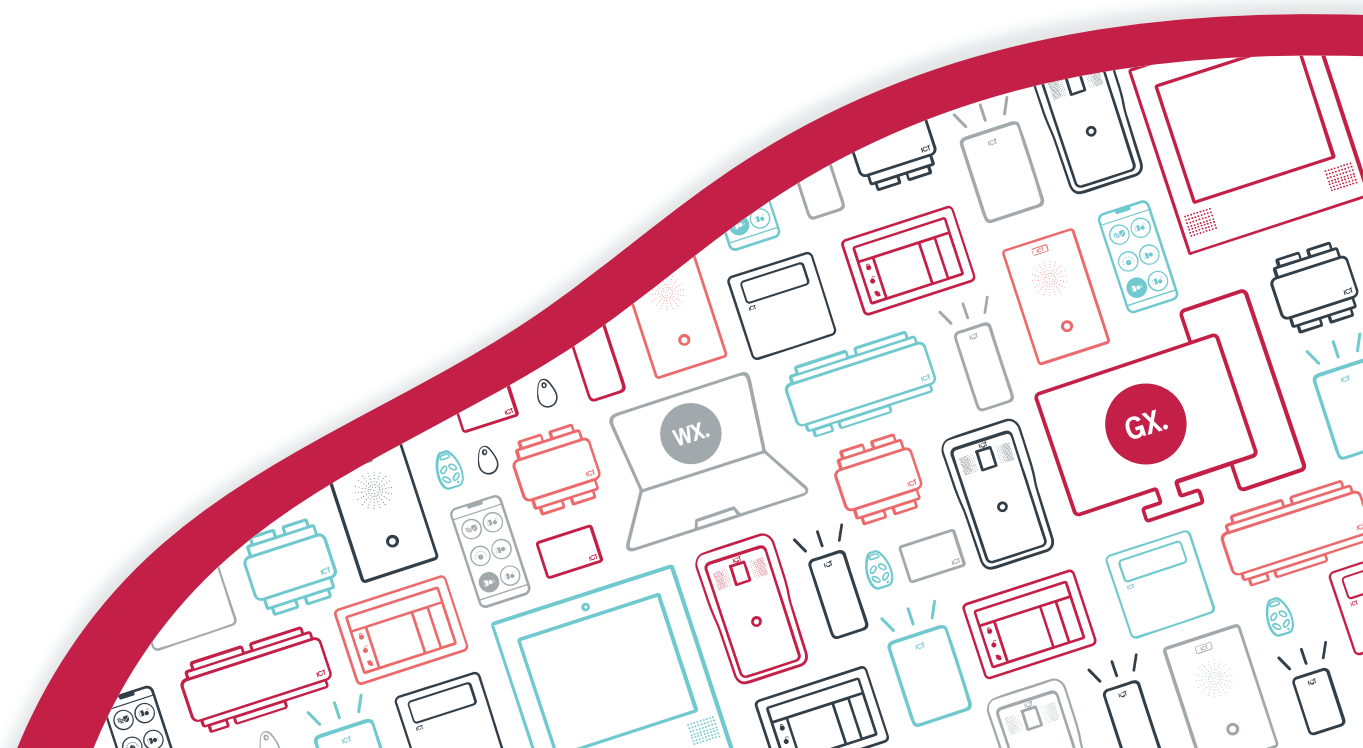
AN-274

Protege GX KONE Destination 880 Integration

Application Note



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Introduction

The Destination 880 functionality extends the communication paths of the KONE high level elevator service to up to 32 KONE Group Controllers (KGCs). Moreover the KGCs can be clustered into groups and the ICT interface to the KGCs can support up to 32 groups.

This document describes how to program the ICT controller to interface with the KONE Destination 880 system. It does not cover the programming or hardware setup required on the KONE system.

Prerequisites

Protege GX Components

The following Protege GX components must be installed and operational:

Component	Version
Protege GX	4.3.322.25 or higher
Protege GX Controller	2.08.1345 or higher

KONE Components

This integration requires an existing KONE Traditional DCS or Turnstile integration using KBM GCAC v1.8, RCGIF v1.12, API v8.5, and Royal GC software v3.4.4.

