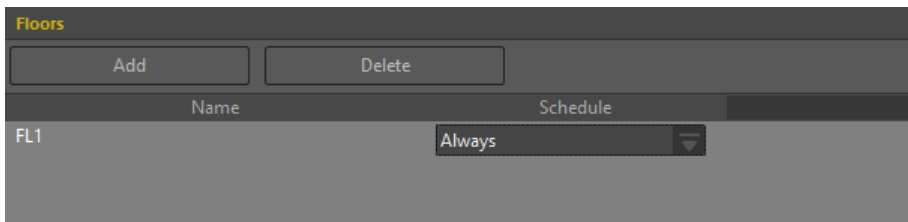● Intercom FL9 FLG: Intercom Floor 9 Floor Group

To create the Floor Groups:

1. Navigate to **Groups | Floor Groups**, click **Add** and name the floor group.

2. From the **Floors** section, click **Add** to select the floor.

3. Select the floor the floor group will have access to and click **Ok**.

4. As visitors can access the intercoms at any time, we have assigned **Always** to the floor in the floor group.

5. Click **Save**.

We have assigned the floors as follows:

| Floor Group Name	Floor in Floor Group	Schedule of Floor in Floor Group
Intercom FL1 FLG	FL1	Always
Intercom FL2 FLG	FL2	Always
Intercom FL3 FLG	FL3	Always
Intercom FL4 FLG	FL4	Always
Intercom FL5 FLG	FL5	Always
Intercom FL6 FLG	FL6	Always
Intercom FL7 FLG	FL7	Always
Intercom FL8 FLG	FL8	Always
Intercom FL9 FLG	FL9	Always

Programming the Access Levels

For this scenario, we want to create access levels for each group of visitors (based on the floor of the apartment they would like to visit) in Protege GX, starting from the first floor.

We are going to use short/abbreviated names that represent which floor the access level can access. For example:
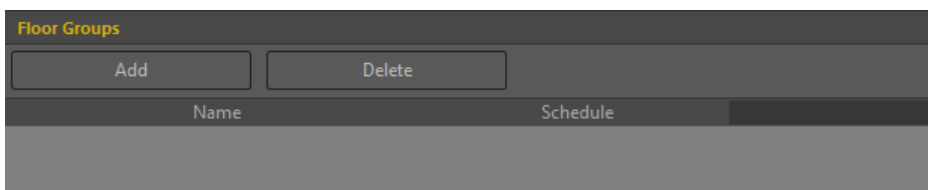
- FL2 Intercom: Floor 2 Intercom
- FL9 Intercom: Floor 9 Intercom

