Gallagher Command Centre

Nedap Booster DESFire 9.00

(Supports Command Centre 8.70 or later Command Centre release)

Release Note

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1 Introduction

About this release note

This release note is for the 'Nedap Booster DESFire' v9.00 feature of Gallagher Command Centre.

1.1 Purpose

About this feature

The 'Nedap Booster DESFire' feature allows MIFARE DESFire cards to be used with Nedap Booster devices for access with Gallagher Command Centre. This release note is applicable for sites that are using Nedap Booster devices already as well as sites that wish to configure Nedap Booster devices for the first time.

In this release note

This release note contains instructions for:

- connecting your Nedap TRANSIT readers to Gallagher Controllers
- installing the required customisation onto your Gallagher Controllers
- configuring Command Centre for Nedap Boosters.
- configuring your Nedap Booster devices to be compatible with DESFire

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1.2 Compatibility

Support for this feature

This feature supports and has been tested with the following:

Supported existing software	• Gallagher Command Centre:
	  • vEL8.70.2185 (or later vEL8.70 release)
	  • vEL8.80.1192 (or later vEL8.80 release)
	  • vEL8.90.1318 (or later vEL8.90 release)
	  • vEL9.00.2848 (or later Command Centre release)
	• Gallagher Controller 6000 and 7000 Single Door:
	  • vCR8.70.230613a (or later vCR8.70 release)
	  • vCR8.80.230613a (or later vCR8.80 release)
	  • vCR8.90.230613a (or later vCR8.90 release)
	  • vCR9.00.250213b (or later Controller release)
	• Gallagher Controller 7000:
	  • vCR9.00.250213b (or later Controller release)

Tested Nedap hardware	Nedap Smartcard Booster Cardax 2G
Tested Nedap firmware	Nedap TRANSIT reader firmware version P97

Multi-server support

This feature has *not* been tested in a Command Centre multi-server environment.

Other customisations

This feature cannot be used in conjunction with any other customisation DLL on the same Controller.

1.3 Security consideration

Wiegand's low security

Due to the low security of the Wiegand communication interface, Gallagher cannot ensure the security or integrity of card data sent between TRANSIT readers and Gallagher Controllers.

This feature is considered low security and should only be used in security level 1 areas (public access areas - for more information, refer to the document *"Gallagher's guide to physical security levels"* located in the Gallagher installation media).

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2 Installation

In this section

To install this feature, perform the following procedures:

2.1 Create the Controller Customisation item
2.2 Install the Controller Customisation

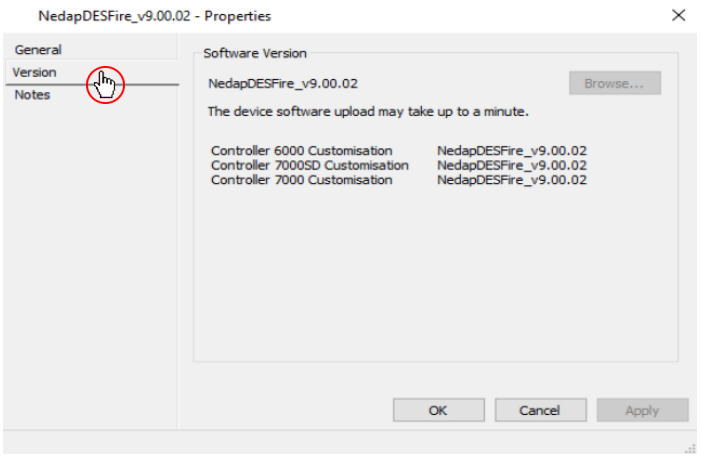
Upgrading from a previous version

If you have already installed a previous version of this feature, uninstall it before installing this new version. Refer to section 7 "*Uninstallation*".

