Troubleshooting

The likely causes of several common problems are listed below.

Gateway Does Not Run

Reasons why the Gateway does not run:

1) The Device Driver was not loaded before the gateway was started.

   Fix: Run the “Load Driver” shortcut.

2) The TCP/IP protocol stack is not properly installed or configured.

   Fix: Review the installation of the TCP/IP protocol stack on this machine. The gateway **will not run** until the gateway machine can be successfully pinged.

3) The configuration file has been corrupted.

   Fix: Restore the configuration file from the most recent backup.

4) The configuration file cannot be found.

   Fix: This has two likely causes: i) The gateway configuration file name is spelled wrong or is not in the proper directory; or ii) The suffix “.txt” has been added to the gateway configuration file name, for example “scfg.txt” instead of “scfg”. This often happens when using "Notepad" under Windows. To check this: a) use DOS to look at the file names in the gateway directory; or b) check the “MS-DOS name” of the gateway configuration file by right-clicking on the file in the Windows NT Explorer and selecting "Properties".

Note: Appendix C provides additional suggestions for resolving gateway startup problems.

Gateway Does Not Respond to Poll

Reasons why a Gateway does not respond to poll:

1) Wrong IA or IA not defined at Host.

   Fix: Confirm that the IA has been activated at the Host, and that the correct IA has been entered into the gateway configuration file.

2) The cable between the modem and the InnoSys INSCC board is not properly seated.

   Fix: Check to see that the cable is properly plugged in at both ends.

3) The cable between the Gateway and the modem is bad.

   Fix: Confirm that that the cable meets specifications (see the diagram in the Appendix of the Gateway Manual). If it is correct, then check each end-to-end pin connection to ensure that

the cable has not been damaged. Note for users of the Sun Gateway who have a single data line connected to the INSCC-S card: A simple "straight thru on all 25 pins" cable may be used with most modems/DSU's. However, some modems/DSU's are **very** sensitive to signals on pins other than 1,2,3,4,5,6,7,8,15,17,20, & 24. Since the INSCC-S card has two ports, signals may be present on pins other than those just listed. If such a problem is suspected, **use a custom cable** instead of using a "straight thru on all 25 pins" cable.

4) Bad modem configuration/modem.

Fix: Reconfigure or replace the modem. The value of the "linkstat" variable displayed in the gateway debugging out may be helpful. See Appendix C for the possible values of linkstat.

5) Bad modem sharing device configuration/cabling.

Clue: One Gateway attached to a modem sharing device functions but a second Gateway does not.

Fix: Check to see that cables are attached to proper ports on the modem sharing device.

6) Bad phone line installation.

Fix: Have phone line checked and repaired.

7) Cable too long.

Clue: Distance between Gateway and modem is greater than 50 feet.

Fix: Either reduce the distance between the modem and Gateway or install a shielded cable.

8) Data IA & Polling IA conflict with each other.

Fix: When using the "POLLING IA" parameter, verify that the value entered is correct.

Terminal Does Not Run

Reasons why the Terminal does not run:

1) The TCP/IP protocol stack is not properly installed or configured.

Fix: Review the installation of the TCP/IP protocol stack on this machine. The workstation software **will not run** until the workstation machine can be successfully pinged.

2) The Host, Service, or Object name are entered incorrectly.

Fix: Re-enter the Host, Service, or Object name. Verify that they exactly match a name in the Hosts file, Services file, or the Gateway configuration. These names are case sensitive. Sometimes a carriage return, space, or tab character is accidentally entered into the Host, Service or Object Name field. This kind of error is invisible but if such a problem is suspected, use the right and left arrow keys to move through the Host, Service, and Object Name fields one character at a time.

Note: Appendix F provides a comprehensive problem solving procedure for resolving gateway <--> workstation connectivity problems.

3) The network connection to the Gateway is broken.

Clue: The gateway cannot be pinged from the workstation.

Fix: Carefully check the physical network wiring to see if it is intact, plugged into the proper port on each PC and hub, and that the network is properly terminated (if using coaxial cable).

4) The Gateway is not started or was not restarted after the Gateway was installed or rebooted.

Fix: Restart the Gateway machine.

5) Several other reasons why the Terminal won't start are explained in a dialog box on the screen or given as an error code from the error code list (Appendix A of this manual).

Terminal Does Not Receive Responses From the Host

Reasons why the Host does not respond even if the Status Bar shows “Sys Avail”:

1) The terminal’s TA is not defined at the Host or is defined improperly at the Host (i.e. is defined as a printer instead of a terminal).

Fix: Call the Airline Help Desk to check the TA definition at the Host.

2) Cable too long.

Clue: Distance between Gateway and modem is greater than 50 feet.

Fix: Either reduce the distance between the modem and Gateway or install a shielded cable.

3) When using more than one “DATA_IA” but not using a “POLLING_IA”, the data IA for the user’s TA is not correct.

Fix: Call the AIrline Help Desk to get the proper values for the DATA_IA’s, enter them properly into the Gateway Configuration, and restart the Gateway.

4) When using more than one “DATA_IA” and also using a “POLLING_IA”, the polling IA is correct but one or more DATA_IA’s are incorrect.

Fix: Call the Airline Help Desk to get the proper values for the POLLING_ and DATA_IA’s, enter them properly into the Gateway Configuration, and restart the Gateway.

Startup PF key gets hung up

Under certain conditions, the WinIATE terminal may try to execute a startup PF key before the connection with the gateway is all the way up. See the end of the subsection of the WinIATE User documentation titled “Configure Terminal” for the proper technique to avoid this problem.

Terminal Window Does Not Display the Proper Font

Try re-installing the fonts, then select “Fonts” from the “Text” pull-down menu. If the ALC & IATE fonts still do not appear: find the “fonts” folder, double-click on it, and then double click on either the IATE or ALC fonts inside the Fonts folder. Close the font and the Fonts folder. The IATE and the ALC fonts should now be available to the terminal.

Printer Software Does Not Run

Reasons why the Printer software does not run:

1) The Host, Service, or Object Name are entered incorrectly.