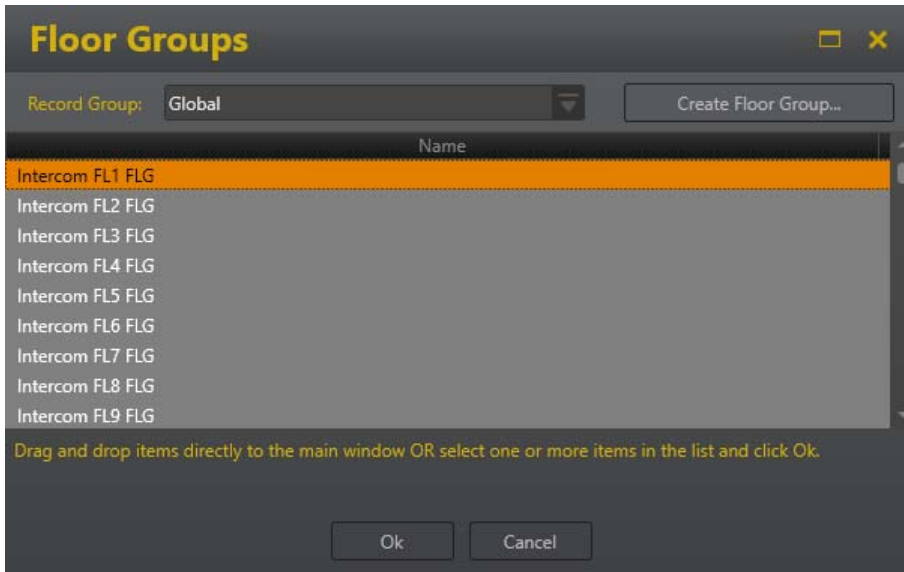### To create the Access Levels

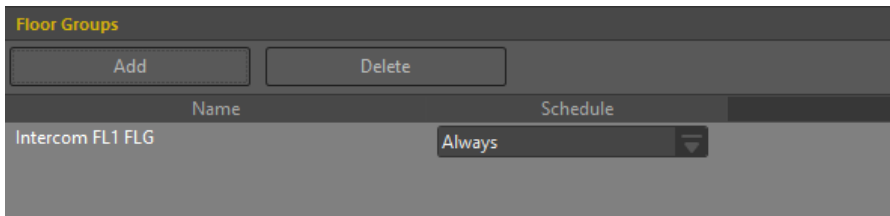1. Navigate to **Users | Access Levels**, click **Add** and name the access level.
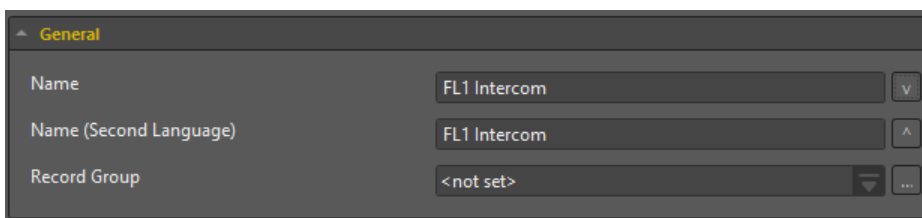
2. From the **Floor Groups** tab, click **Add** to select the floor group.

3. Select the floor group the access level will have access to and click **Ok**.

4. As visitors can access the intercoms at any time, we have assigned **Always** to the floor group in the access level.

5. Click **Save**.

We have assigned the floor groups as follows:

| Access Level Name	Floor Group in Access Level	Schedule of Floor Group in Access Level
FL1 Intercom	Intercom FL1 FLG	Always
FL2 Intercom	Intercom FL2 FLG	Always
FL3 Intercom	Intercom FL3 FLG	Always
FL4 Intercom	Intercom FL4 FLG	Always
FL5 Intercom	Intercom FL5 FLG	Always
FL6 Intercom	Intercom FL6 FLG	Always
FL7 Intercom	Intercom FL7 FLG	Always
FL8 Intercom	Intercom FL8 FLG	Always
FL9 Intercom	Intercom FL9 FLG	Always

Programming the MOXA Modules

As the intercoms will be communicating with the Protege GX system over ethernet, we need to use the MOXA modules to convert the output from the intercoms from serial to Ethernet.
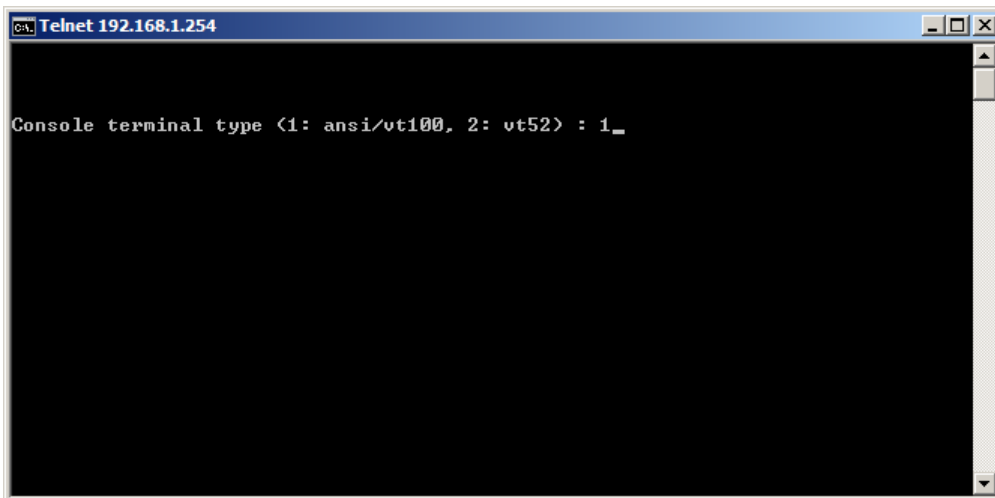
To configure the MOXA modules