2.1 Create the Controller Customisation item

Procedure

To create the Controller Customisation item for this feature, perform the following procedure:

Step	Action	Description
1	**Open the Device Software window**	From the Configuration Client menu bar, click **Configure** > **Device Software**. The Device Software List Window displays.
2	**Create a Controller Customisation**	Right-click and select **New...** > **Controller Customisation**. The **General** tab displays.
3	**General details**	Enter a **Description** and select the **Division**.
4	**Click the Version tab**	
5	**Browse to file**	Click the **Browse...** button and navigate to the Device Software file 'NedapDESFire_v9.00.0x', located in the customisation folder you have been provided.
6	**Open the file**	Select the file and click the **Open** button. The selected software displays in the Software Version field.
7	**Click OK**	Click **OK** to exit and save your changes.

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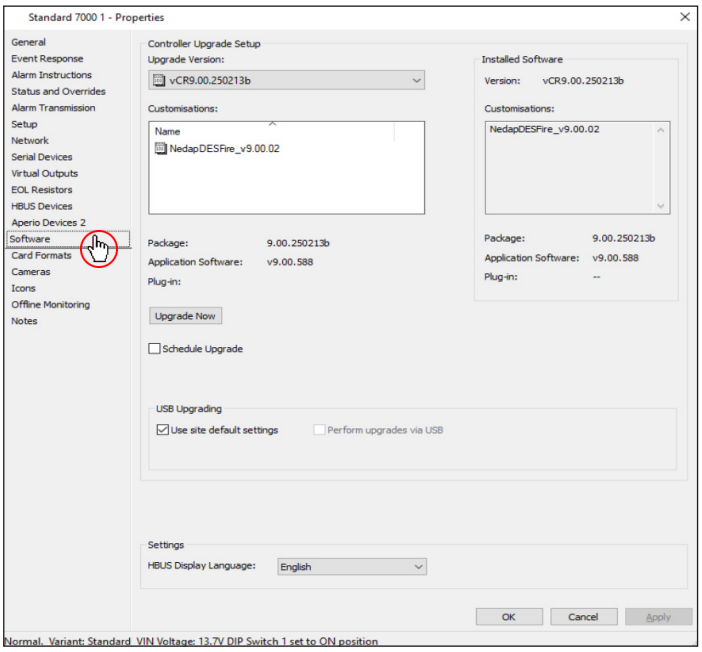
2.2 Install the Controller Customisation

Procedure To install the customisation on your Gallagher Controllers, perform the following procedure:

Step	Action	Description
1	**Open the Device Software window**	Open the Device Software List Window (via **Configure** > **Device Software** from the Configuration Client menu bar).
2	**Open Controller properties**	Open the properties of each Controller that is connected to a Nedap TRANSIT reader.
3	**Click the Software tab**	
4	**Add Controller Customisation item**	Drag (or copy and paste) the Controller Customisation item 'NedapDESFire_v9.00.0x' from the Device Software List Window to the **Customisations** grid on the Controller's **Software** tab.
5	**Click Apply**	Click **Apply**, then **Upgrade Now**. The Controller will download the customisation, then restart. When the Controller has restarted, the **Software** tab will show the customisation object 'NedapDESFire_v9.00.0x' in the 'Installed Software' column.

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3 Nedap TRANSIT reader installation

About this section

This section details how to wire a Nedap TRANSIT reader directly to a Gallagher Controller. If you have already installed your Nedap TRANSIT readers, skip this section.

Wiring

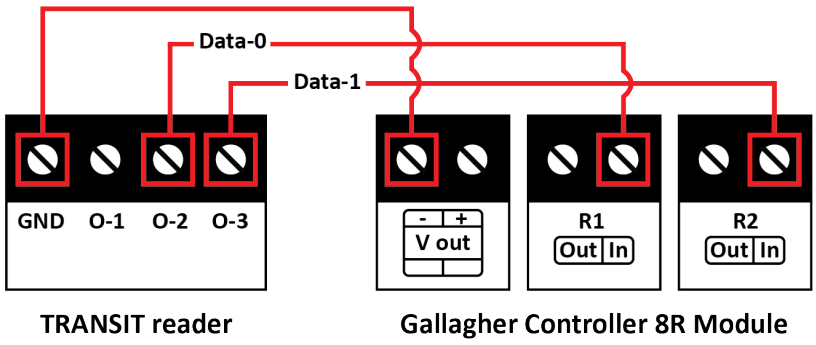
To install a Nedap TRANSIT reader, connect it to the Gallagher Controller's 8R Module as follows:

Wire the TRANSIT reader...	to the Controller 8R Module...
GDN	V out -
Data-0 (O-2)	R1-in, R3-in, R5-in, or R7-in
Data-1 (O-3)	R2-in, R4-in, R6-in, or R8-in

R pairs: The Nedap TRANSIT reader can be wired to any two of the R ports as shown in the table above, but the two R ports must be a pair (adjacent). For example, if Data-0 is wired to R1-in, then Data-1 must be wired to R2-in (its pair).

Diagram

The following diagram demonstrates wiring the Nedap TRANSIT reader to the R1-in and R2-in ports of a Gallagher Controller 8R Module:



Result

The Nedap TRANSIT reader is ready to communicate with the Gallagher Controller.

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4 Command Centre Nedap Booster configuration

About this section This section details the standard Command Centre configuration required to use Nedap Booster devices and TRANSIT readers with Command Centre. If your site has already configured and is using Nedap Boosters with TRANSIT readers, skip this section.

Where to perform this section Perform the procedures in this section in Gallagher Configuration Client on the Command Centre Server.

4.1 Configuring Nedap TRANSIT readers as Third Party Readers

About this section A Nedap TRANSIT reader is configured in Gallagher Configuration Client as a Third Party Reader, then assigned to the appropriate Controller and Door.

Before you begin Before performing this procedure, ensure you have installed your Nedap TRANSIT readers.

Procedure To configure a Nedap TRANSIT reader, perform the following procedure:

Step	Action	Description
1	**Create a Third Party Reader**	In Gallagher Configuration Client, configure a Third Party Reader for the Nedap TRANSIT reader. Refer to the topic *"Creating Readers"* in the Gallagher Configuration Client Help.
2	**Open Controller Properties**	Open the properties of the Controller that has the Nedap TRANSIT reader connected to it, and click the **Readers** tab.
3	**Assign the Reader to the Controller**	Assign the Third Party Reader to the appropriate slot depending on how you wired it to the Controller. For example, slot 1 if the reader's Data-0 (O-2) wire is conznected to R1-in, or slot 3 if the Data-0 (O-2) wire is connected to R3-in.
4	**Check for event**	Click **OK**, then check the Event Viewer to ensure you receive a "Third Party Reader started responding" event. If you do not see this event, the reader has not connected.
5	**Assign the Reader to a Door**	Assign the Third Party Readers to the appropriate Door items' **Entry Zone** tabs. For help, refer to the topic *"Creating Doors"* in the Gallagher Configuration Client Help.

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4.2 Configuring vehicles as Cardholders

About this section

Vehicles are configured as Cardholders in Command Centre. This allows the vehicle to be assigned a "card" so it can be granted access. The vehicle's "card" is really a Nedap Booster. When the vehicle approaches a Nedap TRANSIT reader, it presents its Nedap Booster to the reader, and the vehicle is either granted or denied access.