Fix: Re-enter the Host, Service, or Object name. Verify that they exactly match a name in the Hosts file, Services file, or the Gateway configuration. These names are case sensitive. Sometimes a carriage return, space, or tab character is accidentally entered into the Host, Service, or Object Name field. This kind of error is invisible but if such a problem is suspected, use the right and left arrow keys to move through the Host, Service, and Object Name fields one character at a time.

Appendix F provides a comprehensive problem solving procedure for resolving gateway <--> workstation connectivity problems.

Printer Software Will Run, But Printer Does not Print

Reasons why a printer being controlled by the IATE Printer software will not print:

1) Improper configuration (i.e. parity, baud rate, etc.) in the printer software.

Clue: The Test Print file prints but does not print properly.

Fix: Determine the proper settings on the printer and then enter them into the Printer Software configuration file.

2) Improper cable or cable not connected.

Clue: The printer software displays something other than “Device Status changed to 3:pONLINE” after the Printer software tries to open the output device.

Fix: Check the printer cable to see that the cable is connected and that it matches the specification in the Printer program manual. Make sure the cable is plugged into the proper port on the PC.

3) Host is not sending data.

Clue: The Printer software’s window does not show data being received.

Fix: Check the status of the printer TA at the host. Reset the printer status at the Host if it is

in failed state.

4) The Printer software has been configured using a TA which is not a Printer TA.

Clue: The Printer software's window does not show data being received.

Fix: Confirm that the Printer's Object name corresponds to a TA which is defined at the Gateway as a type "Printer". Confirm with the Airline Help Desk that the TA you have been assigned is defined at the Host as a printer.

Printer Software Will Run, But Only Partial Data Prints

Reasons why only partial data prints on a printer being controlled by the Printer software:

1) Improper cable or cable not connected.

Clue: The printer seems to skip random portions of the data.

Fix: i) Check to see that the printer cable is connected and that it matches the specification included in the Printer software manual. If you are using RTS/CTS flow control, be sure that the cable you are using looks for Ready/Busy on the pin that the printer is using. ii) If the printer can be configured to use XON/XOFF flow control instead of RTS/CTS flow control, try configuring the printer and the Printer software for XON/XOFF flow control, then print again. iii) See if there is any software in use that might be trying to use the same serial port as the Printer software. If so, disable that software, restart the PC, and try to print again.

2) Wrong End of Message character being used.

Clue: The Host sends the first block of a message but not any subsequent blocks. (The first block may or may not print on the printer.)

Fix: Check that either using the default printer "End of Message" characters or that the ones explicitly specified in the gateway configuration are correct.

Printer Prints Unexpected Characters or Spaces

Reasons why the Printer prints unexpected characters:

1) The Baud Rate, Parity, Stop Bits, or Data Bits are not set correctly.

Fix: Verify and enter the correct values of these parameters for the target printer.

2) The Hash Total, Block number, or Blank Compression parameters not set correctly.

Fix: Verify and enter the correct values of these parameters for the target printer.

Print to Disk Function Does Not Work Properly

Reasons why the Print to Disk function does not work:

1) The Host, Service, or Object Name are entered incorrectly.

Fix: Re-enter the Host, Service, and Object Name in to the configuration file. Verify that they exactly match a name in the Hosts file, Services file, and the Gateway configuration. These names are case sensitive. Sometimes a carriage return, space, or tab character is accidentally entered into the Host, Service, or Object Name field. This kind of error is invisible but if such a problem is suspected, use the right and left arrow keys to move through the Host, Service, and Object Name fields one character at a time.

Appendix F provides a comprehensive problem solving procedure for resolving gateway <--> workstation connectivity problems.

2) Host is not sending data.

Clue: The Print to Disk software's window does not show data passing through.

Fix: Use formats appropriate for your specific Host to check the status of a printer. Reset the printer status at the Host if it is in failed state.

3) The Print to Disk software has been configured using a TA which is not a Printer TA.

Clue: The Printer software's window does not show data passing through.

Fix: Confirm that the Printer's Object Name corresponds to a TA which is defined at the Gateway as a type "Printer". Confirm with the Help Desk that the TA you have been assigned is defined at the Host as a printer.

4) The error "Close of Temporary File fd:-2 failed with errno:9" is displayed in the Print to Disk window.

Fix: This is not a significant error. It should be ignored.

Supplemental Programs

The following diagnostic and monitoring programs are provided with the NT IATE Gateway package. They may be run by any user on any workstation with TCP/IP access to the gateway.

---

serverwatch

The **serverwatch** utility displays an ongoing report of Gateway activity. The report contains status and debugging messages retrieved from the Gateway. By default, **serverwatch** displays its output in a console window. **serverwatch** can also log activity information to 2 different files, switching from one file to the other after every 2000 lines of output. To run the **serverwatch** utility, enter a command such as:

```
serverwatch -vff
```

To stop the **serverwatch** utility, press `Ctrl-C`.

The command line options are:

Option	Description	Default value
`-c0` *or* `c1`	Select whether or not to display output in the console window	`c1` (to display the information)
`-l`*name*	Log to files with prefix *name*.	
`-v`*xxxx*	Gateway debug output level *xxxx* (in hexadecimal, from 0 to `ffff`). Set specific bits to show the following types of debugging information: `0x0001` Network data transfer activities. `0x0002` Gateway initialization phase. `0x0004` Gateway-specific activity. `0x0008` Client-specific activity. `0x0010` Activity specific to X.25. `0x0020` Text of data messages. `0x0040` Errors (severe). `0x0080` Warnings (less severe). `0x0100` Timer-related activity. `0x0200` Network activity specific to the TLI transport interface. `0x0800` Internal message routing information. `0x1000` Buffer management activity. `0x2000` Buffer management debugging. `0x4000` NT-Specific activity. `0x8000` Very verbose output.	`0x000D` (the `0x0001`, `0x0004`, and `0x0008` bits)
`-h`	Display the list of options.	

testterm

testterm is a VERY simple terminal emulator that can be used to test the connection between the gateway and the airline host. **testterm** displays a System Available/Unavailable indication and a keyboard Locked/Unlocked indication. A command can be sent to the host by typing the command in from the keyboard and pressing the Enter key. To unlock the keyboard, press the exclamation point ("!") key.