1. Open a command prompt and telnet to the MOXA module via its IP address.
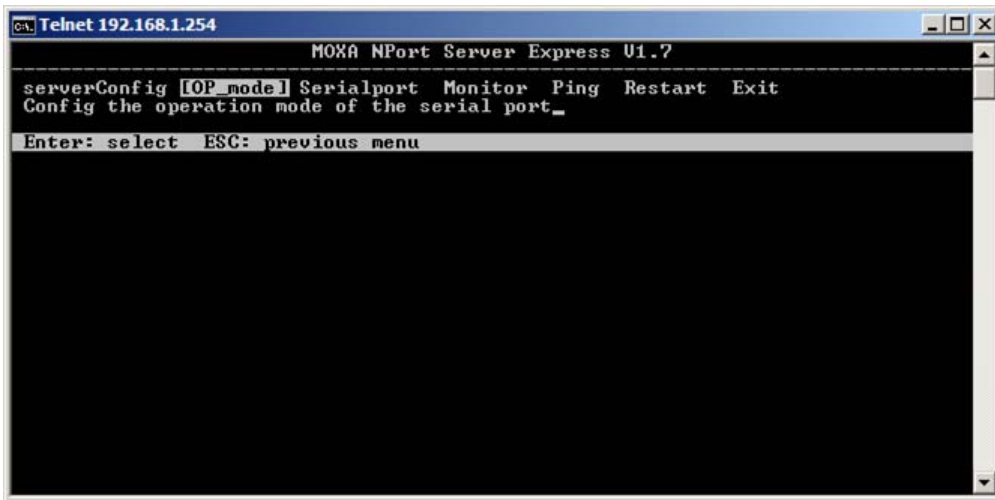
Note: The default IP address is 192.168.127.254. If this setting has since been changed during setup, ensure the correct/valid IP address is used.
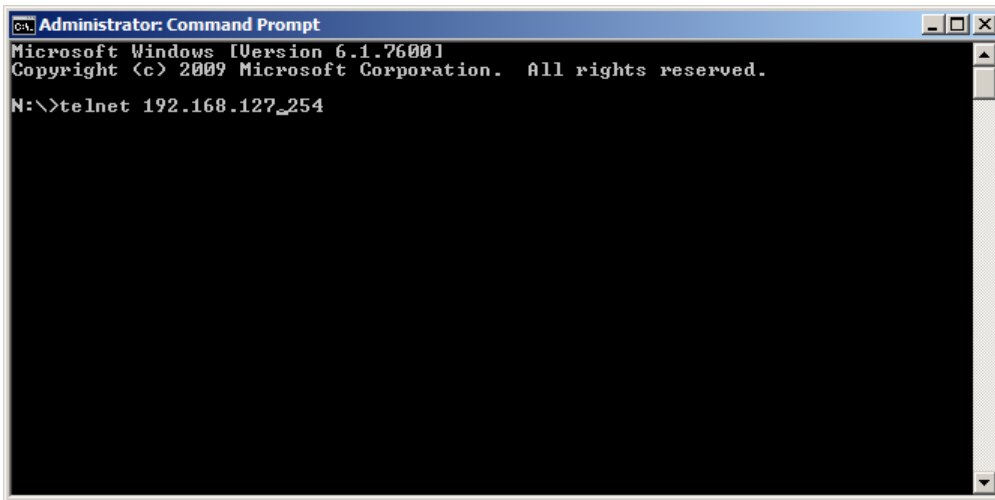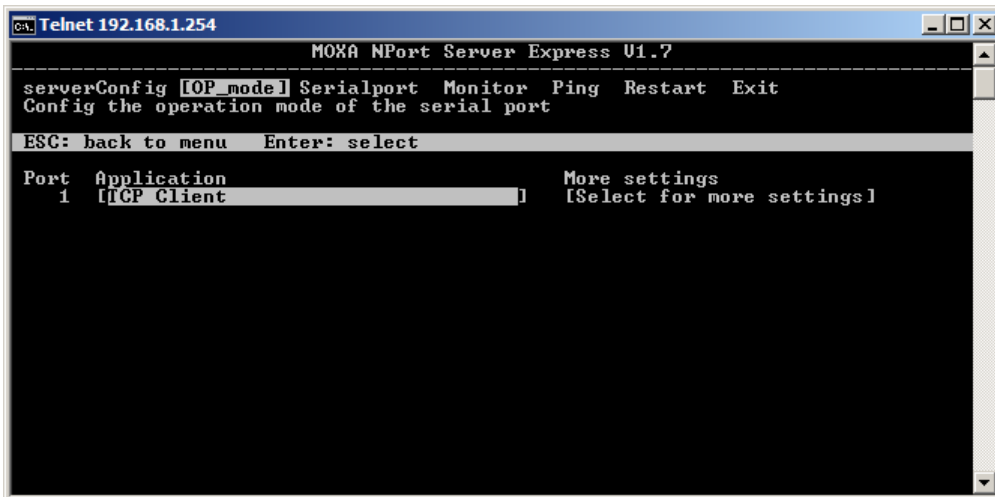

