



# Creating Custom Wiegand Card Formats



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## Contents

This document provides instructions on using the Wiegand Format Editor found within the Global Configuration section of the Intelli-M<sup>®</sup> Supervisor Plus software. Wiegand is a trade name for a technology used in cards, card readers, and sensors that allows data to be placed on a card that can be read or “sensed.” The Wiegand Format Editor within Supervisor Plus provides a platform where you can modify Wiegand style cards to your site specifications.

The following topics can be found within this document:

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## Overview Of Wiegand Formats Used By Intelli-M®

The Intelli-M® Supervisor Plus software provides the ability to create custom Wiegand card formats. Cards can be created with a diverse range of format flexibility that include:

- Formats up to 64 bits
- Customized facility (site) and card code sizes
- Even and Odd parity masking

However, there are significant hardware differences between IDC controllers and eIDC controllers in regards to acceptable card formats within Intelli-M. Table D-1 provides a summary of these differences.

Table D-1

	<u>IDC</u>	<u>eIDC</u>
Maximum Bit Length	40 bits	64 bits
Maximum Custom Site Code	16 bits (65535)	32 bits (4294967295)
Maximum Custom Card Code	16 bits (65535)	32 bits (4294967295)

Intelli-M currently allows for a total of eight unique bit-length formats to simultaneously function within the Supervisor Plus software. The eight formats are as follows:

- Infinity 37
- Wiegand 34-bit
- Wiegand 26-bit
- ProxPro Keypad 4-bit Key
- 8-bit Burst Key
- 27-bit (indala)
- 29-bit (indala)
- 35-bit Corp 1k

**Important:** Infinity 37 is a proprietary format that cannot be shown, edited, or deleted at this time.

The above listed default formats within Supervisor Plus that can be edited (or deleted) are shown below. Unless specified otherwise, the formats shown below can be used with both IDC and eIDC controllers.

**Wiegand Format Detail**

Description: Wiegand 34-bit Bit count: 34

Full code: 1 34

Even parity mask: 16 18

Odd parity mask: 16 18

Site code: Start bit: 2 Size: 16

Card code: Start bit: 18 Size: 16

Parity: ☒ Enable  
Even mask (hex): 00000003FFFE0000  
Odd mask (hex): 000000000001FFFF

☐ Bidirectional (allow reversed read) ☐ Interpret as PIN digit

OK Cancel

**Wiegand Format Detail**

Description: Wiegand 26-bit Bit count: 26

Full code: 1 26

Even parity mask: 13 13

Odd parity mask: 13 13

Site code: Start bit: 2 Size: 8

Card code: Start bit: 10 Size: 16

Parity: ☒ Enable  
Even mask (hex): 0000000003FFE000  
Odd mask (hex): 0000000000001FFF

☒ Bidirectional (allow reversed read) ☐ Interpret as PIN digit

OK Cancel

**Wiegand Format Detail**

Description: ProxPro keypad 4-bit key Bit count: 4

Full code: 1 4

Even parity mask: 4

Odd parity mask: 4

Site code: Start bit: 1 Size: 0

Card code: Start bit: 1 Size: 4

Parity: ☐ Enable  
Even mask (hex): 0000000000000000  
Odd mask (hex): 0000000000000000

☐ Bidirectional (allow reversed read) ☒ Interpret as PIN digit

OK Cancel

**Wiegand Format Detail**

Description: 8 Bit Burst Key Bit count: 8

Full code: 1 8

Even parity mask:

Odd parity mask:

Site code: Start bit: 1 Size: 0

Card code: Start bit: 5 Size: 4

Parity: ☐ Enable

Even mask (hex): 0000000000000000

Odd mask (hex): 0000000000000000

☐ Bidirectional (allow reversed read) ☒ Interpret as PIN digit

OK Cancel

**Wiegand Format Detail**

Description: 27-Bit (Indala) Bit count: 27

Full code: 1 27

Even parity mask:

Odd parity mask:

Site code: Start bit: 1 Size: 13

Card code: Start bit: 14 Size: 14

Parity: ☐ Enable

Even mask (hex): 0000000000000000

Odd mask (hex): 0000000000000000

☐ Bidirectional (allow reversed read) ☐ Interpret as PIN digit

OK Cancel

**Wiegand Format Detail**

Description: 29 Bit (Indala) Bit count: 29

Full code: 1 29

Even parity mask:

Odd parity mask:

Site code: Start bit: 1 Size: 13

Card code: Start bit: 14 Size: 16

Parity: ☐ Enable

Even mask (hex): 0000000000000000

Odd mask (hex): 0000000000000000

☐ Bidirectional (allow reversed read) ☐ Interpret as PIN digit

OK Cancel

### Standard 35-bit Corporate 1K (for eIDC Only)

The dialog box 'Wiegand Format Detail' shows the configuration for a '35 bit Corp 1K' format. The 'Bit count' is set to 35. The 'Full code' is represented by a bar from bit 1 to 35. The 'Even parity mask' and 'Odd parity mask' are shown as empty 35-bit fields. The 'Site code' section has 'Start bit' set to 3 and 'Size' set to 12. The 'Card code' section has 'Start bit' set to 15 and 'Size' set to 20. The 'Parity' section has 'Enable' unchecked, and both 'Even mask (hex)' and 'Odd mask (hex)' are set to 0000000000000000. At the bottom, 'Bidirectional (allow reversed read)' and 'Interpret as PIN digit' are both unchecked. 'OK' and 'Cancel' buttons are at the bottom right.

The standard 35-bit Corporate 1k card format (shown above) that is listed as a default format within Supervisor Plus can be customized to work with an IDC controller. Customizing that will allow the format to work (with limitations) for both eIDC and IDC controllers within Supervisor Plus is as follows:

### Non-standard 35-bit Corporate 1K (for IDC and possibly eIDC)

The dialog box 'Wiegand Format Detail' shows the configuration for a '35 Bit HID' format. The 'Bit count' is set to 35. The 'Full code' is represented by a bar from bit 1 to 35. The 'Even parity mask' and 'Odd parity mask' are shown as empty 35-bit fields. The 'Site code' section has 'Start bit' set to 3 and 'Size' set to 13. The 'Card code' section has 'Start bit' set to 19 and 'Size' set to 16. The 'Parity' section has 'Enable' unchecked, and both 'Even mask (hex)' and 'Odd mask (hex)' are set to 0000000000. At the bottom, 'Bidirectional (allow reversed read)' and 'Interpret as PIN digit' are both unchecked. 'OK' and 'Cancel' buttons are at the bottom right.

With the non-standard 35-bit Corporate 1K format for IDC and eIDC controllers, the card site code is limited to between 0 to 8191. The card number is limited to between 0 to 65535. This is fine for an IDC controller, since the IDC is limited to card numbers no greater than 65535. (Refer to Table D-1 above.) This format becomes a problem though for cards used on an eIDC or IDC controller with a card number greater than 65535. *Currently, cards in this format with a card number greater than 65535 are not read properly by the eIDC or IDC; that is, the card number printed on the card will not match what is read by either controller within Supervisor Plus.*

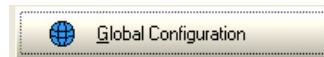
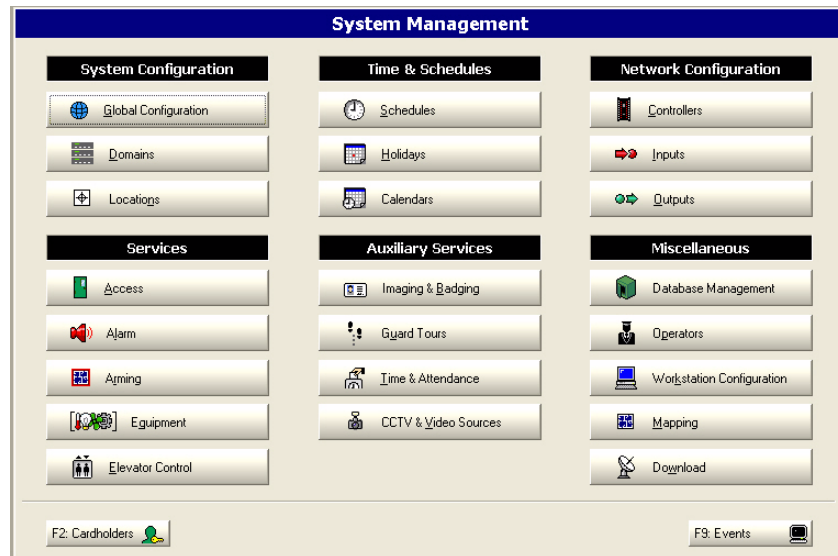
**Important:** Consider using the non-standard 35-bit Corporate 1K format only with IDC controllers.