The command line options are:

Option	Description
`-o@`*hostname*`\`*servname*`\`*object name*	Specify the ALC Gateway by its host machine's name, the TCP port service name from **services**, and the object name. Note the required backslashes. *@hostname*\ is only required when the ALC gateway is running on a different machine than **testterm**. *servname*\ is only required when the default service, 1413, is not being used. *object name* is always required.
-h	Display the list of options.

Example:

```
testterm -oterm1a
```

showcfg

The **showcfg** utility displays current configuration information from an ALC Gateway. If the command `showcfg` is entered alone (without any command-line parameters), the program will look for a Gateway on the local machine using the default service name **ialcserver**, and will display its configuration. To specify a different Gateway on the local machine, or a Gateway that is running on a remote machine, use the `-g` option. For example, suppose a Gateway is running on a remote machine named **gatesys**, using a TCP port which has been assigned service name **ialcserver** in the **services** file on the local machine. In that case, the following command will display configuration information for that remote gateway:

```
showcfg -g@gatesys\\
```

The `@` symbol before the host name is required, as are the trailing backslashes. No spaces are allowed in the option string that begins with `-g`.

To access a Gateway using a different service name (other than **ialcserver**), both the gateway

name *and* the service name must be specified. For example, suppose a second Gateway on the **gatesys** machine uses a TCP port which has been assigned service name **ialcserver2**. The following command will display configuration information for that gateway:

```
showcfg -g@gatesys\\ialcserver2\\
```

The command line options are:

Option	Description
`-g@`*hostname*`\\`*servname*`\\`	Specify the ALC Gateway by its host machine's name and the TCP port service name from **services**. Note the required double-backslashes. If only -g@*hostname*`\\` is specified, the program will look for a Gateway with service name `ialcserver` on the specified host machine. If this option is not specified at all, the program will look for a Gateway with service name `ialcserver` on the local machine.
`-c`	Display connected objects only.
`-h`	Display the list of options.

---

showdef

The **showdef** program displays the defaults for a given host type. To use it, enter the command:

```
showdef host_type
```

The *host_type* argument can be any one of these: `SABRE`, `PARS`, `APOLLO`, `DATAS`, `SODA`, `SHARES`, or `KLM`. Case is not significant.

---

showxlat

The **showxlat** program displays translation tables. To use it, enter the command:

```
showxlat host_type order
```

The *host_type* argument can be `sabre`, `pars`, `klm`, `apollo`, or `all`. The host type must be specified. The *order* argument specifies the character code set to order the output; this can be `ASCII`, `alc`, or `line`. If the order is not specified, the program will default to `ASCII` order. Note that lower case is required for both arguments.

showval

The **showval** program displays message names and their numeric codes. Depending on the command line options, the program displays a subset or a complete list of messages that can pass between the ALC Gateway and a client API library, between the ALC Gateway and the printer program, between the ALC Gateway and the ALC onboard software, or between the ALC and X.25 Gateways. **showval** is primarily intended for internal use by developers, but it may sometimes be useful to users who need to understand a numeric error or diagnostic message.

The command line options are:

Option	Description
`0x`*xx*	Specify a single message code in hexadecimal.
nn	Specify a single message code in decimal.
	(Only one numeric option can be specified, in either hexadecimal or decimal. A numeric option must be the first option on the command line. If a numeric option is not specified, the program will display a complete list of messages under the category that is specified by any one of the following options.)
`cs`	Display client/server messages that pass between the ALC Gateway and the IATE API library.
`api`	Display IATE API messages related to the IateControl API function.
`link`	Display IATE API messages related to the IateOpen API function.
`peer`	Display peer-to-peer messages related to the printer program.
`err`	Display error messages that the API library can return to an IATE terminal or API user application.
`alc`	Display messages that pass between the ALC Gateway and the ALC onboard software.
`x25`	Display messages that pass between the ALC and X.25 Gateways.
`all`	Display all types of messages available.

Examples:

To display all possible messages that can pass between an ALC Gateway and an IATE

terminal or API user application:

`showval cs`

shows a list of message codes and names

To display the name of the IATE API error code -2217 decimal:

`showval -2217 err`

displays `-2217:TooMuchDataQueued`

To display the name of the message 0x0035 hexadecimal between ALC & X.25 Gateways:

`showval 0x0035 x25`

displays `0x35:CLEARREQUEST`

---

stopta

This utility disconnects a client from the ALC Gateway. **Before** running stopta, run **"`showcfg -c`"** to find the object number of the client that should be disconnected.

The command line options are:

Option	Description
`-g@`*hostname*`\\`*servname*`\\`	Specify the ALC Gateway by its host machine's name and the TCP port service name from **services**. Note the required double-backslashes. If only -g@*hostname*`\\` is specified, the program will look for a Gateway with service name `ialcserver` on the specified host machine. If this option is not specified at all, the program will look for a Gateway with service name `ialcserver` on the local machine.
`-o`*number*	Specify the object-number (in decimal) of the object to disconnect from the ALC Gateway.
-h	Display the list of options.

Example:

`stopta -g@host\\ialcserver\\ -o7`

innoping

This utility sends repeated requests for an ALC Gateway to respond, and reports each response, at a rate of about 1 request/response cycle per second. This utility is useful in confirming Gateway accessibility. Consistent receipt of responses confirms that the Gateway is running, and that it is accessible through the network from the machine on which **innoping** is running. In addition, **innoping** will initially retrieve and display current configuration information from the running Gateway.

(*Note:* Some users may be familiar with **innoping**'s namesake, the UNIX utility **ping**, whose basic function is somewhat similar: to obtain responses from a remote computer system and confirm that system's accessibility over the network.)

Option	Description
`-g@`*hostname*`\\`*servname*`\\`	Specify the ALC Gateway by its host machine's name and the TCP port service name from **services**. Note the required double-backslashes. If only -g@*hostname*`\\` is specified, the program will look for a Gateway with service name `ialcserver` on the specified host machine. If this option is not specified at all, the program will look for a Gateway with service name `ialcserver` on the local machine.
`-n`*number*	Repeat the request/response cycle *number* times, with the exception that `-n1` instructs **innoping** to merely report whether or not the Gateway is available, and then exit. If the `-n`*number* option is not specified, the program will continue requesting responses until it is stopped (e.g., press `Ctrl-C`).
`-h`	Display the list of options.