2. Select the desired console terminal type (1 for ansi/vt100 and 2 for vt52) and press **Enter**.
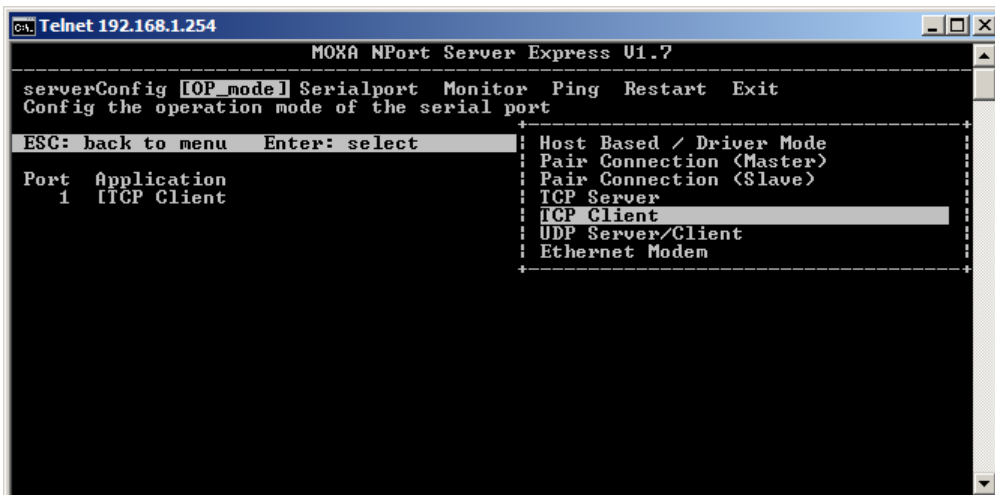
3. Use the **left**/**right** arrow keys to select **OP_mode** and press **Enter**.

4. Use the **left**/**right** arrow keys to highlight the **Application** type and press **Enter** to navigate into the sub menu.

5. Use the **up**/**down** arrow keys to select **TCP Client** and press **Enter** to confirm the selection.

6. Press **Esc**. Then use the **left/right** arrow keys to highlight the **Select for more settings** option and press **Enter** to navigate into the sub menu.

7. Enter the IP address and port of the Protege Controller into the **Destination IP Addr** and **TCP port** fields respectively.

8. Press **Esc** twice to return to the main menu. Use the **left/right** arrow keys to highlight **Serialport** and press **Enter** to navigate into the sub menu.

9. Adjust the settings according to the intercom device the MOXA module will connect to.

10. Press **Esc**. Use the **left/right** arrow keys to highlight the **Restart** option.

11. Press **Enter** to apply the settings to the MOXA module and press **Enter** again to restart the MOXA module.

AN-143 Intercom Integration in Protege GX Application Note | July 2017
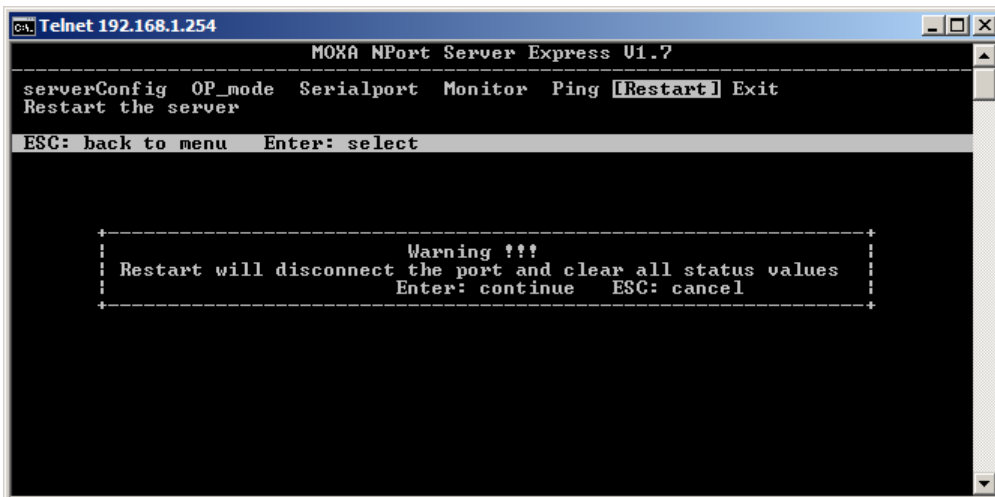
Configuring the Intercom Service

1. Navigate to **Programming | Services,** click **Add** and name the intercom device e.g. Building Intercom.
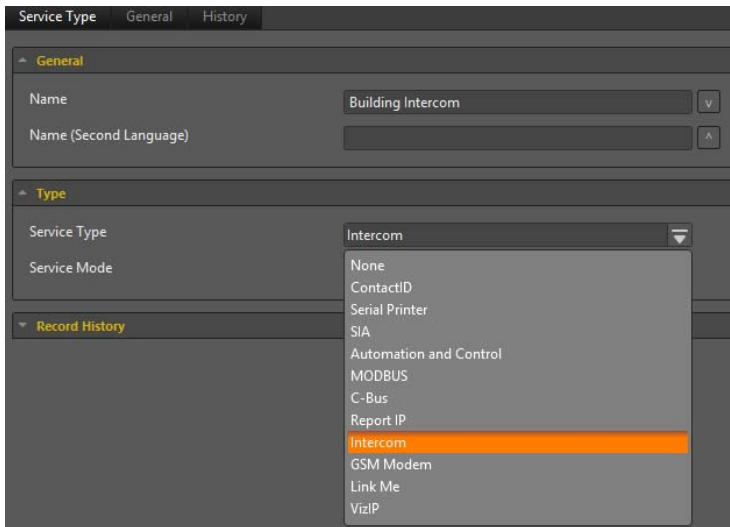
2. Set the Service Type to **Intercom** and the Service Mode to **1 - Start with Controller OS**.

3. Navigate to the **General** tab.
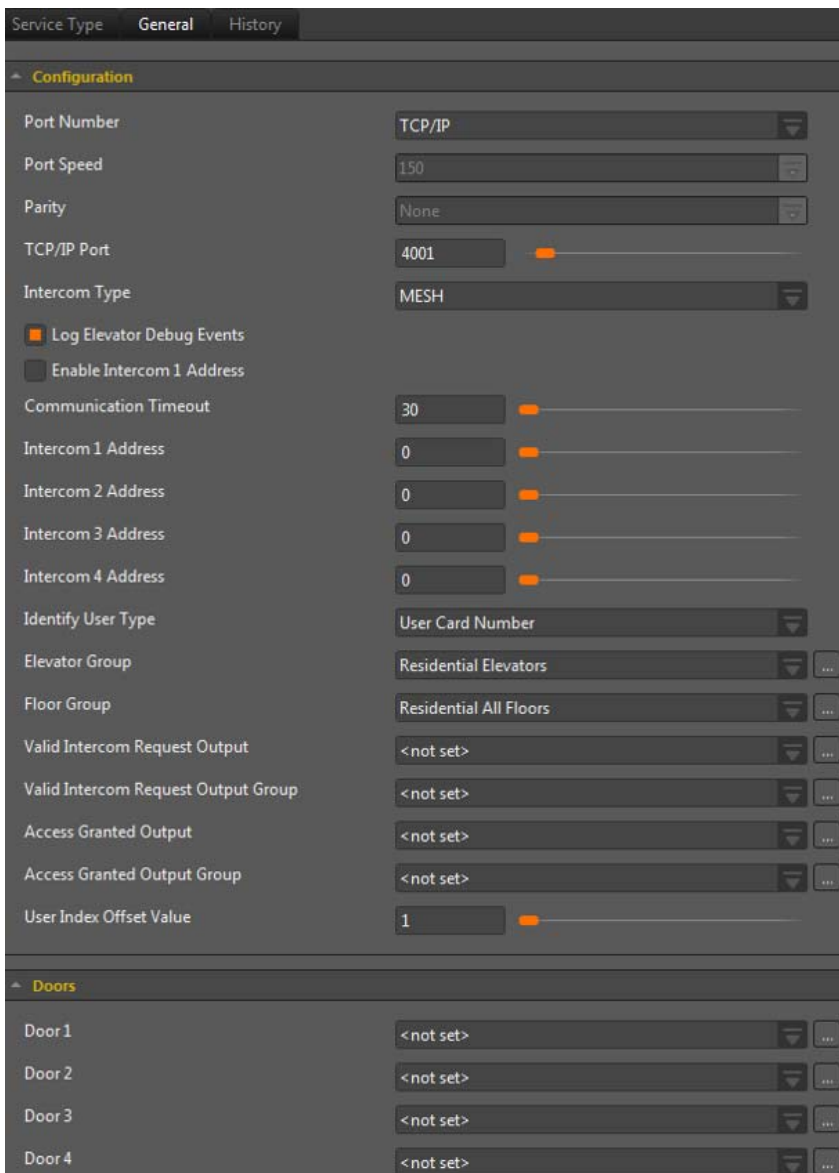
4. From the **Configuration** section, fill in the following fields:

- **Port Number:** Configures the communication interface the controller will use for communicating with the intercom. Set to **TCP/IP** as the Protege GX DIN Rail system controller only supports the intercom service via its Ethernet interface

- **Port Speed:** Configures the baud rate for the communication interface. Option is irrelevant when the Port Number setting has been configured for TCP/IP

- **Parity:** Configures the parity setting for the communication interface. Option is irrelevant when the Port Number setting has been configured for TCP/IP

- **TCP/IP Port:** Configures the TCP/IP port for the communication interface

- **Intercom Type:** Select the intercom type the service is communicating with

- **Log Elevator Debug Events:** Select this check box to enable debug messages to be generated when packets received from the intercom are processed. Can be used to assist when commissioning the integration

- **Enable Intercom 1 Address**: Select the check box to utilize the Elevator Group in a user's access level, instead of the Elevator Group defined in the service, when processing elevator access

- **Communication Timeout:** Configures the maximum inter byte time allowed before resetting communication with the intercom device. Option is irrelevant when the Port Number setting has been configured for TCP/IP