Instructions for creating custom Wiegand formats are provided in the section below.

## Creating A Custom Wiegand Format

Perform the following steps to custom create an access card with Wiegand formatting:

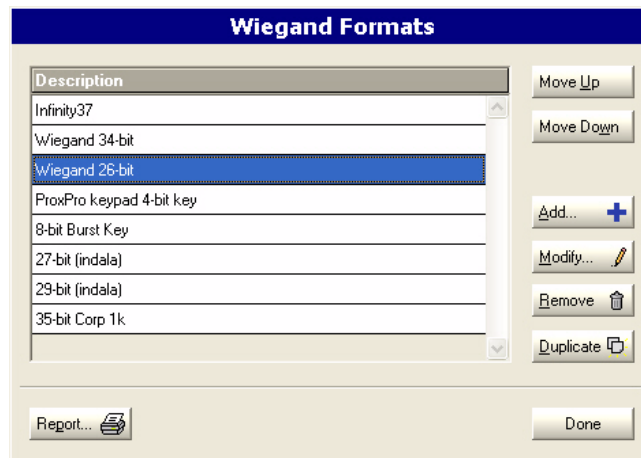
1. Select “Global Configuration” from the Intelli-M Supervisor Plus “System Management” screen.



2. Select Wiegand as the “Card Reader Type,” and then click the “Wiegand Formats...” button.

 The screenshot shows the 'Global Configuration' dialog box. It has several sections: 'System identification' with fields for 'Description' (containing 'Main System') and 'System key' (with a 'Generate...' button); 'Card reader configuration' with a 'Card reader type' dropdown set to 'Wiegand' and a 'Wiegand Formats...' button; 'Location information' with fields for 'Street address', 'City', 'State / Province', 'Country', 'Zip code / Postal code', 'Phone', 'E-mail address', and 'Fax'; and 'Contact information' with fields for 'Person reference', 'Title', and 'Phone'. At the bottom are buttons for 'Report...', 'Privileged Services Setup...', 'Event Color Editor...', 'Translation Editor...', 'OK', and 'Cancel'.

-- The Wiegand formats that are available within Supervisor Plus will be displayed.



3. Select a format to be customized that is closest to the format you desire, and then click on the "Modify..." button.

**Note:** Infinity 37 is a proprietary format that cannot be shown, edited, or deleted at this time.

4. Enter a description name for the new format and select the "Bit Count" (bit size). The bits are in numerical order from left to right, always starting with "1" as shown by the "Full Code" section.

 The image shows a window titled "Wiegand Format Detail". It has a "Description" field containing "Wiegand 26-bit" and a "Bit count" dropdown set to "26". Below these are three rows of bit indicators: "Full code" (bits 1-26), "Even parity mask" (bits 1-16), and "Odd parity mask" (bits 1-16). The "Full code" row shows the first 8 bits as dark blue boxes (Site Code) and the remaining 18 bits as light blue boxes. Below the bit indicators are three sections: "Site code" with "Start bit" set to 2 and "Size" set to 8; "Card code" with "Start bit" set to 10 and "Size" set to 16; and "Parity" with "Enable" checked, "Even mask (hex)" set to "000000003FFE000", and "Odd mask (hex)" set to "000000000001FFF". At the bottom left are checkboxes for "Bidirectional (allow reversed read)" (checked) and "Interpret as PIN digit" (unchecked). At the bottom right are "OK" and "Cancel" buttons.

- The "Site Code" is represented as dark blue boxes. The "Start bit" is the bit number that from which the site code will start. "Size" within the "Site Code" area is the total number of bits designated to the site code.



**Wiegand Format Detail**

Description: Wiegand 26-bit Bit count: 26

Full code: 1 26 (represented by 26 light blue boxes)

Even parity mask: (represented by 26 grey boxes)

Odd parity mask: (represented by 26 white boxes)

Site code: Start bit: 2 Size: 8

Card code: Start bit: 10 Size: 16

Parity: ☒ Enable  
 Even mask (hex): 000000003FFE000  
 Odd mask (hex): 000000000001FFF

☒ Bidirectional (allow reversed read) ☐ Interpret as PIN digit

OK Cancel

- The “Card Code” is represented as light blue boxes. “Start Bit” within the “Card Code” area must be assigned. The total number of bits allotted to “Size” for “Card Code” must also be assigned.
  - If “Parity” masking is to be utilized, then some conversion is required from binary to hexadecimal. The default 26-bit “Even mask (hex)” is 3FFE000 which when converted to binary is thirteen ones followed by thirteen zeros. The “Odd Mask (hex)” is thirteen ones.
- Note:** Parity masking is an option. When trying to conform to a particular manufacturer’s standard, that manufacturer may need to be consulted for accurate formatting information.
- The “Bidirectional” option is available for certain types of supported readers. The “Wiegand Swipe” and “Wiegand Insertion” are two styles of readers that would use this feature.
  - “Interpret as PIN digit” is required for keypad formats associated as Pin digits. The HID Prox Pro K combination Prox / Keypad reader is an example of a keypad format that is associated as Pin digits.

**Wiegand Format Detail**

Description: ProxPro keypad 4-bit key Bit count: 4

Full code: 1 4 (represented by 4 light blue boxes)

Even parity mask: (represented by 4 white boxes)

Odd parity mask: (represented by 4 white boxes)

Site code: Start bit: 1 Size: 0

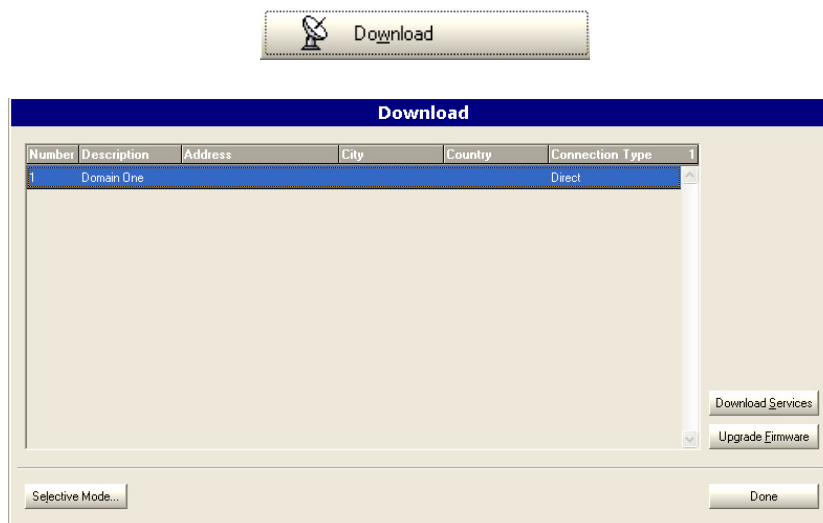
Card code: Start bit: 1 Size: 4

Parity: ☐ Enable  
 Even mask (hex): 0000000000000000  
 Odd mask (hex): 0000000000000000

☐ Bidirectional (allow reversed read) ☒ Interpret as PIN digit

OK Cancel

5. Set up the “Wiegand Format Detail” screen to fit your need. When finished Click “OK” to save the format.
6. Click “Done” to leave the Wiegand Formats menu.
7. Click “Done” in the Global Configuration menu, then from the Intelli-M Supervisor Plus “System Management” screen, perform a “Service Download” to the Controllers.



8. Present a finished card to a reader to make sure that it works. This will verify the format on the card.

## Custom Wiegand Cards For Intelli-M

Shown below is an example of a custom Wiegand card format created for Intelli-M.

### Indala 33-bit (DSX) Format