Example:

```
innoping -g@host\\ialcserver\\ -n10
```

Appendix A: IATE Internal Error Codes

This section lists the error codes returned to an application by the InnoSys API/Gateway.

-2002 The Gateway that a program is looking for was not found on the network. Either the Gateway was not started; a Gateway of that name does not exist; the Gateway name is misspelled (upper and lower case and all spaces are significant); or the network has been disconnected. Also, see the section of this manual titled "Terminal Does Not Run".

-2003 The API has run out of message buffer space. This condition may be cleared by the application issuing a read, reset, or close call, and then opening a new channel, so that data can be cleared from the API buffer. If the application data in the buffer is not for the application that gets this error, but rather, for another application running on this machine, the program has no choice but to exit or to hope that the other application does one of the above actions to clear the API buffer.

-2004 The specified Gateway was found, but the Object Name/TA number could not be found at the Gateway. Check the spelling of the Object Name/TA number. It must exactly match an Object Name which is defined at the Gateway. Upper and lower case and all spaces are significant. (For example, "term1" does not match "Term1" or "term 1".) Also, see the section of this manual titled "Terminal Does Not Run".

-2005 The IATE Object Name/TA number specified is already in use by another terminal or API program and is therefore not available. Only one program may link to a TA at a particular time.

-2006 The TA referenced by the application is no longer linked to the Gateway. This error is caused by one of several conditions: 1) The Gateway has logged a TA off because the link timeout has elapsed; 2) the network has gone down; or 3) the Gateway software is not running.

-2007 Data error on Peer-To-Peer transaction or some other problem with data passed to the API

-2008 An application has made a call to the API before the Gateway has been started.

-2009 The version of the API loaded on this machine will not run with the current version of Gateway.

-2010 An application program issued a write command before either the response to the preceding write command had been returned or a Reset command had been issued.

-2011 The program attempted to execute a shared function involving a TA that is not shared.

-2020 The Object Name designated to receive a message can't be found.

-2021 The Object Name designated to receive a message is not active.

-2022 The Object Name designated to receive a message is not available (busy).

-2101 There are no TAs available for this instance of the API. No more IateOpens may be issued by the application until the application issues an IateClose for at least one of its TAs.

-2102 The refnum parameter is bad. The refnum returned from the IateOpen() call must be saved for all subsequent transactions with the API until an IateClose() call has been made. Every subsequent call to the API must include the refnum parameter.

-2103 The API throttle has been violated by an application making a second IateWrite() call before the API throttle time set at the gateway has elapsed. If more than one IateWrite() call needs to be made in a transaction, the application must observe the API throttle value set at the gateway.

-2201 A software problem inside the API. Contact InnoSys.

-2203 Wrong version of the API. Contact InnoSys.

-2204 InvalidName — An application program issued a call containing an unknown command code.

-2205 HostUnreachable — The system on which the gateway is running can not be reached. This means that a **gethostbyname** call failed within the API, because the specified host name has not been entered into **/etc/hosts** or into a name server.

-2206 The system on which the Gateway is running can be reached, but the Gateway itself is unreachable.

-2207 No configuration was received from the Gateway for this session.

-2208 Couldn't get a socket through which to talk to Gateway.

-2209 An application running on a PC cannot access the Gateway. The most likely causes are that the network is broken or TCP is not properly configured.

-2210 An invalid message type was received from the Gateway.

-2211 A write to Gateway failed. For API version 2 and following, check APIerrno for the error number set by the failed system call.

-2212 A read from Gateway failed. For API version 2 and following, check APIerrno for the error number set by the failed system call.

-2213 The session is busy from perspective of API.

-2214 A specified interval must elapse successive IateOpens. For example, if this sequence of calls is issued:

```
refnum = IateOpen (...);
IateClose (refnum);
refnum = IateOpen (...);
```

The elapsed time between the first IateOpen and the second IateOpen must be at least the configured number of seconds. The default number of seconds is 70; this value can be changed via IateControl.

-2215 The Gateway has disconnected the session.

-2216 An application program issued a call containing a command code may be valid for some other version of the InnoSys API, but is not valid for the version in use.

-2217 Too much data is queued in API. Issue some IateReads to free up some buffer space. This happens when too many APIGetTaStats or APIGetHostStats have been issued without intervening IateReads and while data is being received from the Host.

-2218 An API/Gateway connection attempt has failed because the maximum number of TCP/IP connections with the Gateway have already been established. (This differs from APINoFreeChannel/TooManySessions described below. TooManyConnections reflects a limit on the number of socket connections which can be opened, as opposed to the number of sessions with objects that may be established.)

-2219 An application requested information regarding an invalid board and/or port.

-2221 The printer has returned an error. The printer Object Name you entered is not configured as a printer or is not running on this Gateway. Verify the Object Name.

-2401 The TCP/IP protocol stack is not properly configured. Check the setup of the TCP/IP protocol.

-10005 The task cannot continue because the configuration file has been damaged. Discard the existing configuration file and create a new one.

Appendix B: X.25 Network Error Codes

At times, X.25 error messages will refer to “Cause” and “Diag” error codes. The following tables provide a listing of these codes and their meaning. Most of these codes have been defined by the CCITT X.25 specification.

Most Common Errors:

00 00 = Some kind of fundamental problem such as a faulty cable, modem not turned on, or phone line not properly installed.

03 xx = A common cause of this is that the Gateway is trying to use size negotiation, but the local telephone company X.25 switch doesn’t allow it. Try reconfiguring the X.25 Gateway so the packet size is set at 512, with size negotiation turned off.

“Cause” Codes

Codes for the clearing cause field include:

Missing/Invalid DNIC		128
Number busy	1	129
Invalid facility request	3	131
Network congestion	5	133
Out of order	9	137
Access barred	11	139
Not obtainable	13	141
Remote procedure error	17	145
Local procedure error	19	147
Reverse charging acceptance not subscribed	25	153

If a “Cause” code greater than 127 is returned, it means that the error was detected by the Host rather than the network.