Procedure

To configure a vehicle as a Cardholder and assign it a Nedap Booster as a card, perform the following procedure:

Step	Action	Description
1	**Create a new Cardholder**	Create a new Cardholder to represent the vehicle. You can do this in Command Centre Client or Configuration Client. For details, refer to the *"Creating Cardholders"* section in the topic *"Cardholder Viewer"* in the Gallagher Command Centre Help, or *"Adding a New Cardholder"* in the Gallagher Configuration Client Help.
2	**Assign to an Access Group**	Assign the vehicle Cardholder to the appropriate Access Group containing vehicle Cardholders. If you have not created one yet, refer to the topic *"Setting up Access Groups"* in the Gallagher Configuration Client Help.
3	**Assign a card**	Assign the vehicle Cardholder a card to represent the vehicle's Nedap Booster. You can do this in Command Centre Client or Configuration Client. **Card Number:** The **Number** field (card number) must be the Nedap Booster's ID number. The ID number is printed on the back of the Nedap Booster device. For details, refer to the *"Assigning a Card, Mobile Credential, or Digital ID"* section in the topic *"Cardholder Cards Tile actions"* in the Gallagher Command Centre Help, or *"Adding a Card to a Cardholder"* in the Gallagher Configuration Client Help.

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4.3 Configuring Dual Authorisation

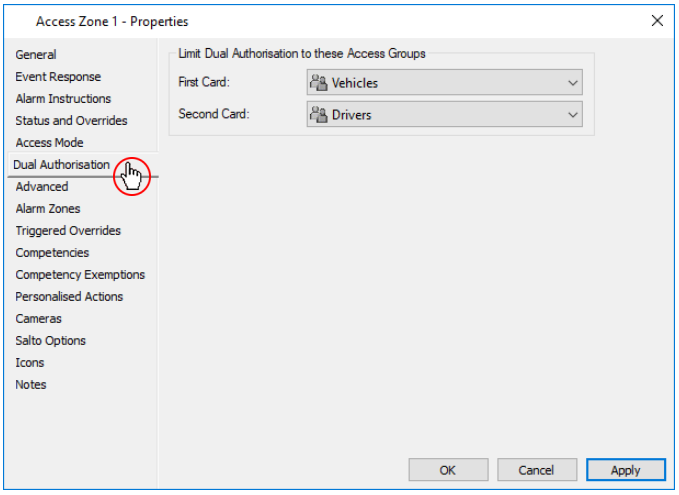
About this section

An Access Zone that vehicles enter can be configured with Dual Authorisation. This means access is only granted if the vehicle provides *two* means of authorisation: a credential (Nedap Booster) held by a Cardholder (vehicle) from the vehicle Access Group and a credential (card) held by a Cardholder (person) from the driver Access Group.

In other words, access is only granted when a valid Nedap Booster is in the vehicle *and* a valid card is in the Nedap Booster.

Procedure

To configure an Access Zone so it requires a valid vehicle *and* driver to grant access (Dual Authorisation), perform the following procedure:

Step	Action	Description
1	**Open the Access Zone window**	From the Gallagher Configuration Client menu bar, select **Configuration** > **Access Zones**. The Access Zone List Window opens.
2	**Open Access Zone properties**	Right-click on an Access Zone you wish to require a valid vehicle and driver for access to be granted, and select **Properties**. If you have not created the Access Zone yet, refer to the topic *"Adding a new Access Zone"* in the Gallagher Configuration Client Help.
3	**Click the Dual Authorisation tab**	
4	**First Card**	From the **First Card** drop-down list, select the Access Group that contains the vehicle Cardholders you wish to access this zone.
5	**Second Card**	From the **Second Card** drop-down list, select the Access Group that contains the drivers you wish to access this zone.

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6	**Set Access Mode**	Ensure the Access Zone's Access Mode is set to 'Dual Auth - No PIN' during the times you wish Dual Authorisation to be required. Do this by configuring and applying a 'Schedule' on the **Access Mode** tab or overriding the zone to 'Dual Auth - No PIN' on the **Status and Overrides tab**.
7	**Click OK**	Click **OK** to close and save your changes.

Result

While the Access Zone is in 'Dual Auth - No PIN' mode, access is granted to the zone when both a vehicle and driver from the selected Access Groups present a valid credential (i.e. a valid Nedap Booster and a valid card).

4.4 Configuring the Universal Card Format

About this section

A Gallagher Controller needs a certain Universal Card Format (UCF) to interpret data sent from a Nedap TRANSIT reader. You need to configure the UCF and assign it to the appropriate Controllers.

Procedure

To configure the UCF, perform the following procedure:

Step	Action	Description
1	**Open the Universal Card Format window**	From the Gallagher Configuration Client menu bar, select **Configuration** > **Universal Card Formats**. The Universal Card Format List Window opens.
2	**Create a new Universal Card Format**	Right-click and select **New...** > **Universal Card Format**. The General tab displays.
3	**General details**	Enter an appropriate name and fill out the remaining general details.

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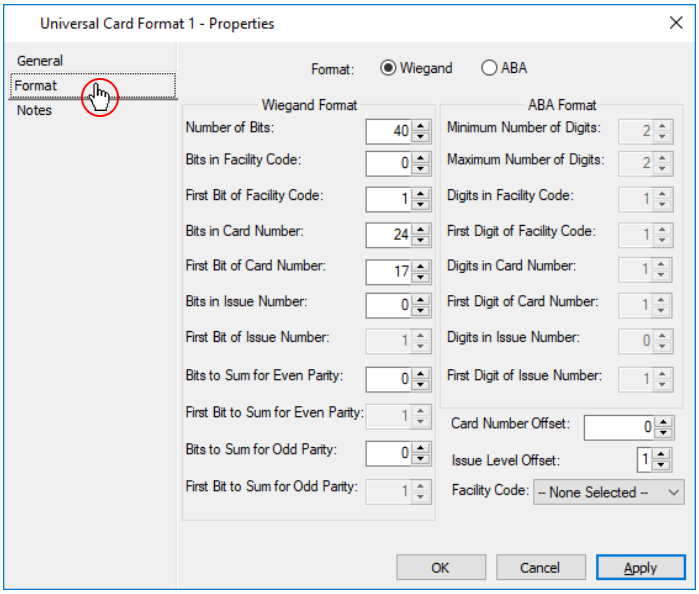
4	**Click the Format tab**	
5	**Configure**	Enter the following values into the fields: **Field** / **Value** Number of Bits: 40 Bits in Facility Code: 0 Bits in Card Number: 24 First Bit of Card Number: 17 Facility Code: Select the Facility Code of the Card Type that is used when you assign cards to vehicles and drivers.
6	**Click OK**	Click **OK** to close and save your changes.
7	**Open Controller properties**	Open the properties of each Controller connected to a Nedap TRANSIT reader, and click the **Card Formats** tab.
8	**Assign the UCF**	Drag (or copy-paste) the UCF you have just configured from the Universal Card Format window into the grid on the Card Formats tab.
9	**Click OK**	Click **OK** to close and save your changes.

Result

All Command Centre configuration required for the use of Nedap Boosters with Nedap TRANSIT readers is complete.

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5 DESFire Card Type configuration

About this section

This feature allows you to use MIFARE DESFire cards with Nedap Booster devices. However, the MIFARE DESFire cards you use with Nedap Boosters must be created as a certain Card Type, as described in this section.

Where to perform this section

Perform the procedure in this section in Gallagher Configuration Client on the Command Centre Server.

Procedure

To configure the required Card Type, perform the following procedure:

Step	Action	Description
1	**Open the Card Type window**	From the Gallagher Configuration Client menu bar, select **Configuration** > **Card Types**. The Card Type List Window opens.
2	**Create a Card Type**	Right-click and select **New...** > **Card Type**. For help configuring the Card Type, refer to the topic *"Setting up Card Types"* in the Gallagher Configuration Client Help. Ensure you use a Facility Code your site is licensed for. Go to 'File' > 'Server Properties', and click the 'Licensing' tab. Your available Facility Codes are shown in the 'Facility Codes' field.
3	**Click OK**	Click **OK** to close and save the Card Type.
4	**Edit Card Layout**	In the Card Type window, right-click on the Card Type you just created and select **Edit Card Layout**. The Card Editor window opens.
5	**Add object**	Click the new object drop-down in the top-left corner of the window and select **New Non-diversified MIFARE DESFire Object**. This particular object *must* be selected for use with Nedap Boosters. The object is added to the card layout.
6	**Object properties**	Right-click the new object and select **Properties**. The object properties window displays.
7	**AES Key**	This field must have 32 hexadecimal characters (0-9, A-F) for the AES encryption type. Either manually type in a string, or click the **Generate** button to automatically create one.
8	**Application ID**	This field contains the UID. The UID is unique to the application reading the MIFARE® data on the card. It must be 6 hexadecimal characters.
9	**Click OK**	Click **OK** to save and close the object properties window.

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10	**Add object (optional)**	If you wish to use the MIFARE DESFire cards at Gallagher readers, click the new object drop-down in the top-left corner of the window and select **New MIFARE DESFire Object**. The object is added to the card layout,.
11	**Click OK**	Click **OK** to close and save the Card Layout.

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6 Nedap Booster configuration

The configuration card

To enable your Nedap Boosters to read MIFARE DESFire cards, you must have them read a configuration card. This card is encoded with configuration instructions for a Nedap Booster. When a Nedap Booster reads this card, it reads and applies the configuration to enable it to read DESFire cards.

You will need

For this procedure, you will need:

- the Smartcard Booster Config installer file 'CfgSmartcard-install.msi'
- the configuration template file provided with this feature
- access to the Card Type layout properties (in Gallagher Configuration Client)
- a blank MIFARE Classic card (for configuration)
- a USB MIFARE card encoder (ensure the relevant driver is installed)
- the Nedap Boosters you wish to configure.

The configuration template file

You must restrict access to the 'Classic_DESFire.sbcf' file you have been provided with this feature. This file contains sensitive configuration data, so must be stored securely.

Procedure

To configure the Nedap Booster configuration card, perform the following procedure:

Step	Action	Description
1	**Install the utility**	Run the installation file 'CfgSmartcard-install.msi' you have been provided with this feature. Follow the installation steps to install the Smartcard Boster Config utility.

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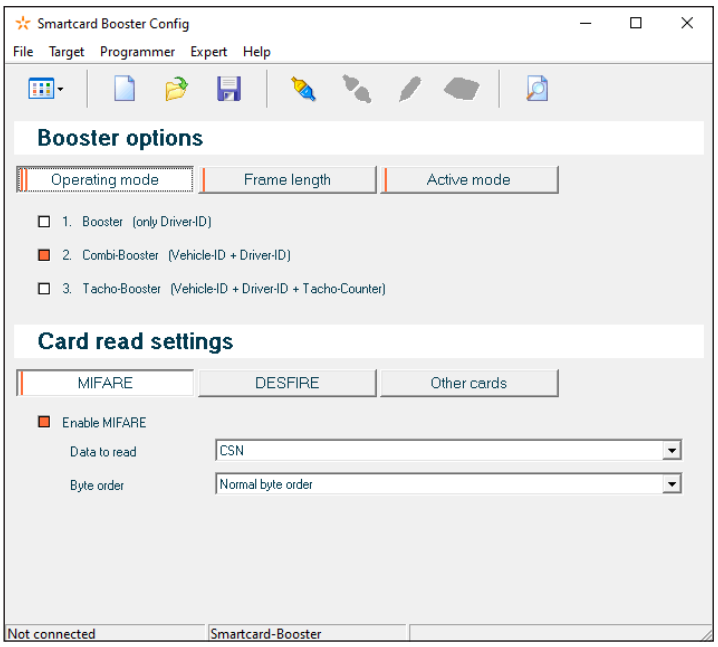
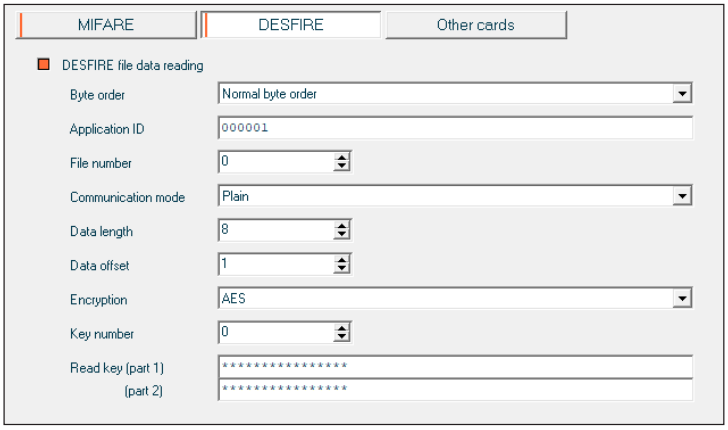
2	**Launch the utility**	If 'Launch Smartcard Booster Config' is selected when you finish installation, the utility opens. Otherwise, open 'Smartcard Booster Config' from the Start menu. 
3	**Connect encoder**	Ensure your USB MIFARE card encoder is connected to your PC.
4	**Select encoder**	Click the button and select your USB MIFARE card encoder, then click **OK**.
5	**Click Open**	From the menu bar, select **File** > **Open...** The Open window displays
6	**Select template**	Browse to the file 'Classic_DESFire.sbcf' you have been provided with this feature. Select the file and click **Open**. The utility loads the configuration.
7	**Click DESFIRE**	Under 'Card read settings', click the **DESFIRE** tab. 

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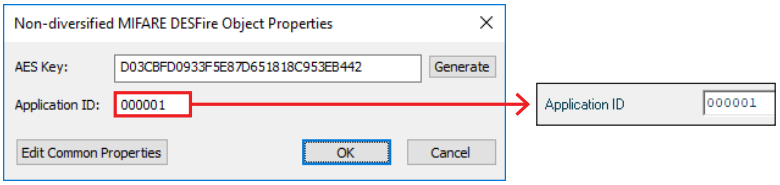
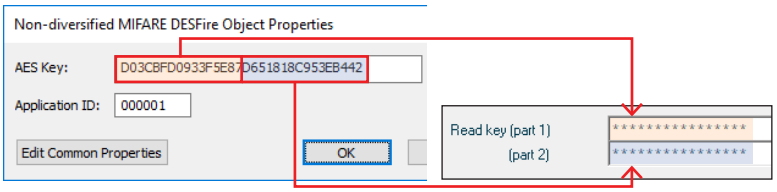
8	**Application ID**	In the **Application ID** field, enter the Application ID from the DESFire object in your DESFire Card Type's card layout. 
9	**Read key**	The **Read key** is split into two parts. Part 1 is the first half (first 16 characters) of the AES Key from the DESFire object in your DESFire Card Type's card layout; part 2 is the other half. 
10	**Place card on encoder**	Place your blank MIFARE Classic card on the USB MIFARE card encoder.
11	**Write to card**	Click the button to write the configuration to the card. In the pop-up window, click **Yes**.
12	**Present card at booster**	For each Nedap Booster you wish to enable DESFire compatibility, place the configuration card inside the Nedap Booster as you would with a regular card.
13	**Press Booster button**	Press the button on the Nedap Booster device to load the configuration from the card to the Nedap Booster device.
14	**Verify configuration**	To verify that you have enabled MIFARE DESFire on the Nedap Booster: • Assign a DESFire card of the required Card Type to a Cardholder. • Encode a DESFire card with this card. • Check that the card can be used with the Nedap Booster to grant access to an Access Zone at a TRANSIT reader.

Result	The Nedap Booster is compatible with MIFARE DESFire cards.

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7 Uninstallation

Uninstalling this feature

To uninstall the Nedap Booster DESFire feature, remove the Controller Customisation item 'NedapDESFire_v9.00.0x' from all the Controllers' **Software** tabs, and then from the Device Software List Window.

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