Madge Smart 16/4 Ringnode NDIS3 Driver Help

Help is available on the following topics :

Madge Smart 16/4 Ringnode ISA Configuration Dialog

This dialog allows you to configure the Madge Smart 16/4 Ringnode Driver to work with any Madge ISA bus adapters that you have installed. You should set the switches on the cards as directed in the documentation that accompany them, being careful to avoid conflicts with other devices in the system.

The driver must then be told how each card has been configured, using this dialog for each one. You must set the IO Location, the IRQ Level, and the Transfer method to match the switch settings on the card. If you have disabled DMA, or the adapter card does not support DMA, then for transfer method select *PIO*. Otherwise select the DMA channel for which your adapter is configured.

If you chose automatic Smart Ringnode installation then some or all of the settings may have been automatically determined. Settings that have been determined will be shown on the right of the dialog box under the headering "Current hardware settings". Any settings that are not shown as *UNKNOWN* should not need changing. Those that are shown as *UNKNOWN* must be manually set to match the values set by the switches on the adapter.

If the machine you are installing the driver on only has one processor then you should set the *Number of processors in PC* value to *one*. If the machine is a multi-processor then this value should be set to *multiple*.

The remaining fields in the dialog are optional and allow modification of the behaviour of the adapter card. The driver will work quite happily if they are not touched, however. For further details, see the following topics :

Maximum Frame Size
Locally Administered Addresses
Rx/Tx Buffers
Traffic Statistics Gathering

Madge Smart 16/4 Ringnode EISA and MCA Configuration Dialog

This dialog allows you to configure the Madge Smart 16/4 Ringnode Driver to work with any Madge EISA bus or Madge MCA bus adapters that you have installed. An EISA or MC adapter is identified by the number of the slot containing the adapter. This should be printed on the back of the machine near where the lobe cable is plugged into the adapter.

If you chose automatic Smart Ringnode installation then this setting should have been automatically determined. Settings that have been determined will be shown on the right of the dialog box under the headering "Current hardware settings". Any settings that are not shown as *UNKNOWN* should not need changing.

If the machine you are installing the driver on only has one processor then you should set the *Number of processors in PC* value to *one*. If the machine is a multi-processor then this value should be set to *multiple*.

The remaining fields in the dialog are optional and allow modification of the behaviour of the adapter card. The driver will work quite happily if they are not touched, however. For further details, see the following topics :

Maximum Frame Size
Locally Administered Addresses
Rx/Tx Buffers
Traffic Statistics Gathering

Madge Smart 16/4 Ringnode PCI Configuration Dialog

This dialog allows you to configure the Madge Smart 16/4 Ringnode Driver to work with any Madge PCI bus adapters that you have installed. PCI adapters are identified by the *PCI Device Number*. This value is assigned to the adapter by the PCI BIOS when the PC is powered up or reset. If you do not have a way of determining the PCI Device Number of your Madge PCI Ringonde(s) (some manufacturer's configuration utilities provide this information) then it is recommended that you set the PCI Device Number setting to *UNKNOWN*. If the Madge NDIS3 Miniport driver is installed with the PCI Device Number setting set to *UNKNOWN* then when the driver starts it searches for the Madge PCI Ringnode with the lowest PCI Device Number that is not already in use.

Many PCs and workstations have numbers marked on their PCI slots and it is common for the PCI Device Numbers assigned to PCI adapters to increase with the slot numbers. (Though it is unlikely that the PCI Device Numbers will be the same as the slot numbers.) Therefore, if the Madge NDIS3 Miniport driver is installed for multiple Madge PCI Ringnodes and all of the PCI Device Numbers are set to *UNKNOWN*, it is quite likely that the first installation will be for the Madge PCI Ringnode in the lowest number slot, the second installation for the Madge PCI Ringnode in the second lowest numbered slot and so on.

PCI adapters support two Transfer methods. The extremely high performance MMIO method and the PIO method. Normally you should select *MMIO* for the transfer method. However, if you have experienced problems using the MMIO method then select *PIO*. (You may experience problems with MMIO in certain PCI PC's or with certain combinations of PCI adapters.)

