Automatic Vehicle Identification - Using Nedap ANPR with Norpass3

Application:

Using one or more Nedap ANPR Access licence plate readers for vehicle access control where it is necessary to manage a range of known vehicles and treat their licence plates as access control credentials. Each reader is linked to a Wiegand Interface Module (WIM) set the 'Wiegand 26-bit SHA-1' mode.

Note: This document must be used in conjunction with the Nedap installation manuals.

Overview

Norpass3 can be configured to support the use of number plates as credentials by converting each valid number plate to a card number, against which cardholder details and access rights are stored. The number plates will be treated as random card numbers by Norpass3 (Norpass3 must be configured for Random Card Storage). This application note explains how to link the ANPR equipment to Norpass3 and how to configure Norpass3 to support this function. The procedure for adding new valid number plates is also explained.

Hardware Configuration

Each ANPR reader is cabled to a WIM using an RS485 connection. The WIM must be located indoors or within a weatherproof housing. Its location must also be suitable for connecting to a mains supply, and must be within 150m of a Nortech access control unit. Connection from the Nortech access control unit to the Norpass3 hosting PC may be via either TCP/IP or RS485. The correct configuration of the ANPR camera requires a temporary connection to a PC.
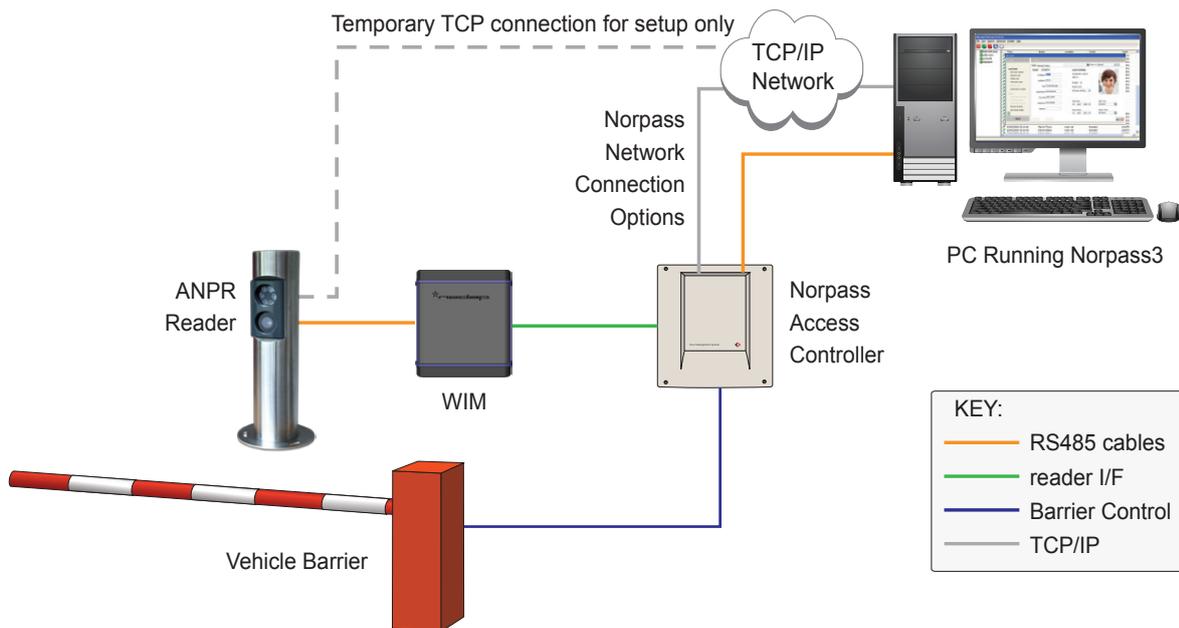
Maximum Cable Lengths	RS485 –License Plate Reader to WIM	1200m
	Wiegand – WIM to Norpass Access Controller	150m
	LAN – TCP/IP configuration and management	100m

WIM Settings

Set the plate conversion mode DIP switches in each WIM to 'Wiegand 26-bit SHA-1' mode (all switches set to 'ON').

Norpass Settings

Adding Vehicles to Event Screen

Norpass3 version 3.3 onwards automatically supports vehicle number plates as credentials but, to get the best out of Norpass3, we suggest that you enable the Vehicle Registration column in the events screen to make it easier to track vehicles entering and leaving restricted areas. To do this, you need to edit the NorPass3.ini file.