“Diag” Codes

Codes for the network generated diagnostic fields include: (Codes marked with an a single asterisk (*) are generally a gateway configuration problem. Codes marked with two asterisks (**) are generally X.25 network or network configuration problems.)

No additional information	0 through 15
Packet type invalid	16 through 31
Missing/Invalid DNIC	22
Packet type invalid	16 through 31
Packet not allowed	32 through 47
Time expired	48 through 63

Call set-up, call clearing or registration problems	64
Facility / registration code not allowed	65**
Facility parameter not allowed	66**
Invalid called DTE address	67*
Invalid calling DTE address	68*
Invalid facility / registration length	69
Incoming call barred	70**
No logical channel available	71**
Call collision	72**
Duplicate facility request	73
Non zero address length	74
Non zero facility length	75
Facility not provided when expected	76**
Invalid CCITT-specified DTE facility	77
Maximum number of call redirections or call deflections exceeded	78**
Miscellaneous	80
Improper case code from DTE	81
Not aligned octet	82
Inconsistent Q bit setting	83
NUI problem	84*
Wrong LNIA specified	89*
Not assigned	96 through 111
International Problem	112
Remote network problem	113
International protocol problem	114
International link out of order	115
International link busy	116
Transit network facility problem	117
Remote network facility problem	118
International routing problem	119
Temporary routing problem	120
Unknown called DNIC	121
Maintenance action	122
Reserved for network specific diagnostic information	128 through 255

«««

Appendix C — Common Gateway Problems

Following is a list of the most common errors that keep the gateway from starting or running, together with likely solutions to those errors.

- "Get Host by Name failed" - this error usually means that the TCP/IP stack on this machine is not properly installed or configured. The gateway will not run unless TCP/IP is properly installed and configured.

- "Get Server by Name failed" - this error means that the gateway (either X.25 or ALC) cannot find the entry it is looking for in the Services file. Verify that "x25gate" and "ialcserver" are both properly defined in the services file. (If the gateway configuration file has been modified to specify a non-standard name for the gateway service, check that the non-standard name is properly defined in the services file).

- "Unable to open device \\.\innopci*n_n* error 2" - This error is normally the last line in the gateway's debugging output. The most likely cause of this error is that the device driver has not been started since the gateway machine was last restarted.

- "** NO OBJECTS CONFIGURED - CHECK YOUR CONFIGURATION FILE(S) **" This error is normally found in the middle part of the gateway's startup-related debugging output. The three most likely causes for this error are:
  i) The "Host Type" that is entered in the gateway configuration file does not match the "Host Type" shown in the currently installed license file. (If iate_server is run with the -vff option, when the gateway starts up, it displays the contents of the license file in the console window.)
  ii) None of the object definitions in the gateway configuration file use the IA(s) defined in the gateway configuration file.
  iii) The configuration file cannot be found.

As shown in Appendices D & E, the gateway displays a value called "Linkstat". Linkstat summaries the status of the modem control signals.: Linkstat has the following possible values:

0x7 mean all modem signals are good
0x6 means DCD is missing
0x5 means DSR is missing
0x4 means DCD and DSR are missing
0x3 means RTS/CTS handshaking is missing
0x2 means RTS/CTS handshaking and DCD are missing
0x1 means RTS/CTS handshaking and DSR are missing
0x0 means no modem control signals are present

«««

Appendix D — Typical Gateway Startup Under ALC

The following text is sample output from the NT ALC gateway (iate_server) when it is connected to an ALC line and started with the debugging set to -vff. Each line starts with a type code (C=Comment, W=Warning, E=Error); queue counts (nn:nn); and a time stamp (dd:hh:mm:ss).

```
@(#)InnoSys IATE_SERVER Version 2.2 (Windows NT) as of May  1 1997 16:18:27

C (17:-1) 16:07:52:34 debug.c:175        {----} Setting Gateway debugging to 0x00ff
C (17:-1) 16:07:52:34 vport.c:339        {----} vport tables has room for 2048 entries
C (17:-1) 16:07:52:34 socket.c:92        {----} Socket table has room for 2048 entries

This Gateway is licensed as follows:

   7 PARS connections

C (17:-1) 16:07:52:34 config.c:603       {----} Processing configuration file scfg.
C (17:-1) 16:07:52:34 config.c:3172      {----} Validating configuration file scfg.
C (17:-1) 16:07:52:34 vport.c:127        {----} Assigned vport 0 for use by socket type 1:HOST
C (17:-1) 16:07:52:34 config.c:658       {----} Configuring line for protocol PARS.
C (20:-1) 16:07:52:34 config.c:715       {----} Configuring ALC line on board:0 port:0 vport:0 for
        windows NT.  Using device \\.\innopci0_0.
C (20:-1) 16:07:52:34 config.c:1584      {----} Will respond to polls with data for polled IA only.
E (27:-1) 16:07:52:34 license.c:346      {----} Maximum number of objects for host type PARS is
        1.  Limit exceeded.
C (27:-1) 16:07:52:34 config.c:753       {----} Line configured for 1 ias, 1 tas, and 0 polling tas.
C (27:-1) 16:07:52:34 vport.c:627        {----} Added vport 0:<alc_port_0> to alc_list

This Gateway has objects configured for the following host types:

   1 PARS objects

A total of 1 objects are defined.

C:\ver2_32\server\qhighnt.c:167 Heap status: OK - heap is fine
C (27:-1) 16:07:52:34 qhighnt.c:190      {----} Allocated storage for 27 queues of 52 bytes each.
        (total 1408)
C (27:-1) 16:07:52:34 qhighnt.c:220      {----} Allocated storage for 12 queue_items of 2316 bytes
        each. (total 27792)
C:\ver2_32\server\qhighnt.c:281 Heap status: OK - heap is fine
C (20:12) 16:07:52:34 socket.c:259       {----} Initializing socket record:36 type:5:LISTEN_SOCK
C (17:12) 16:07:52:34 socket.c:259       {----} Initializing socket record:92 type:10:READ_WAKEUP
C (17:12) 16:07:52:34 hostio.c:277       {----} vport:0 <alc_port_0> opened:\\.\innopci0_0 as:92
C (17:10) 16:07:52:34 vport.c:127        {----} Assigned vport 1 for use by socket type 2:OTHER
C (17:10) 16:07:52:34 socket.c:259       {----} Initializing socket record:116
        type:11:SIGNAL_SOCKET
```

```
C (17:10) 16:07:52:34 hostio.c:277       {----} vport:1 <> opened: as:116
C (14:10) 16:07:52:34 socket.c:259       {----} Initializing socket record:72 type:4:CLIENT
C (14:10) 16:07:52:34 vport.c:127        {----} Assigned vport 2 for use by socket type 2:OTHER
C (14:10) 16:07:52:34 netws.c:794        {----} socket:72 local end -  port:34053 ip:207:88:91:67
C (14:10) 16:07:52:34 netws.c:810        {----} socket:72 remote end - port:29189
      ip:207:88:91:67
C (14:09) 16:07:52:34 hostiont.c:674     {----} Switching socket type for socket:0x48
W (14:11) 16:07:52:34 hostiont.c:402     {----} Port request for port 0 failed - port in use, will
      retry
C (14:11) 16:07:52:34 alcdata.c:922      {----} Host status: hostup:0x1  linkstat:0x7  miscstat:0x0
      IA:0x1  <\\.\innopci0_0> <alc_port_0>
```

Note the “Host Status” in the last line. The “hostup:0x1” and the “linkstat:0x7” indicate that the gateway is properly started and that it is being polled by the host on at least one of the IA’s that are configured.

The line which reads “Port request for port 0 failed...” (the line just before the last line) sometimes appears when the gateway has been restarted after previously being cancelled.

If the gateway starts and the host is polling but none of the IA’s that the gateway is configured for are being polled, then “hostup” will be “0x0” instead of “0x1”.

If the gateway starts and the host is not polling or is not properly cabled to the gateway, then the “Host status” line will not appear..

«««

Appendix E — Typical Gateway Startup Under X.25

The following text is the expected output from the NT X.25 gateway (x25gate) when it is started with the debugging set to -vff. The lines that begin "*** Alarm" should be ignored. Following the NT X.25 gateway startup is the expected output from the NT ALC gateway (iate_server) when it is connecting to an NT X.25 gateway.

```
hostname is <ibm_nt>  IP address is 206.85.41.16  port is -31739
Signal socket attached, socket <104> from 0.0.0.0
14:24:03  nonDataToBoard 0  dataToBoard 0  fromBoard 0  fromClients 0
(cor chn fre len off)          BOARD   <--->    GATEWAY   <--->   CLIENT
(  0   0 499   1   0)                      <--- LINKSTOP
(  0   0 499 100   0)                      <--- LINKINIT
14:24:04  nonDataToBoard 0  dataToBoard 0  fromBoard 0  fromClients 0
(  0   0 498   2   0)        RESTARTPENDING --->
*** Alarm 103, 13  Severity 2  LCN 0  Restart Pending
(  0   0 498   2   0)                      <--- RESTARTALLOWED
14:24:05  nonDataToBoard 0  dataToBoard 0  fromBoard 0  fromClients 0
(0 0): (free 498) BOARD  to GATEWAY  info 0  cmmd (2e)  len 0  off 0
14:24:08  nonDataToBoard 0  dataToBoard 0  fromBoard 0  fromClients 0
(  0   0 498   0   2)         RESTARTCOMPLETE --->
*** Alarm 104, 13  Severity 2  LCN 0  Restart Complete
New Client <0>, socket <164> from 206.85.41.16
```

(Note - ALC gateway connecting)

```
14:24:16  nonDataToBoard 0  dataToBoard 0  fromBoard 0  fromClients 0
(  0   0 498 298   0)                      <--- CALL
SVC Call: from   to 9188328410  user len 4: ffffffc1 00 00 00
(  0 65535 498 298   0)  <--- CALL
(0 0): (free 498) BOARD  to GATEWAY  info 0  cmmd (2e)  len 0  off 0
(  0   3 498 298   0)       ACCEPT --->
(  0   3 498 298   0)                      ACCEPT --->
(  0   0 498  39   7)                                      <--- DATA
(  0   3 498  39   7)                      <--- DATA
(  0   3 498   0   0)        XON --->
(  0   3 498   0   0)                      XON --->
14:24:17  nonDataToBoard 0  dataToBoard 0  fromBoard 0  fromClients 0
(0 0): (free 498) BOARD  to GATEWAY  info 0  cmmd (2e)  len 0  off 0
(  0   3 498   9   5)        DATA --->
(  0   3 498   9   5)                      DATA --->
(  0   3 498   0   0)                      <--- XON
(  0   0 498   0   0)                                      <--- XON
(0 0): (free 498) BOARD  to GATEWAY  info 0  cmmd (2e)  len 0  off 0
```

The following text is the expected output from the NT X.25 gateway (x25gate) when the NT ALC gateway is stopped. The lines that begin "*** Alarm" should be ignored.

```
Client disconnect 1 on <0>, socket <164>, state: 12
Closing client FD <164>
14:24:24  nonDataToBoard 0  dataToBoard 0  fromBoard 0  fromClients 0
(  0   3 498 298   0)                      <--- CLEAR
```

```
14:24:25  nonDataToBoard 0  dataToBoard 0  fromBoard 0  fromClients 0
(0 0): (free 498) BOARD  to GATEWAY  info 0  cmmd (2e)  len 0  off 0
(  0   3 498   5   2)        CLEARCONFIRM --->
*** Alarm 105, 6  Severity 1  LCN 0  Gateway shutdown due to signal
shutDownTcp: driverstate = 5
14:24:27  nonDataToBoard 0  dataToBoard 0  fromBoard 0  fromClients 0
(  0   0 498   1   0)                    <--- LINKSTOP
*** Alarm 106, 3  Severity 1  LCN 0  errno 10022 returned from poll()
```

The following text is the expected output from the NT ALC gateway (iate_server) when it is connecting to an NT X.25 gateway and it is started with the debugging set to -vff. Each line starts with a type code (C=Comment, W=Warning, E=Error); queue counts (nn:nn); and a time stamp (dd:hh:mm:ss).

```
@(#)InnoSys IATE_SERVER Version 2.2 (Windows NT) as of May  1 1997 16:18:27

This Gateway is licensed as follows:

   7 SABRE connections

C (17:-1) 30:14:24:16 debug.c:175        {----} Setting Gateway debugging to 0x00ff
C (17:-1) 30:14:24:16 vport.c:339        {----} vport tables has room for 2048 entries
C (17:-1) 30:14:24:16 socket.c:92        {----} Socket table has room for 2048 entries
C (17:-1) 30:14:24:16 config.c:620       {----} Processing configuration file scfg.x25.sabre.
C (17:-1) 30:14:24:16 config.c:3195      {----} Validating configuration file scfg.x25.sabre.
C (17:-1) 30:14:24:16 vport.c:127        {----} Assigned vport 0 for use by socket type 1:HOST
C (17:-1) 30:14:24:16 config.c:675       {----} Configuring line for protocol SABRE.
C (22:-1) 30:14:24:16 config.c:698       {----} Configuring X25 (gateway) connection on "board":20
       port:0 vport:0.
C (22:-1) 30:14:24:16 config.c:702       {----} Using gateway/service <@ibm_nt\x25gate>.
C (22:-1) 30:14:24:16 config.c:703       {----} Configuring line for pad type SABRE.
Setting CUD for port <0:x25_port_0> len:4: c1 00 00 00
C (71:-1) 30:14:24:16 config.c:770       {----} Line configured for 1 ias, 7 tas, and 0 polling tas.
C (71:-1) 30:14:24:16 vport.c:591        {----} Added vport 0:<x25_port_0> to x25_list

This Gateway has objects configured for the following host types:

   7 SABRE objects

A total of 7 objects are defined.

C:\ver2_32\server\qhighnt.c:167 Heap status: OK - heap is fine
C (71:-1) 30:14:24:16 qhighnt.c:190      {----} Allocated storage for 71 queues of 52 bytes each.
       (total 3696)
C (71:-1) 30:14:24:16 qhighnt.c:220      {----} Allocated storage for 24 queue_items of 2316 bytes
       each. (total 55584)
C:\ver2_32\server\qhighnt.c:281 Heap status: OK - heap is fine
C (38:24) 30:14:24:16 socket.c:275       {----} Initializing socket record:52 type:5:LISTEN_SOCK
C (35:24) 30:14:24:16 socket.c:275       {----} Initializing socket record:88 type:2:HOST_GATE
C (35:24) 30:14:24:16 netws.c:796        {----} socket:88 local end -  port:10244 ip:206.85.41.16
C (35:24) 30:14:24:16 netws.c:812        {----} socket:88 remote end - port:33797
       ip:206.85.41.16
C (35:24) 30:14:24:16 hostio.c:281       {----} vport:0 <x25_port_0> opened:@ibm_nt\x25gate
```

```
        as:88
--- Opening connection with X25 Gateway (gate:@ibm_nt\x25gate vport:0) ---
C (35:24) 30:14:24:16 x25cmn.c:1103    {----} State change for <x25_port_0> vport:0 0:IXNULL-
        >1:IXSESSION
C (35:23) 30:14:24:16 x25sabre.c:959   {----} State change for <x25_port_0> vport:0
        1:IXSESSION->2:IXCALLED
C (35:23) 30:14:24:16 x25sabre.c:982   {----} CALLing <9188328410> <> <>
C (35:23) 30:14:24:16 route.c:670      {----} Routing X25 message on <x25_port_0> vport:0
        cmmd:0x31:CALL len:298
C (35:23) 30:14:24:16 hostio.c:997     {----} Sending on <x25_port_0> fd:88 vport:0
        cmmd:0x31:CALL (298:12:310)
C (35:23) 30:14:24:16 hostio.c:778     {----} Receiving on <x25_port_0> fd:88 vport:0
        cmmd:0x32:ACCEPT
C (35:23) 30:14:24:16 x25cmn.c:107     {----} Processing message from <@ibm_nt\x25gate>
        <x25_port_0> vport:0 cmmd:0x32:ACCEPT
C (35:23) 30:14:24:16 x25sabre.c:130   {----} State change for <x25_port_0> vport:0
        2:IXCALLED->3:IXSVC
C (35:23) 30:14:24:16 route.c:670      {----} Routing X25 message on <x25_port_0> vport:0
        cmmd:0x3b:DATA len:39
C (35:23) 30:14:24:16 x25cmn.c:776     {----} Routing (immediate) on <x25_port_0> vport:0
        cmmd:0x3b:DATA len:39
C (35:23) 30:14:24:16 hostio.c:997     {----} Sending on <x25_port_0> fd:88 vport:0
        cmmd:0x3b:DATA (39:12:51)
C (35:23) 30:14:24:17 hostio.c:778     {----} Receiving on <x25_port_0> fd:88 vport:0
        cmmd:0x3f:XON
C (35:23) 30:14:24:17 x25cmn.c:107     {----} Processing message from <@ibm_nt\x25gate>
        <x25_port_0> vport:0 cmmd:0x3f:XON
C (35:23) 30:14:24:17 hostio.c:778     {----} Receiving on <x25_port_0> fd:88 vport:0
        cmmd:0x3b:DATA (q_bit)
C (35:23) 30:14:24:17 x25cmn.c:107     {----} Processing message from <@ibm_nt\x25gate>
        <x25_port_0> vport:0 cmmd:0x3b:DATA
C (35:23) 30:14:24:17 x25sabre.c:775   {----} State change for <x25_port_0> vport:0 3:IXSVC-
        >8:IXDATA
C (35:23) 30:14:24:17 x25cmn.c:1043    {----} Setting host status:0x701
C (35:22) 30:14:24:17 alcdata.c:924    {----} Host status: hostup:0x1  linkstat:0x7  miscstat:0x0
        IA:0x12  <@ibm_nt\x25gate> <x25_port_0>
C (35:23) 30:14:24:17 route.c:670      {----} Routing X25 message on <x25_port_0> vport:0
        cmmd:0x3f:XON len:0
C (35:23) 30:14:24:17 hostio.c:997     {----} Sending on <x25_port_0> fd:88 vport:0
        cmmd:0x3f:XON (0:12:12)
```

Note the “Host Status” in the third line up from the bottom. The “hostup:0x1” and the “linkstat:0x7” indicate that the NT ALC Gateway is properly started and that it is communicating with the airline host through the NT X.25 gateway.

Note: Linkstat has the following possible values:

0x7 mean all modem signals are good
0x6 means DCD is missing
0x5 means DSR is missing
0x4 means DCD and DSR are missing

0x3 means RTS/CTS handshaking is missing
0x2 means RTS/CTS handshaking and DCD are missing
0x1 means RTS/CTS handshaking and DSR are missing
0x0 means no modem control signals are present

«««

Appendix F — Gateway <--> Workstation Connectivity Problems

If a Windows workstation won't connect to the gateway, the following procedure can help isolate the problem. For other types of workstations, follow this same procedure but adapt it for the specifics of the workstation operating system.

1) Reboot the workstation PC and try to link again.

2) If the workstation says that it cannot find the gateway or the host is unreachable, this is probably because the "hosts" file is not set up properly or the dll has not been properly installed. Use the following procedure:

i) Try to "ping" the gateway using the tcp/ip address of the gateway PC. (The ping program should be on the workstation already). **If this is not successful, do not proceed until the gateway can be successfully pinged this way**. This kind of a problem is most likely caused by:

a) the installation of the tcp/ip protocol stack on the workstation machine is not correct/ complete, or
b) there is not a network connection between the workstation and the gateway, or
c) the address being used for the gateway is not correct, or
d) there is a duplicate tcp/ip address on the network.

To "ping" the gateway using its tcp/ip address, enter a command such as:

```
ping 206.21.97.14
```

ii) If the gateway can be "pinged" using the tcp/ip address of the gateway PC, try to "ping" the gateway using the "host name" of the gateway PC. If this is not successful, the error is probably that:

a) the host name in the "hosts" file (or DNS) does not have the correct tcp/ip address for the gateway, or
b) the "hosts" file is in the wrong directory, or
c) the "hosts" file has an incorrect name (the most common error of this type is that the "hosts" file has an extension such as "sam". Use DOS, **not** Windows, to check the name of the "hosts" file because the Windows tools often hide the extension name.) The "hosts" file should **not** have an extension.

To "ping" the gateway using its host name, enter a command such as:

```
ping iate_gw1
```

The location of the "hosts" file varies according to which tcp/ip protocol stack is being used on the workstation. If the standard Microsoft tcp/ip protocol stack is being used under Windows 3.1, Windows for Workgroups, or Windows 95, the "hosts" file should be in the \WINDOWS directory. If the standard Microsoft tcp/ip protocol stack is being used under Windows NT, the "hosts" file should be in the \WINNT40\SYSTEM32\DRIVERS\ETC directory.

If a non-standard tcp/ip protocol stack is being used, the proper directory varies. For example, the "hosts" file is usually in the \NFS directory when using the PC/NFS tcp/ip protocol stack. The

“hosts” file is usually in the \TRUMPET directory when using the Trumpet Winsock tcp/ip protocol stack.

The “hosts” file is simply a list of names that can be used instead of actual tcp/ip addresses. For example, if the gateway machine’s tcp/ip address is 207.21.97.14 and the name assigned to this address is “iate_gw1”, the “hosts” file should contain a line that looks like this:

```
207.21.97.14      iate_gw1
```

iii) If the gateway can be “pinged” using the “host name” of the gateway PC, check that the service name configured in the terminal is properly entered in the “services” file (also check the spelling of the service name in the terminal configuration window and in the services file). If this is OK, verify that the “iatedll.dll” file is properly installed. If running Windows 3.1, Windows for Workgroups, or Windows 95, “iatedll.dll” should be in the \WINDOWS directory. If running Windows NT, “iatedll.dll” should be in the \WINNT40 directory. If “iatedll.dll” is not in the correct directory, move it to the correct directory and then reboot before trying to link to the gateway again.

iv) If the “iatedll.dll” file is properly installed, then the most likely reason that the gateway cannot be found is that the “host name” is not properly entered in the “Configure Link” selection in the File menu. Check and recheck this entry with the indicated entry in the “hosts” file. Next, try entering the actual tcp/ip address of the gateway PC into the “host name” field instead of entering the name from the “hosts” file. Another thing to try is to search for all files named “hosts”. If there is more than one file named “hosts”, it is likely that the wrong hosts file is being used. If connecting to a Macintosh gateway via TCP/IP, verify that the “Gateway Name” configured in the IATEtcp software matches the “Gateway Name” used on the target Macintosh gateway.

3) If the terminal gives the message “socket-level connect failed”, this usually means that the port number entry that the gateway is using is not properly set up in the “services” file on the workstation PC. The standard Service Name used for IATE gateways is “ialcserver”. The standard Port Number used for IATE gateways is 1413. The “services” file is usually located in the same directory as the “hosts” file. Check that this file has a proper entry for the IATE gateway being used. If the standard names are being used, there should be a line in the “services” file that looks like this:

```
ialcserver 1413/tcp
```

Verify that the service name is spelled properly and that “tcp” is not mistyped. If there are routers, bridges, and/or firewalls on the network between the gateway and the workstation, verify that network traffic on the tcp/ip port number which the gateway is using can be passed through the routers/bridges/firewalls.

4) If the message “Another Terminal or API is using this Object Name” is received when the client software is started, another user or application is already using the object name (or group name) to which the client software is trying to link. Or, if the client software is running on a machine that has access to the Internet, it is possible that the client software may be trying to link to an IATE gateway somewhere on the Internet. For this reason, it is recommended that common airline-related names such as “KLM”, “Delta”, “JAL”, etc. are never used as the host name for the gateway machine because these names are also domain names on the Internet.

If the message “This Object Name could not be found at the gateway” is received, the client software has found the gateway but the object name (or group name) to which the client software is trying to link does not agree with any of the object names defined on the gateway.

IATE™

ALC & X.25 Gateway

Problem Solving Manual

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