Note: The Destination 880 integration is an extension of the Protege GX KONE HLI integration, and as such the KONE HLI integration must be configured as a requirement of the Destination 880 integration.

For KONE HLI integration setup information refer to AN-170: Protege GX KONE HLI Integration, which provides instruction on the required configuration and operation of the KONE HLI integration, including a more detailed explanation of floor configuration, floor groups, schedules and access levels.

It is the responsibility of the installation professional to verify the version of the proposed third-party system and supported components with the version listed in this document. ICT will not accept responsibility for the failure to verify integrated system versions and requirements.

Groups

The Destination 880 protocol allows the installer to configure separate groups within the KONE network.

This means that messages for a DOP that is specified to be in a certain group will only be sent to KONE controllers in the same group. There can be several KONE controllers in any group, and those controllers work in parallel providing redundancy to improve reliability.

If no modifying commands are present the primary and secondary connections are both treated as being in group 1 and all DOPs and COPs are treated as being in group 1.

Additional KGCs

To add additional KGCs to the network the installer must specify the **KGC number**, the **IP address** and **port**, and a **group number**.

Navigate to **Sites | Controllers | General**, expand the **Commands** section and include the following series of commands for each KGC:

- `HLI_KGC03_Port = 2005`
- `HLI_KGC03_IP = 192.89.159.2`
- `HLI_KGC03_Group = 2`

Where:

1. The `03` is the KGC number.

   The KGC number can accept a value from 1 to 32 inclusive. If KGC01 is specified these settings will override those which have been configured for the primary controller in the Protege software. Similarly if KGC02 is specified these settings will override those which have been configured for the secondary controller.

2. The `2005` is the connection port of the KGC.
3. The `192.89.159.2` is the IP address of the KGC.
4. The `2` specifies the group to which this KGC is assigned.

   This must match the configuration in the KONE system. It is possible to have all 32 KGCs in a single group, all KGCs in individual groups (32 groups), or any combination between.

DOP/COP Grouping

By default, all DOPs and COPs are in group 1.

To assign a DOP or COP to a different group, include the following in the **Commands** section of the door programming (**Programming | Doors**):

- `HLI_Group = 2`

Where the `2` is the group number.

This means that messages for this DOP will be sent to all KGCs that have also been defined as group 2. Messages for this DOP will not be sent to any KGC that is assigned to any other group number.

When the KGCs are arranged in groups, only commands for the DOPs and COPs in a specific group are sent to the KGCs in that group.

Group numbering typically starts at 1, although any number can be used as long as the DOPs, COPs and KGCs all match, and are consistent with the configuration in the KONE system.

Default Masks

Without additional commands the default DOP/COP source/destination masks programmed in Protege GX will be sent to all KGCs, regardless of grouping.

If customized behavior is required for different groups, include the following in the **Commands** section of **Sites | Controllers**:

- `HLI_GRP02_DFLT_DOP_SRC_GRP = 1`
- `HLI_GRP02_DFLT_DOP_DEST_GRP = 1`
- `HLI_GRP02_DFLT_COP_DEST_GRP = 1`
- `HLI_GRP02_DFLT_DOP_DISCON_SRC_GRP = 1`
- `HLI_GRP02_DFLT_DOP_DISCON_DEST_GRP = 1`
- `HLI_GRP02_DFLT_COP_DISCON_DEST_GRP = 1`

Where:

1. The `02` specifies the group to which this mask will be sent.
2. The `1` specifies the Database ID of the floor group which contains the relevant floors for the mask.
3. The **first three** commands define the **connected** state. The **last three** define the **disconnected** state.

Disconnected Mask

The specific connected mask for a DOP is specified by the floor group assigned to that DOP.

By default, the specific disconnected mask for a DOP is set to all floors locked. If customized behavior is required for the specific disconnected mask, include the following in the **Commands** section of the door programming (**Programming | Doors**).

- `DisconMask = 1`

Where the `1` refers to the Database ID of a floor group containing the valid floors for the mask.