- **Intercom 1-4 Address:** Defines the address code that must be received from the intercom to activate the associated door. Intercom 1 Address is associated with Door 1, Intercom 2 Address is associated with Door 2, etc

- **Identify User Type:** Select the type of user authentication the service will use to grant access to the elevators and floors
  - **User Index number**: User code from the intercom will be validated against the database ID of users in Protege GX
  - **User PIN**: User code from the intercom will be validated against the PIN of users in Protege GX
  - **User Card Number**: User code from the intercom will be validated against the Card Number of users in Protege GX. The Facility Code should be set to '0' for users in Protege GX unless explicitly specified for the Intercom Type selected
  - **User Index Offset Number**: User code from the intercom will be treated as an offset after the User Index Offset Value specified

- **Elevator Group**: Configures the elevator group in Protege GX that specifies the individual elevator cars the intercom service can access, taking into account any schedules on the floors that those elevator cars can access

- **Floor Group:** Configures the floor group in Protege GX that specifies the individual floors the intercom service can access, taking into account any schedules on those floors

- **Valid Intercom Request Output:** Configures the output in Protege GX that will activate when a packet received from the intercom is decoded correctly. This output will activate regardless of the user being checked and is used to signal a valid decode has occurred. The output will activate for the duration of the Activation Time set in the output's programming

- **Valid Intercom Request Output Group:** Configures the output group in Protege GX that will activate when a packet received from the intercom is decoded correctly. This output will activate regardless of the user being checked and is used to signal a valid decode has occurred. The output group will activate for the duration of the Output Time set in the output group's programming

- **Access Granted Output:** Configures the output in Protege GX that will activate when a correctly decoded packet received from the intercom contains a valid user. The output will activate for the duration of the Activation Time set in the output's programming

- **Access Granted Output Group:** Configures the output group in Protege GX that will activate when a correctly decoded packet received from the intercom contains a valid user. The output group will activate for the duration of the Output Time set in the output group's programming

- **User Index Offset Value:** Defines the database ID of the user in Protege GX to be used as the offset for determining the user code received from the intercom. Option is relevant when the Identity User Type setting has been configured for User Index Offset Number

5. From the **Doors** section, fill in the following fields:

- Door 1-4: Defines the door to unlock when the associated address code has been received from the intercom

6. Click **Save.**

Programming the Users

For this scenario, we want to create users for each apartment's intercom in Protege GX, starting from the first floor.

We are going to use short/abbreviated names that represent which apartment the intercom can access. For example:

- APT2A Intercom: Apartment 2A Intercom
- APT9D Intercom: Apartment 9D Intercom

To create the Users

1. Navigate to **Users | Users**, click **Add** and name the user.

2. From the **Card Numbers** section, fill in the following fields:

- **PIN**: Configures the PIN number expected from the intercom for this apartment. The PIN field needs to be set if the intercom service is configured with the Identify User Type setting set to User PIN

- **Facility/Card Number**: Configures the facility and card number expected from the intercom for this apartment. The Facility/Card Number fields need to be set if the intercom service is configured with the Identify User Type setting set to User Card Number

3. Navigate to the **Access Levels** tab and click **Add** to select the access level.

4. Select the access level the user will have access to and click **Ok**.
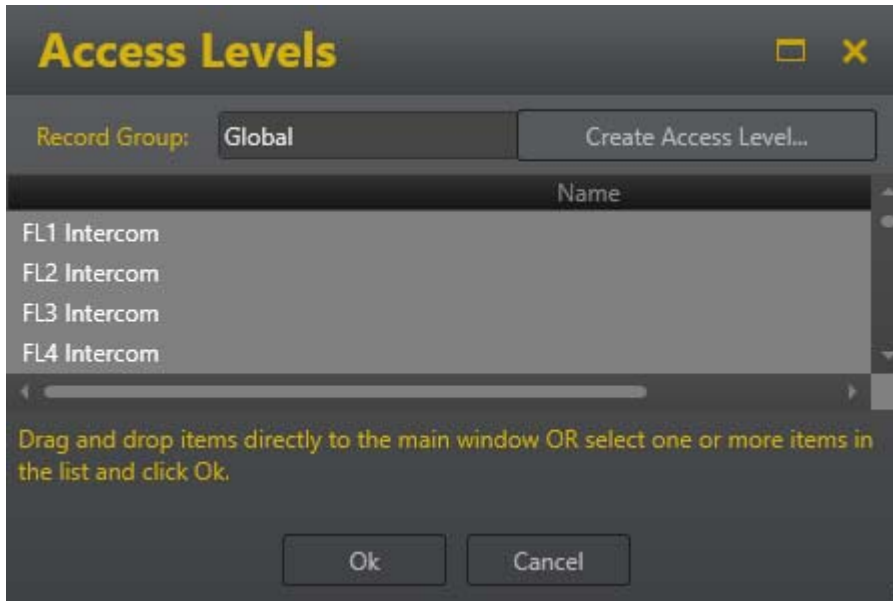
We have assigned the users as follows:

User Name	Access Level in User	User Name	Access Level in User
APT1A Intercom	FL1Intercom	APT5C Intercom	FL5Intercom
APT1B Intercom	FL1Intercom	APT5D Intercom	FL5Intercom
APT1C Intercom	FL1Intercom	APT6A Intercom	FL6Intercom
APT1D Intercom	FL1Intercom	APT6B Intercom	FL6Intercom
APT2A Intercom	FL2Intercom	APT6C Intercom	FL6Intercom
APT2B Intercom	FL2Intercom	APT6D Intercom	FL6Intercom
APT2C Intercom	FL2Intercom	APT7A Intercom	FL7Intercom
APT2D Intercom	FL2Intercom	APT7B Intercom	FL7Intercom
APT3A Intercom	FL3Intercom	APT7C Intercom	FL7Intercom
APT3B Intercom	FL3Intercom	APT7D Intercom	FL7Intercom
APT3C Intercom	FL3Intercom	APT8A Intercom	FL8Intercom
APT3D Intercom	FL3Intercom	APT8B Intercom	FL8Intercom
APT4A Intercom	FL4Intercom	APT8C Intercom	FL8Intercom
APT4B Intercom	FL4Intercom	APT8D Intercom	FL8Intercom
APT4C Intercom	FL4Intercom	APT9A Intercom	FL9Intercom
APT4D Intercom	FL4Intercom	APT9B Intercom	FL9Intercom
APT5A Intercom	FL5Intercom	APT9C Intercom	FL9Intercom
APT5B Intercom	FL5Intercom	APT9D Intercom	FL9Intercom

Connecting the Hardware

Once all the configurations are complete, connect the intercom device, MOXA module and Protege Controller as shown. When the intercom device attempts to send serial data, the MOXA DE-211/311 module will open a TCP/IP connection to the Controller and forward the data to the configured port.
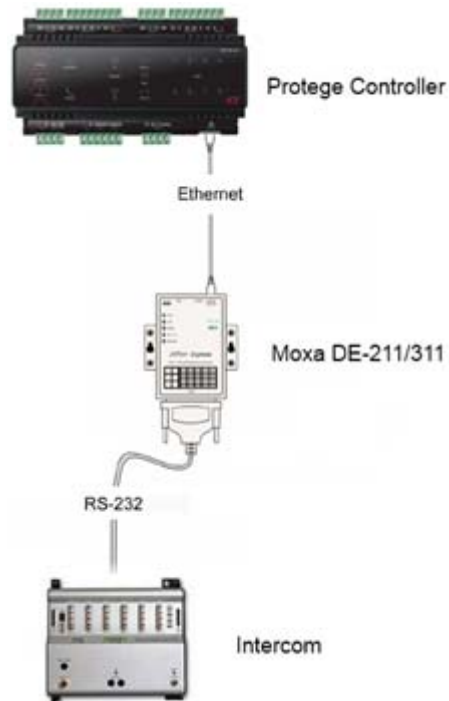
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