If the machine you are installing the driver on only has one processor then you should set the *Number of processors in PC* value to *one*. If the machine is a multi-processor then this value should be set to *multiple*.

The remaining fields in the dialog are optional and allow modification of the behaviour of the adapter card. The driver will work quite happily if they are not touched, however. For further details, see the following topics :

Maximum Frame Size
Locally Administered Addresses
Rx/Tx Buffers
Traffic Statistics Gathering

Maximum Frame Size

On a sixteen megabits per second token ring, the adapter card can send and receive frames up to 17839 bytes in length. For many applications this may be too big, so a facility is provided to limit the size of frames sent onto the ring. On a four megabits per second token ring the maximum frame size is nearer four and a half thousand bytes. By default, the driver will use a frame size of 4096 bytes, but you can edit the *MaxFrameSize* control to set it to a larger (or indeed smaller) value.

Note that if you set a value which is too big, the software will automatically truncate it, and write an error into the event log that contains as one of the data words the actual maximum frame size.

Note also that if you know how big the frames used by higher layer prototocols are going to be, you should set the driver maximum frame size accordingly to enable it to make more efficient use of its buffer space.

Locally Administered Addresses

Every network adapter card has a unique six byte address encoded in it which it uses in network frames to identify itself. It is possible to override the address that the adapter recognises as its own by setting the **Locally Administered Address**. As the name suggests, this is locally administered, and so cannot be guaranteed unique - it is up to the network manager to ensure this.

The *LAA* can be set to any six byte value at all, as long as the first digit is somewhere between four and seven (i.e. the first two binary bits of the address must be "01"). Other than that, there are no restrictions on its value. In setting it, it can be entered as either a string of twelve contiguous hexadecimal digits, or it can be entered as a sequence of six pairs of hexadecimal digits separated by "-" (minus) characters
e.g. 40-01-02-03-04-05.

Normally, the **LAA** need not be set, but certain pieces of communications software do use this facility.

Rx/Tx Buffers

MdgMPort associates a pool of receive (Rx) and transmit (Tx) buffers with each adapter card installed. The default value of 4 receive buffers and 4 transmit buffers has been chosen to be optimal for a '486' class machine being used as a workstation. If you have a machine that will be used as a server or is a high performance RISC platform then you may wish to increase the number of receive and transmit buffers. However, be warned that increasing the number of buffers increases MdgMPort's use of memory, which may cause problems if there are multiple adapters in the machine.

Traffic Statistics Gathering

The Madge NDIS3 Miniport driver can support products that gather statistics on, and analyse network traffic. To enable this support select the "enabled" option. Unfortunately enabling this support results in the computer having to perform much more network processing and performance may be degraded. Madge therefore recommend that unless you must have this support you set the option to "disabled".

The *IO Location* specifies the address of a range of I/O ports used to communicate with the adapter card. These must not conflict with any other device in the system, including other network adapter cards.

The *Interrupt Level* is how the adapter card is identified when it interrupts the host. For each Interrupt Level that is in use in the system, there will be a handler to attend to the device's needs.

The *Transfer method* is used to indicate what method an adapter should use to transfer data to and from host memory.

Some adapters support bus master DMA and do not required a specific channel to be identified; in which case *DMA* can be specified as the transfer method. Other adapters may support bus master DMA but require a particular DMA channel to be identified. In this case *DMA Channel nn* can be specified for the transfer method. *nn* is the number of the DMA channel for which the adapter is configured (by switches on older adapters or the DIAG configuration utility on newer adapters).

An alternative transfer method is *PIO* (Programmed I/O) which causes the card to interrupt the host when it wants to perform a transfer. The host then reads/writes one of the IO Locations repeatedly until the transfer is complete. This transfer method is supported by all adapter types except for EISA and MC. *PIO* can be used if an adapter does not support DMA or DMA has been disabled by switches on the adapter or the configuration utility.

A final transfer method is *MMIO* (Memory Mapped I/O) which is similar to but faster than *PIO*.