Additional Considerations

- If a DOP or COP does not have a floor group assigned, no specific masks (connected or disconnected) will be sent for that DOP or COP upon initial connection to the KGC.
- If a DOP or COP does not have a disconnected mask specified (using the DisconMask command) an empty mask containing all zeros (all floors locked) will be sent as the disconnected mask (so long as a connected mask is sent).
- If a floor group is specified for a DOP it defines the floors the DOP can access. If no floor group is specified then access to all floors is assumed, unless restricted on the KONE side.

Remote Call Giving (Turnstile) Setup

The ICT controller supports the KONE Remote Call Giving Interface (RCGIF).

To enable the RCGIF, navigate to the **Elevator HLI** section of **Sites | Controllers | Configuration** and enable the **Enable elevator call functionality** option.

The RCGIF allows an elevator to be summoned automatically without the user entering a destination. This requires access level configuration which determines the destination floor, programmed using commands.

If no modifying commands are present the primary and secondary connections are both treated as being in group 1 and all DOPs are treated as being in group 1 (the RCGIF does not support COPs).

Additional KGCs

To add additional KGCs to the network the installer must specify the **KGC number**, the **IP address** and **port**, and a **group number**.

Navigate to the **Commands** section of the controller programming (**Sites | Controllers**) and include the following series of commands for each KGC:

- `HLI_RCGIF_KGC03_Port = 2004`
- `HLI_RCGIF_KGC03_IP = 192.89.159.3`
- `HLI_RCGIF_KGC03_Group = 2`

Where:

1. The `03` is the KGC number.

   The KGC number can accept a value from 1 to 32 inclusive. If KGC01 is specified these settings will override those which have been configured for the primary controller in the Protege software. Similarly if KGC02 is specified these settings will override those which have been configured for the secondary controller.

2. The `2004` is the connection port of the KGC.
3. The `192.89.159.3` is the IP address of the KGC.
4. The `2` specifies the group to which this KGC is assigned.

   This must match the configuration in the KONE system. It is allowable to have all 32 KGCs in a single group, all KGCs in individual groups (32 groups), or any combination between.

DOP Grouping

By default, all DOPs are in group 1.

To assign a DOP to a different group, include the following in the **Commands** section of the door programming (**Programming | Doors**):

- `HLI_Group = 2`

Where the `2` is the group number.

This means that messages for this DOP will be sent to all KGCs that have also been defined as group 2. Messages for this DOP will not be sent to any KGC that is assigned to any other group number.

Note: The RCGIF does not require any default or specific masks to be configured.

Access Level Setup

To use the RCGIF a user must have an access level assigned with a destination floor configured, and the DOP must be configured to use the interface.

Additionally, the side of the elevator (front or rear) can be specified and the type of call (handicap, priority, etc.) may be selected.

Door Programming

For a DOP to be used in the RCGIF, navigate to the **Elevator HLI** section of **Programming | Doors | General** and enable the **DOP sends elevator call** option.

When both RCGIF and GCAC controllers are configured in the same group, any DOP with **DOP sends elevator call** enabled will only send elevator calls to RCGIF-enabled KGCs. DOPs without this option enabled will only send elevator calls to GCAC-enabled KGCs.

When the GCAC/ELI and RCGIF are both in use, each access request will cause requests to be sent to both interfaces, causing the home floor call to be canceled. To allow the RCGIF to be used, add the following to the **Commands** section (**General** tab) of each door with **DOP sends elevator call** enabled:

```
DontSendAccess = true
```

Access Level Configuration

To specify a destination floor for a user, add it as the **Elevator destination floor** for an access level in **Users | Access levels | General | Elevator HLI**, then assign that access level to the user.

The floor should be the floor that is programmed as the front door of the elevator for that floor, and by default the destination will be both front and rear doors.

To restrict the destination to just the front or rear, add one of the following to the **Commands** section of the access level programming (**Users | Access levels**).

- `ElevatorDestFloorFront = true`
- `ElevatorDestFloorRear = true`

User Programming

Assign the appropriate access level(s) to each user as required.

By default, all calls are normal call types. To specify an alternative call type for a user, select the required call type in **Users | Options | KONE elevator HLI options**.

Additional Considerations

Under normal operation:

- If a user has multiple access levels
- and they have access to a DOP in one of their access levels
- and they have access to a floor in a different access level

They will be able to access that floor from the DOP.

It may be desirable to limit floor access such that the user only has access to a floor from a defined DOP, and cannot access that floor from other DOPs. To restrict access in this way, add the following to the **Commands** section of the controller programming (**Sites | Controllers**).

- `FloorAccessCheckDoor = true`

This command means a user will only be granted access to a floor if the floor **and** the DOP are both in the same access level assigned to the user.

HLI Elevator Commands

Listed below is a summary of the various commands available for configuring the KONE Destination 880 interface. They are listed in four tables that indicate under which programming section they are valid.

In each of the controllers, access levels, doors and floors programming is a **Commands** section where the appropriate commands may be entered.

All of the commands (with the exception of the 'rear' command for floors) require a qualifying value which must follow an equal sign (=) after the command text.

Qualifying Values

Value Description	Meaning
1-65534	A decimal number ranging from 1 to 65534 inclusive
IP	An IP address in the form of 4 decimal numbers separated by dots. e.g. 192.168.1.2
1-32	A decimal number ranging from 1 to 32 inclusive
T/F	The word 'True' or 'False'
DB ID	A decimal number equating to the database id of a specific record

Controller Commands

Command	Value	Meaning
`HLI_KGC03_Port`	1-65534	The TCP port of a KGC where the '03' is a reference for that KGC.
`HLI_KGC03_IP`	IP	The TCP/IP address of a KGC where the '03' is a reference for that KGC.
`HLI_KGC03_Group`	1-32	The group that this KGC is in.
`HLI_RCGIF_KGC03_Port`	1-65534	The TCP port of a KGC for the remote call interface where the '03' is a reference for that KGC.
`HLI_RCGIF_KGC03_IP`	IP	The TCP/IP address of a KGC for the remote call interface where the '03' is a reference for that KGC.
`HLI_RCGIF_KGC03_Group`	1-32	The group that this KGC for the remote call interface is in.
`HLI_GRP02_DFLT_DOP_SRC_GRP`	1-32	Sets an alternative default connected DOP source mask for the specified group. If not present then the Protege entries are used.
`HLI_GRP02_DFLT_DOP_DEST_GRP`	1-32	Sets an alternative default connected DOP destination mask for the specified group. If not present then the Protege entries are used.
`HLI_GRP02_DFLT_COP_DEST_GRP`	1-32	Sets an alternative default connected COP destination mask for the specified group. If not present then the Protege entries are used.

Command	Value	Meaning
HLI_GRP02_DFLT_DOP_DISCON_SRC_GRP	1-32	Sets an alternative default disconnected DOP source mask for the specified group. If not present then the Protege entries are used.
HLI_GRP02_DFLT_DOP_DISCON_DEST_GRP	1-32	Sets an alternative default disconnected DOP destination mask for the specified group. If not present then the Protege entries are used.
HLI_GRP02_DFLT_COP_DISCON_DEST_GRP	1-32	Sets an alternative default disconnected COP destination mask for the specified group. If not present then the Protege entries are used.
CopyDOPDisconDflt2Spec	T/F	Force all DOP specific masks (on initial connection) to match the default masks.
NoDOPSpecDisconMask	T/F	Skip the DOP specific disconnected floor masks when sending masks on initial connection.
ExcludeCOPMasks	T/F	Don't send default COP masks on initial connection.
ExcludeDOPMasks	T/F	Don't send default DOP masks on initial connection.
HLISendAllFloors	T/F	Don't exclude higher floors from the mask if the higher floors are all empty.
HLIFlushIfEmpty	T/F	Send a mask with zero floors if the floor group is empty (rather than sending a mask with a single zeroed floor).
ClearMask_DOP	T/F	Immediately after download send a global clearing mask for all DOPs.
ClearMask_COP	T/F	Immediately after download send a global clearing mask for all COPs.
ClearMask_123	T/F	Immediately after download send a global clearing mask for the door (DOP or COP) with the specified Database ID (123 in this example).
FloorAccessCheckDoor	T/F	Will only allow access to a floor if the DOP (door) is in the same access level as the floor.
HLI_MAX_FLOORS	1-128	Specifies the highest floor in the elevator shaft. Not normally required but can be used to override the automatic calculation of this value.
HLI_128_FLOORS	T/F	Extends the floor split to 128 so that rear door programming starts at floor 129 rather than floor 65.

