It is recommended that the IVC-32 is given a static IP address. The V-Series panels and Concert clients IP addresses should be assigned by a DHCP server.

5.44.9 Subnet mask

Subnet mask used by the IVC-32 card to define the address range the card can access. Typically this is assigned by IT or the Network Administrator. The default is 255.255.0.0.

5.44.10 Default gateway

The address of the gateway (router) to be used to communicate with external devices such as IP panels and Concert clients over a wider IP network. This address is optional but if used must fall within the address range defined by the subnet mask.

5.44.11 External IP address

If the Matrix is operating behind a firewall then port address forwarding can be used to expose a LAN-connected device to the outside world. Typically this is assigned by IT or the Network Administrator.

This IP address must be manually entered on IP panels to communicate directly with the IVC-32 card. This address must be a unique address on the internet. It is not affected by the subnet mask.

5.44.12 External IP address IP port

IP port used when communicating directly with the IVC-32 card using the External IP address. The default port number is 6001 and this should not be changed unless the default port number on all external devices is also changed to the new port number.

5.44.13 Panel codecs

The **Show ports** links displays which ports on the IVC-32 cards are configured to use the G722 codec.

The codec options are configured in **IP Port Options** for each port.

5.45 Configuring an IVC-32 redundant card

You can add an IVC-32 Redundant Card that provides fail-over redundancy for one or more IVC-32 Cards in the matrix.

Note: You can only configure IVC-32 redundant cards up to the number of IVC-32 Cards in the matrix.

To add an IVC-32 Redundant card:

1) In **Hardware > Cards and Ports**, navigate to an available slot number (marked **Empty**). Do either of the following:
   - Double click the slot.

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- Right click the slot and select **Set Card Type**.

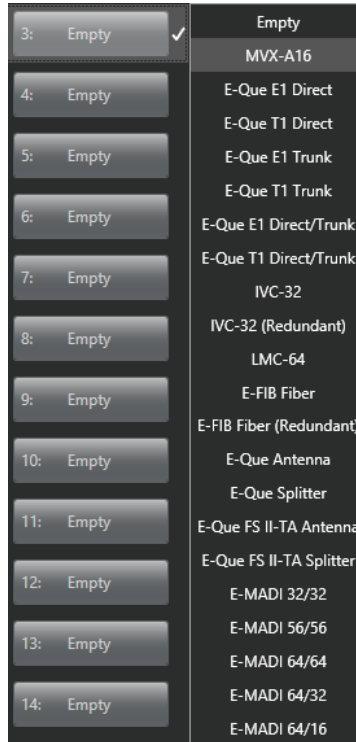A drop-down menu is displayed, listing the available card types. Select the IVC-32 (Redundant) card.

Figure 5-35 IVC-32 Card Selection

The card properties for the IVC-32 (Redundant) card allow you to specify which IVC-32 to provide redundancy for:
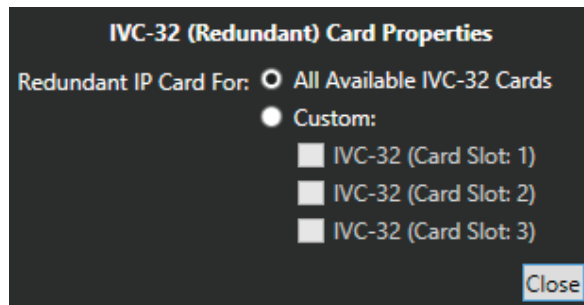

Figure 5-36 IVC-32 (Redundant) Card Properties

The following combinations of IVC-32 Cards and IVC-32 Redundant Cards are possible:

- One IVC-32 Card and one IVC-32 Redundant Card - the redundant card provides backup for the only card in the system

- Two IVC-32 Cards and one IVC-32 Redundant Card - you can either set the redundant card to provide redundancy backup for both IVC-32

Cards in event of failure, or specify that it is only backing up a particular card.

- Two IVC-32 Cards and two IVCF-32 Redundant Cards - you must specify which redundant card is providing redundancy for which IVC-32 card. It is not possible to have two redundant cards providing backup for the same IVC-32 Card.

- Three IVC-32 Cards and one redundant card - you can either set the redundant card to provide redundancy backup for both IVC-32 Cards in event of failure, or specify that it is only backing up a particular card.

An IVC-32 Card will fail-over to the IVC-32 Redundant Card under the following conditions:

- All configured VoIP ports are unconnected for longer than 90 seconds.

- The IVC-32 Card is detected as absent from the VME backplane.

When a failover is detected, the following steps occur:

1) The Config card checks to see if there is a redundant card configured to take over from the failed card. If not then the card is placed into an error state and nothing else happens.

2) If a redundant card is configured then the failed card is placed into an error state.

3) All port numbers and timeslots are turned over to the redundant card.

4) The failed card has its IP details cleared. The IP address is changed to `169.254.0.<slotNum>` and resets.

5) The redundant card takes on the failed card's pervious IP address and resets.

6) On start-up the redundant card is placed into the Initialising state and finally into the Running States.

7) The failed card stays in the Error state.

8) The redundant card now establishes all VoIP calls that were previously configured on the failed card.

Once the switch over process has started the redundant card starts accepting and making VoIP connections within 40 seconds.

5.45.1 Switch-back

A switch back from a redundant card back to a failed card only occurs under the following condition: