Brief notes on the following topics are available for assistance in configuring Madge Collage PCI Adapters. For fuller details, plese refer to the manual that comes with your adapter card.

Adapter Configuration
Advanced Adapter Configuration
LECS Configuration
LEC Configuration
Advanced LEC Configuration
New LEC Creation

In addition, see NTLEC.SYS Event Log Error Codes for notes on certain error conditions that can arise when joining an ATM Emulated LAN.

Each Madge Collage adapter in the machine must be identified to the system before it can be used. Such identification consists of at least a unique name and the adapter type (e.g. Collage 25, or Collage 155). When the system boots, for each type of adapter it tries to match up configuration information with any adapters that it finds on the bus. Unfortunately, there is currently no reliable way of working out in which physical slot an adapter lies. Thus the order in which the software matches configuration information to adapters may not necessarily follow the order of slots in the machine. Note this will only be a problem if there are more than one adapter of any given type; one each of several different adapter types is not a problem.

This dialog is used to reconfigure existing adapters, and to identify to the system any additional adapters that may have been installed. When the driver suite is first installed, it will automatically prompt the user to identify one adapter. Thereafter, the user must identify any subsequent ones using this dialog.

The **Adapter Name** control selects from the list of known adapters the one to be configured.

When informing the system about a new adapter, press the **New** button. A prompt for a unique name will appear, with a name already suggested. When satisfied with the name, pressing **OK** will return the user to this dialog with a default adapter type selected. Make sure this is correct.

When removing configuration information for an adapter, press the **Delete** button. This is not essential, but failing to do this may leave dangling references to the adapter in other parts of the configuration database, with unpredictable consequences.

Use the **Adapter Type** control to select what sort of adapter has been installed.

Press the **Advanced** button to provide advanced configuration information for the current adapter (see Advanced Adapter Configuration).

Press **OK** to confirm any changes made in this dialog. Press **Cancel** to discard any changes made in this dialog. Note : if a **New** adapter reference is created, and then **Cancel** is pressed, the new adapter information is discarded.

The **Signalling** group selects which version of signalling to use between the adapter and the switch. By default the ATM Forum UNI 3.0 signalling is used, but for switches that support it, ATM Forum UNI 3.1 signalling should be selected.

The **Address** field can be used to override the adapters ATM address. The adapter has a unique six byte end system identifier (i.e. a node address) supplied by the manufacturer. An ATM address consists of this and a thirteen byte network prefix provided by the switch to which the adapter is connected. There is one final byte, called the selector, which provides some multiplexing capability to the end system, but for the purposes of specifying an ATM address, it should be left as zero. Thus an ATM address is twenty bytes long :

Network Prefix (13 bytes) -- End System Identifier (6 bytes) -- Selector (1 byte)

If for some reason the switch does not supply a network prefix, or because the network administrator has a special addressing policy, it becomes necessary to specify the ATM address of the adapter by hand, hence this field. If the End System Identifier bytes are left zero, the manufacturer supplied value on the adapter will be used.

The **Max.Frame Size** field determines the maximum size AAL5 frame the adapter driver will support, and is used to configure its internal buffers. The values in the list come from the ATM Forum LAN Emulation specification, and should permit interoperability with most Ethernet and Token Ring LANs.

NB Currently the **Max.Frame Size** field is ignored, and a hardwired default of 4494 bytes is used.

Each LEC must have a name different from all other LECs configured for this machine. When creating a new LEC, this dialog prompts the user to supply such a name, suggesting a name which is guaranteed to be unique but not very memorable! Note that new LECs can be created only from the Windows NT Network Control Panel Applet Add Adapter button.

The configuration information for the ATM driver suite can be very complicated, and as such is stored both in the Windows NT Registry and also in a separate configuration file. If for some reason the registry becomes corrupted, the information in the configuration file should still be preserved. This becomes relevant when reinstalling the driver suite, or when adding back a LEC after the registry information has been destroyed. The drop down list box in this dialog contains the names of all the LECs it can find in the configuration file that do not have corresponding registry entries. An alternative to supplying a new name is to select one of these old names. This will then pull in all the old configuration information for that LEC too.

For a LEC to communicate with a LECS, it needs to know the ATM address of the LECS, and the adapter through which it can reach the LECS. This dialog allows the user to specify these details.

The **LECS Address** field should contain either the full ATM address of the LECS, or it should be all zeros. This latter case has a special meaning : it tells the LEC to the well known address for the LECS, an address defined by the ATM Forum which the LECS can use instead of its own ATM address.

Use the **Adapter** field to select which adapter to use to talk to the LECS. Generally this will be the same adapter used by the LEC for its normal emulated LAN traffic, but it need not be.

Now it may be the case that the ATM network has more than one LECS on it; or, there might be more than one ATM network (if there are two or more adapters in the machine, each connected to disjoint networks), each with a LECS. Either way, it may become necessary to store information about new LECSs. If so, press the **New** button to create a reference to a new LECS. The system will prompt for a name to distinguish it from other LECS references, suggesting a suitable value.

If a LECS ceases to exist, or it is no longer needed, the reference to it can be deleted with the **Delete** button. Doing this ensures that there are no dangling references to the LECS elsewhere in the configuration database, but it is not necessary. In some cases it may not even be desirable, for instance when it is necessary to switch back and forth between two LECSs.

Press **OK** to confirm any changes made in this dialog. Press **Cancel** to discard any changes made in this dialog. Note : if a **New** LECS reference is created, and then **Cancel** is pressed, the new LECS information is discarded.

In the simplest case, LEC configuration amounts to little more than selecting the emulated LAN type (Token Ring or Ethernet), but there are many more options if needed.

Use the **LEC** field to select which LEC to configure.

Use the **Advanced** button to change any of the several Advanced LEC Configuration options.

The **Emulated LAN Type** radio buttons allow toggling between the two possible LAN emulations. If this turns out to be wrong, the machine will not be able to join the emulated network.

The **Adapter** field selects the adapter to be used for the emulated LAN traffic in cases where there are more than one adapter.

The current adapter selection can be reconfigured by pressing **Configure**. This is also how the system is informed about new adapters i.e. press **Configure** followed by **New** in the Adapter Configuration dialog.

The **LAA** field allows specification of the Locally Administered Address for this LEC. On normal LANs, it is usually possible to override the adapters built in node address. On an emulated LAN over ATM, the default node address used is the End System Identifier part of the ATM address of the selected adapter (the End System Identifier is much the same as a LAN node address; it is a six byte unique address supplied by the manufacturer and stored on the adapter). This is the case when the **LAA** field is all zeros. It can be overridden, however, using this field. Note that this has no effect on the ATM address. It just changes the address used for this LEC on the emulated LAN.

Press **OK** to confirm any changes made in this dialog. Press **Cancel** to discard any changes made in this dialog.

The **ELAN Configuration** pair of buttons toggles between automatic and manual configuration of the emulated LAN. In the vast majority of cases, this should be left as **Automatic** : this will cause the LEC to look for a LECS to tell it all it needs to know about the emulated LAN parameters (and there are many!). If for some strange reason, however, there is no LECS on the ATM network, it may be necessary to manually specify the address of the LES.

The **LECS** field is available when ELAN Configuration is automatic. It should be used to select which LECS the LEC goes to for configuration information. By default, this will be a LECS using the ATM Forum defined well known address, but is is possible to change this. Select from any previously configured LECSs here.

Use the **Configure** button next to the **LECS** field to change the ATM address of the LECS used by the LEC, or to create a reference to a new LECS (useful if you might want to come back to the old one). This button will call up the LECS Configuration dialog.

The **LES** field is available when ELAN Configuration is manual. Use it to specify the ATM address of the LES controlling the emulated LAN. The network administrator will have this information. It is clearly not possible to join the emulated LAN without this address. Normally the LECS would take care of all these details.

Use the **Selector** field to specify an explicit LEC selector value. This is only really necessary if there are applications that need to know the explicit address of the LEC.

The **PC/ELAN Name** field can be used to select which of several emulated LANs to join. If the LECS has been configured to hold detailed information about each of its clients, this would be a name identifying this machine (the network administrator will have this information). If, however, the LECS does not know about this client, this string should be the name of the ELAN to which this machine wants to join.

Press **OK** to confirm any changes made in this dialog. Press **Cancel** to discard any changes made in this dialog.

There are several things that can go wrong during boot time, which will leave a record in the system event log. In the case of the NTLEC.SYS NDIS3 driver, the event log messages can be a little cryptic. In particular, the internal driver failure code (Event ID 5005) covers several LEC failure conditions, distinguished by the last DWORD in the Data section of the event log. Use the following table to find what exactly went wrong.

0x9500	NO_VC_TO_LES	Unable to connect to the LES. If using manual configuration, check that the LES address you have specified is correct. If using automatic configuration, ask the network administrator to check the LECS.
0x9501	NO_VC_TO_BUS	Unable to connect to the BUS. Ask the network administrator to check the BUS.
0x9502	NO_VC_TO_CONFIG	Unable to connect to the LECS. Check that the LECS address you have specified is correct.
0x9503	NO_RESOURCES	The LEC code experienced a memory shortage.
0x9504	NO_SIGNALLING	The signalling code failed to start. Check the connection between the adapter and the switch.
0x9505	REGISTER_FAILED	The LEC failed to register its node address. Make sure noone else is using the same node address, especially if you have manually specified one.
0x9506	JOIN_FAILED	Failed to join the ELAN. The LES has objected to your request to join the ELAN. You may need to specify a value in in the PC/ELAN Name field - ask the network administrator.
0x9507	ARP_BUS_FAIL	Failed to locate the BUS. Ask the network administrator to check the BUS.
0x9508	CONFIG_REQ_FAIL	Failed to get configuration from the LECS. Ask the network administrator to check the LECS.