Command	Value	Meaning
`FilterHLIMasks`	T/F	Optional command. From controller firmware version 2.08.1345 when a KONE controller comes online Protege GX will send global masks to that controller only. Previously when a KONE controller came online Protege GX would send global masks to all KONE controllers. To reinstate this behavior, set this command to false.
`FilterHLICOPDOPMasks`	T/F	Optional command. From controller firmware version 2.08.1345 when a global COP mask is changed Protege GX will update only the global COP masks in the KONE controllers, and similarly for global DOP masks. Previously when a global COP or DOP mask was changed Protege GX would update all global masks in KONE controllers. To reinstate this behavior, set this command to false.

Access Level Commands

Command	Value	Meaning
`ElevatorDestFloorFront`	T/F	The home floor for the RCGIF uses the front door of the elevator.
`ElevatorDestFloorRear`	T/F	The home floor for the RCGIF uses the rear door of the elevator.

* If neither are present then both are assumed.

Door Commands

Command	Value	Meaning
`HLI_Group`	1-32	The group that this DOP or COP belongs to. If not present then group 1 is assumed.
`DisconMask`	DB ID	The ID of a floor group to be used as the DOP or COP specific disconnected mask.
`DontSendAccess`	T/F	Prior to controller firmware version 2.08.1274 this command is required when the RCGIF is used in conjunction with the GCAC/ELI interfaces. It prevents the DOP from sending requests to the GCAC interface, allowing it to call the home floor via the RCGIF. In firmware versions 2.08.1274 or higher this command is not required.

Floor Commands

Command	Value	Meaning
Rear	none	Defines this floor as the rear door of the elevator car. Without this command a floor must be programmed above the floor split to be considered a rear door, i.e. floor 65 is treated as the rear entry of floor 1.

Troubleshooting

- **The remote call giving interface does not start:**

  This is caused by the controller misinterpreting "RCGIF" in any command as an entire command, resulting in the service stopping. To resolve this issue, upgrade the Protege GX controller firmware to version 2.08.1232 or higher.

  Alternatively, add the command **`RCGIF = true`** in the controller programming prior to any other commands containing the text "RCGIF".
- **Even with the remote call giving interface enabled, some DOPs are prompting for floor selection instead of calling an elevator for the home floor:**

  When the RCGIF is used in conjunction with the GCAC/ELI interfaces each access request will cause requests to be sent to both interfaces, causing the home floor call to be canceled. To resolve this issue, upgrade the Protege GX controller firmware to version 2.08.1274 or higher.

  If you cannot upgrade the controller firmware there is an alternative workaround for this issue. For each door record with **DOP sends elevator call** enabled, add the command **`DontSendAccess = true`**.
- **The port and IP address for KGCs 01 and 02 cannot be configured by commands:**

  The port and IP address set via group commands are overridden by the **Primary/Secondary port** and **Primary/Secondary IP address** set in the UI under **Sites | Controllers | Configuration | Elevator HLI**. To resolve this issue, upgrade the Protege GX controller firmware to version 2.08.1232 or higher.

  Alternatively, set either the IP address or the port to 0 in the UI fields.
- **The Protege controller is closing the connection with the KONE group controller even when it is still sending messages:**

  The Protege controller expects explicit heartbeat messages from the KONE group controller every 30 seconds, whereas some group controllers will not send heartbeats if they are sending other messages to the controller. There is no workaround for this issue. To resolve this issue, upgrade the Protege GX controller firmware to version 2.08.1232 or higher.

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