You should find the file in its default install location: 'C:\Nortech Control Systems\Norpass3'. Open NorPass3.ini in Notepad and locate these items:

```
Sound="yes"
EventScreenDepart=0
EventScreenVehicle=1
```
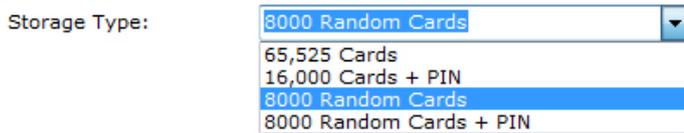
To enable the Vehicle Registration column, change the zero on the right of the name 'EventScreenVehicle' to 1, save the file and restart Norpass3 for the change to take effect.

(You will need to adjust the Norpass3 window size to accommodate the extra column by dragging the right edge of the window to the right).

Setting Storage and PIN Format

Select 'Installer/System Settings' from the menu bar in Norpass3 and click 'Storage, PIN and Usage' under 'Advanced and Diagnostics'. Select 'Edit Settings' from the 'Tools' panel:

Storage Type: 8000 Random Cards
- 65,525 Cards
- 16,000 Cards + PIN
- 8000 Random Cards
- 8000 Random Cards + PIN

You must select either '8000 Random Cards' or '8000 Random Cards + PIN' from the list and then save the setting before clicking 'Done'.

Norpass3 will now support randomly numbered ID cards and vehicle number plates.

Controller Card Format Setting

Finally, you must set each controller associated with an ANPR reader to support the card format received from the WIM. Select 'Installer/Controllers' from the menu bar. In the 'Controllers' screen navigate to the required controller and then click 'Edit Controller':

Connection: TCP_1
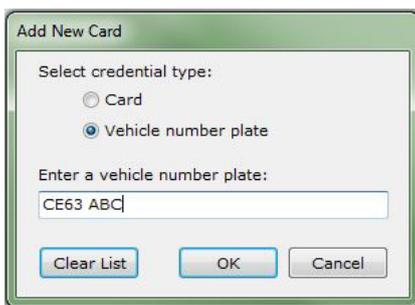
Card Format: 26-bit (24-bit card number, random)
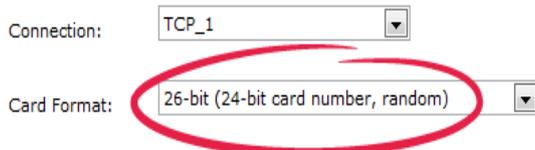
Select '26-bit, 24-bit card number, random' from the list and then save the setting before clicking 'Done'.

Repeat this process for all controllers associated with an ANPR reader.

Adding Valid Number Plates

When a number plate is read by the ANPR system, it is converted into a card number using the SHA-1 security hashing algorithm. When you want to add a corresponding card record to Norpass3, you need to enter the number plate so that Norpass3 can use the algorithm to create the corresponding card record.

Open the 'Card Management' window by selecting 'Card management' from the 'User' menu. Click 'Add New Card' in the Tools pane to open the 'Add Card' dialog box:

Add New Card

Select credential type:
- ○ Card
- ● Vehicle number plate

Enter a vehicle number plate:
CE63 ABC

[Clear List] [OK] [Cancel]

To add the vehicle number plate, select the 'vehicle number plate' credential type and enter the number plate in the format that you want it to appear on the card record (10 characters maximum including spaces) and click 'OK'. The new card record will be generated and the number plate will be saved in the Car_Reg field. You can now add parameters in the same way as for adding new cards.

Note: If the card record already exists, the existing card record will be displayed showing the card holder's details. This may indicate that the number plate has already been added or that there has been a clash with another user. If you need to issue pass cards separately for door access, to avoid clashes between ID card numbers and the card numbers representing vehicle number plates, we recommend that you use sequentially encoded cards starting at card 1.

Operation

1. When a vehicle arrives at the barrier, the licence plate is read by the ANPR reader and sent to the WIM over the RS485 interface. The WIM converts the number plate to a 24-bit card number and forwards it to the access controller.

2. The access controller checks the card number for validity and, if currently valid, sends an open request to the barrier.

3. An event record is sent to Norpass3 to report the valid card transaction. The event appears on the main screen and includes the vehicle number plate.

Related Application Notes: