

LOOKOUT™ 4.5 RELEASE NOTES

Welcome to Lookout 4.5. This edition of the Lookout HMI/SCADA package introduces the following new features:

- ActiveX control object—include any ActiveX control in your Lookout processes, including ten versatile controls from National Instruments ComponentWorks included with Lookout 4.5.
- Aggregate objects—create Lookout processes you can then use and reuse like objects, without tedious and repetitive rebuilding of systems and processes you have built before.
- Citadel Control—archive and maintain your Citadel databases from within a Lookout process.
- HTML reports—generate HTML reports from Lookout that contain tables and charts, text, your own HTML code, and more.
- DataSocket object—connect to a wide range of National instruments Hardware and software using National Instruments DataSocket technology.
- Mailer object—distribute Lookout data or alarms through your e-mail system.
- Mouse and Joystick objects—use mouse and joystick inputs in your processes.
- New Driver objects—including drivers for Allen-Bradley Logix, Fatek MA/MB/MC, Mitsubishi CLM, Modbus Daniel, Modbus Omniflow, National Instruments DeviceNet, Phoneducer, ScanData, and Siemens S7-HMI.
- Image Navigator—a new, large library of graphics, from symbols to detailed drawings.
- Enhancements to usability and functionality, including a new color selector with 24-bit color capability, multiline text entry and display, live data display for connections in the Connection Browser, and Object Explorer enhancements such as object copy and paste, and easy access to the **Edit Database** and **Edit Connections** dialog boxes both through objects and individual data members.

The *Lookout 4.5 Release Notes* contain the following information:

- Requirements for running Lookout 4.5
- New features and corrections that did not make it into the print documentation
- Known issues with Lookout 4.5
- A roadmap to where you can find answers to your questions about Lookout 4.5
- Information on compatibility issues between Lookout 4.5 and earlier versions of Lookout

For the most recent Lookout news and updates, point your browser to this site:

<http://www.ni.com/lookout/>

Contents

Requirements	3
Installation	4
Registration	4
Corrections and Additions to the Documentation	5
CitadelControl	5
Archiving Data	8
Restoring Data	9
Pattern Matching	9
CitadelControl Data Members	11
Citadel Logging	12
How Citadel Logs Continuous Data with a Slow Rate of Change	12
Citadel Data Lifespan Enforcement	12
Using SQL Queries From Microsoft Query in Lookout	12
Mailer Object Parameters	14
Alarm Filter Options	15
Multi-line Text Changes	15
Using Lookout as an OPC Server	15
Known Issues	15
Lookout Control Sources and Refresh Value Operations	15
Security File Compatibility	17
Connection Browser Open with No Processes Visible	17
Exporting a Web Client	17
Roadmap for Experienced Users of Lookout	18
Compatibility and Conversion with Lookout 4.5	19
Lookout 3.8 and Lookout 4.5 Compatibility	19
Converting Lookout 3.8 Processes to Lookout 4.5	20
Importing Old Security Files into Lookout	22

Requirements

Lookout requires the following:

- Pentium class PC or equivalent, running at 90 MHz or faster
- Windows 98/95/Me, Windows NT version 4 or later, or Windows 2000
- At least 32 MB RAM
- You will need between 17 and 112 MB free disk space for Lookout (depending on your installation options), plus as much 100 MB or more for data logging (depending on how much data you intend to log to the Citadel database). You should also have about 50 MB of disk space for file swapping on Windows NT/2000 computers
- Network card and TCP/IP networking installed on the computers you want to connect, if you intend to take advantage of Lookout networking
- Adobe Acrobat Reader version 4 or later, which you can install from the Lookout\Documentation folder (launch `rs40eng.exe`) or from the Adobe web site

While minimum requirements for running Lookout will run Lookout processes, you may find that large processes which draw heavily on computer system resources will benefit from faster computers that have more RAM and disk memory than the minimum requirements. For example, if your Lookout processes 25,000 traces or more, you should use a Pentium class 450 MHz computer with at least 256 MB of RAM.

Because Lookout can run 24 hours a day, your computer should have some form of AC power surge protection. An uninterruptible power supply (UPS) provides the ultimate protection. A UPS provides complete isolation between the AC power source and the computer and has backup battery power if there are blackouts and brownouts. A quality surge protector will protect your computer from most electrical surges and spikes if you do not need battery backup.



Caution If you are running Windows 95 with no service pack upgrades, you may experience difficulties in networking with Lookout 4 or greater. If your computer begins to behave erratically after networking with Lookout 4 or greater, you may need to install an updated `kernel32.dll` from Microsoft. You can download this upgrade from Microsoft using the following URL:

<http://www.our-town.com/win95maint/win95maint.htm>

Installation

Installing Lookout is more than just copying files to your computer. You must register Lookout for long term use of your I/O points, and for instances of Lookout that are intended to run server processes, you must also register to activate your client connections. There are also a number of Lookout system configuration options you should set when you install. If you plan on networking with Lookout, you should also test to make sure TCP/IP is present and running on all the computers you intend to use Lookout with over a network.

Avoid installing Lookout 4.5 over Lookout 3.8 or earlier. Either uninstall Lookout 3.8, or put Lookout 4.5 in a new directory. You can transfer or copy Lookout 3.8 process files for converting. If you were using a pre-release version of Lookout 4.5, either a beta or the Lookout 4.5 Preview, you should uninstall before installing the release version of Lookout 4.5.



Note You can run Lookout 3.8 on the same computer with Lookout 4 and higher, and a process in one can be networked to a process in the other using NetDDE. Start the earlier version of Lookout first, though, if you intend to run both versions on one computer.

If you are replacing your current copy of Lookout with Lookout 4.5, and your previous version was purchased from National Instruments, your earlier registration keycode will work to maintain your I/O licensing. You must register your client connection levels separately, however. Get your client connection keycode (and an upgraded I/O point keycode as well, if necessary) by registering Lookout with National Instruments, using the *Lookout Registration Form* included in your Lookout package.

See Chapter 1, *Installing Lookout*, in the *Getting Started with Lookout* manual for detailed information on installation, testing TCP/IP networking, and configuring the Lookout system options.

Registration

You must register your copy of Lookout to have full functionality of the software and access to all your I/O points and client connections. Your I/O points and client connections are activated by a Lookout keycode you get when you register the software. See Chapter 1, *Installing Lookout*, of the *Getting Started With Lookout* manual for more detailed information on registering Lookout and getting your keycode.

You can register by phone or fax using the using the registration form provided with your software, or you can register and get your keycode over the Internet by pointing your browser to:

<http://www.ni.com/keycode>

If you have not already created your personal profile on NI web, you will have to do so before you can register Lookout and get a keycode across the web.

Corrections and Additions to the Documentation

This section contains information and corrections which did not make it into the Lookout manual set.

CitadelControl

You can use the CitadelControl object to archive and restore your Citadel databases. The CitadelControl object archives data from any Citadel database (the source database) to any other Citadel database (the target database). You can specify what data is archived, and set the time range for the operation.

You can automate archiving so that it takes place on a regular basis, and you can use multiple CitadelControl objects to archive data to several backup computers across the network. You can use CitadelControl to archive data from several Citadel databases into one archive database, and you can archive specific data from an archive database out to special purpose databases or back to active databases to restore data that has been corrupted or lost.

To create a CitadelControl object, select CitadelControl from the **Select Object Class** dialog box (from the **Logging** category). The following dialog box appears.



Note Unlike most Lookout object classes, the CitadelControl has no parameters. All the yellow expression fields on this dialog box are actually connections to CitadelControl data members. You can create a CitadelControl object without filling any of the yellow expression fields, supplying the necessary values through a direct or remote source connection later in your development efforts. If you do enter an expression in one of these fields when you create the CitadelControl object and later make a connection to that data member from an object other than the one you used when creating the CitadelControl, you will discover that your new connection replaces the original one if you edit the object's properties through the dialog box. In the same way, any entries you make when you create a CitadelControl object will appear when you edit connections to that object.

Use **Archive trace matching this pattern** (the `what` data member) to select the data you want copied. You must supply a Lookout data path (with the appropriate relativity) for the data you want to archive.

You cannot use path abbreviations for data you want to trace. You must include the computer name or use the appropriate wildcard. In other words, "`\\paroikos\PSMonitor\Modbus.1`" is a valid path for a data trace, while "`\\. \PSMonitor\Modbus.1`" is not.

You can use wildcards and pattern matching to select a large number of traces from a given Citadel database, however. See the [Pattern Matching](#) section for more information on how to define the data you want copied.



Note As with any other string you use in a Lookout expression, you must use double quotes to delineate what you enter for the **Archive trace matching this pattern** (the `What` data member). If you connect a `TextEntry` object to this data member, however, you need not use double quotes because Lookout inserts them for you when you enter a string through the `TextEntry` object. This is a great advantage if you want to change the traces you archive. On the other hand, if you use the yellow expression field in either the **Create CitadelControl** dialog box or in the **Edit Connections** dialog box, you can browse to find the data you want to archive.

Set the **From** and **To** fields (the `FromWhen` and `ToWhen` data members) to define the time range for the data you want to archive. Setting either field to 0 extends the range to the limits available: a 0 in the **From** field means the `CitadelControl` will archive data from the beginning of the database. A 0 in the **To** field means that the `CitadelControl` will archive data to the most recent data available.

You use **From the database in this folder** (the `FromWhere` data member) to select the Citadel database you are archiving data from. The data will be copied to the database you set in **To the database in this folder** (the `ToWhere` data member). When you set these fields as parameters in the `Create New CitadelControl` dialog box, you can browse your directory structure to select the Citadel directory you want to set as your source or target database.

When this value transitions to true (the `Start` data member) can contain or be connected to a logical value—either a Lookout control or a Lookout expression that evaluates to true or false. You can archive data regularly using a Lookout Pulse object to trigger operation of `CitadelControl`.



Note The `CitadelControl` only archives new data. It does not copy over data it has already archived in the target archive. Additionally, if you cancel archiving for some reason, the data already archived when you activate the `Cancel` data member stays in the archive. The `CitadelControl` will then take up archiving where it left off the next time you start archiving (assuming you have not changed the other settings).

You can set **Delete source data while archiving if this is true** (the `DeleteEnabled` data member) either as a constant or a variable. When this parameter is true, Lookout deletes information from the source database when the `CitadelControl` copies it to the target database.

Archiving Data

The primary use for CitadelControl is for archiving and backing up data.

When you archive data with CitadelControl, it copies data from your source directory to your target directory. Your target and source directories can be on your local computer or on a computer located somewhere else on your network (as long as the remote computer is running the Citadel database).

CitadelControl copies data from the source computer to the target computer. It copies data in *pages*, units of data 4K in size. (Exactly how much data is contained in a given 4K page depends on the type of data and the resolution at which you are logging it.) When CitadelControl copies data, it copies the entire page, including data you may not have requested.

If you have enabled **Delete source data while archiving** (the `DeleteEnabled` data member), and your start or stop point for archiving data is in the middle of a database page, the CitadelControl does not delete the page in order to preserve data that was not covered in the request.

You should archive data to a database that has no Lookout process logging input. This database, having no setting on how long to hold data, will keep your data perpetually. This way, when you archive data from a Citadel database configured to store data for three days to an archive database with no restrictions on how long data is held, the archived data will not be removed after the time configured for it in the original database. It is held with a perpetual lifespan.

If you move data from your archive to a database with restrictions on how long data is to be held, the data will be inserted initially with a perpetual lifespan. As soon as Lookout logs new data with that trace name to the database, however, the lifespan for that data takes effect again and your restored data will be removed if it is older than the limits set in the database configuration of the Lookout process logging that data.



Caution This represents a change of behavior in the Citadel database. Formerly, Citadel was not aggressive in enforcing data age limits, deleting data only at certain times. Citadel now removes over-age data regularly. If you had been depending on loose enforcement of data lifespans in your data backup, you should take the more timely enforcement into consideration.

Additionally, you should be aware that if you log data to your archive database, any lifespan setting on data in the process you are logging from will be enforced in your archive database. For this reason we recommend that you *never* log data directly to an archive database.

You can archive data with identical or similar names from different processes to a single archive without conflict, because the name of the data includes its source process name.

You are not limited in the number of archive databases you create. You can create special purpose report databases as well as permanent archives, depending on your needs.

At this time you can only access data in your archive database in two ways: by using SQL queries or by creating a dummy process with the same name as the process in which the archived data originated. Your dummy process has to have your archive directory set as its default data directory, and should only have a Lookout HyperTrend object in it (in order to prevent accidentally logging to the archive and changing your data lifespans). You can then view the archived data the same way you would through the original process, using a URL with the process name and trace name for the HyperTrend. Notice that you cannot run this dummy process at the same time as the actual data source process, because of the conflict of process names.

You could also restore data to the database in the original process and view it through the original process (as long as the source database is not set to remove data as old as the data you are restoring).

Restoring Data

You can restore data in an active Lookout database with the CitadelControl object. All you need to do is use an archive database as the source and the active database as the target.

Pattern Matching

If you only wanted to archive a single data trace, you could just use the path for that data for **Archive trace matching this pattern** (the `What` data member). For instance, you could use

```
"\\computername\processname\Waveform1.Sinewave"
```

to archive a sine wave being logged from the `Waveform1` object in the server process running on the local computer.

If you wanted to archive all the waveforms being logged from that `Waveform` object, you could use the following for **Archive trace matching this pattern** (the `What` data member).

```
"\\computername\processname\Waveform1.*"
```

To archive all data in the database you are archiving from, you could use the * wildcard. To archive all data from a given process on a specified computer you could enter:

```
"\\computername\processname\*"
```

Notice that the use of the wildcard character in the computer name location will archive data from any other computer running a process with that name and logging it to the Citadel database you specified as a source.

```
"*\processname\*"
```

The Lookout pattern matching feature uses wildcard characters, character lists, or character ranges, in any combination, to match strings.

The following table shows the characters allowed in a pattern and what they match:

Character	Matches in String
?	Any single character.
*	Zero or more characters.
/#	Any single digit (0–9).
[charlist]	Any single character in charlist.
[!charlist]	Any single character not in charlist.

Use a group of one or more characters (charlist) enclosed in brackets ([]) to match any single character in a string. This list can include almost any character code, including digits.



Note To match the special characters left bracket ([), question mark (?), number sign (#), and asterisk (*), you enclose them in brackets. The right bracket (]) cannot be used within a group to match itself, but it can be used outside a group as an individual character.

By using a hyphen (-) to separate the upper and lower bounds of the range, a charlist can specify a range of characters. For example, [A-Z] results in a match if the corresponding character position in string contains any uppercase letters in the range A-Z. Multiple ranges are included within the brackets without delimiters.

Lookout also uses the following pattern matching rules:

- When used outside brackets, the exclamation point matches itself.
- A hyphen (-) can appear either at the beginning (after an exclamation point if one is used) or at the end of charlist to match itself. In any other location, the hyphen is used to identify a range of characters.

- When a range of characters is specified, they must appear in ascending sort order (from lowest to highest). [A-Z] is a valid pattern, but [Z-A] is not.
- The character sequence [] is considered a zero-length string.

CitadelControl Data Members

Data Member	Type	Read	Write	Description
Cancel	logical	yes	yes	Stops the archive operation when this value transitions to TRUE. Data already archived remains in the archive. The next time you start archiving data, the CitadelControl begins where it stopped when Cancel went TRUE (assuming you have not changed the other settings).
Complete	numeric	yes	no	Reports the percentage of the archive operation that has been completed.
DeleteEnabled	logical	yes	yes	When true, CitadelControl deletes the data it is archiving from the source database.
FromWhen	numeric	yes	yes	Sets the beginning time for archiving data. Set this value using ordinary Lookout time notation, such as 01/01/00 13:30:00. Setting this value to 0 archives data all from the beginning of the database to ToWhen limit when the CitadelControl Start data member goes TRUE.
FromWhere	text	yes	yes	Path to the source directory for the database your CitadelControl object is archiving data from.
Start	logical	yes	yes	When this value transitions to TRUE, CitadelControl begins archiving.
ToWhen	numeric	yes	yes	Sets the end time for archiving data. Set this value using ordinary Lookout time notation, such as 01/01/00 13:30:00. Setting this value to 0 archives data up to the current time when the CitadelControl Start data member goes TRUE.

Data Member	Type	Read	Write	Description
ToWhere	text	yes	yes	Path to the target database for your CitadelControl archiving operation.
What	text	yes	yes	The Lookout trace name of the data you want to archive. You can use wildcards and pattern matching to archive multiple traces if you want.

Citadel Logging

This section clarifies how Citadel logs continuous data, and details a change in enforcing data lifespan in Citadel.

How Citadel Logs Continuous Data with a Slow Rate of Change

If you are logging numeric data with a slow rate of change, the way Lookout logs the data is important.

If you are polling a data point with a time interval of t , where t is faster than the change in the data, you might see the following values:

(t_1, X) ; (t_2, X) ; (t_3, X) ; (t_4, X) ; (t_5, X) ; (t_6, Y)

What Citadel will actually have logged in this case is the value X at time t_1 . Citadel then logs the values at times t_2 through t_5 temporarily (in case of system failure). When the change is detected, the value at time t_5 is logged permanently and then the value at time t_6 is logged.

Citadel Data Lifespan Enforcement

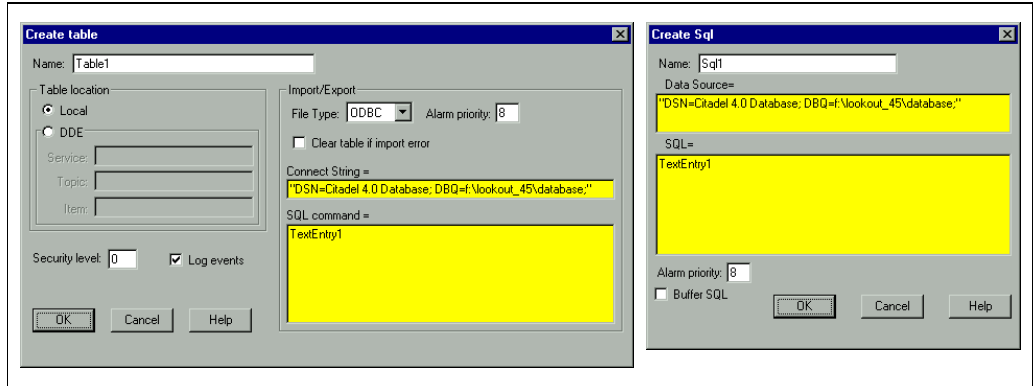
As mentioned in the documentation for the CitadelControl, data is cleared from the database according to its lifespan setting more aggressively than in earlier versions of Lookout. Formerly, Citadel deleted data only at certain times. Citadel now removes over-age data regularly. If you have been depending on loose enforcement of data lifespans in your data backup, you should take the more timely enforcement into consideration.

Using SQL Queries From Microsoft Query in Lookout

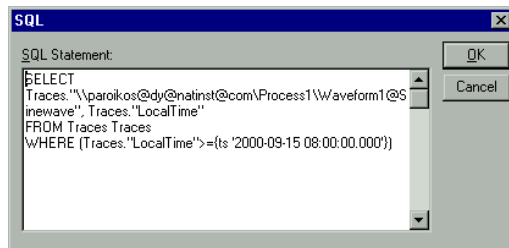
The introduction of multiline TextEntry objects in Lookout 4.5 makes it easier for you to copy an SQL query from Microsoft Query and use it in Lookout. Microsoft Query breaks lines in the SQL statement by embedding newline codes into the query. The new Lookout 4.5 multi-line edit box can handle these embedded newlines where the single-line edit box in earlier versions of Lookout could not.

To cut and paste Microsoft Query generated SQL queries into Lookout, use the following procedure:

1. Before you create a DataTable or SQLExec object, create a TextEntry object.
2. Create a DataTable object or SQLExec, set the **Connect String** or **Data Source** to point to your data source and set the SQL Command to the name of your TextEntry object.

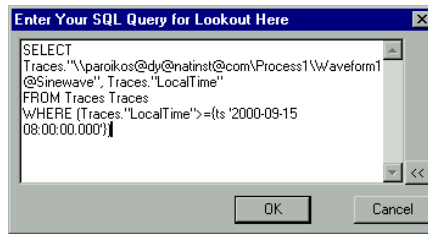


3. Build your query in Microsoft Query. The following illustration shows a query created in Microsoft Query.



4. Copy the SQL statement.

- In Lookout run mode, click on the TextEntry object, click on the » button to make the edit box multi-line, paste the SQL statement into it, then click on **OK**.



Your SQL query will now work for you in Lookout without your having to insert double quotes to denote special characters.

Mailer Object Parameters

The Mailer object class parameters were not available for listing in Appendix A, *Object Class Parameters*, of the *Lookout Object Reference Manual* PDF. The following table documents the parameters, listed in order, for the Lookout Mailer object class.

Parameter	Name	Type	Description
1	Buffer unsent messages	LogCnst	Enter yes to buffer unsent messages, no to disable buffering
2	Retry Attempts	NumCnst	Number of times Lookout will attempt to sent your message; enter an integer (such as 5)
3	Retry delay	NumCnst	Time in minutes between each attempt Lookout makes to send your message; enter an integer (such as 15)
4	SMTP server	TxtCnst	Name of your SMTP server; enter a string (such as "PO1")
5	Timeout	NumCnst	How long in seconds Lookout waits for your mail to be sent successfully. Sending mail successfully involves a number of operations, so make sure you choose a long enough time. Enter an integer (such as 10)
6	Alarm priority	NumCnst	Alarm level 1–10

Parameter	Name	Type	Description
7	Generate event on successful send	LogCnst	To report that your messages was sent successfully, set to yes; otherwise set to no
8	Word wrap message	LogCnst	To wrap your message at 70 characters, set to yes; otherwise set to no

Alarm Filter Options

The **Ack User Name** and **Ack Comment** options have been removed from the Lookout Alarm Filter.

Multi-line Text Changes

In previous versions of Lookout you could not embed line returns in text strings you entered using a TextEntry object or in a Lookout expression. The multi-line capability in Lookout 4.5 makes this possible. You must remember, however, that carriage returns can interfere in certain parsing operations, so be careful how you use them.

Using Lookout as an OPC Server

Lookout functions as an OPC server, and is compliant with the OPC 2.0 specification. OPC items in Lookout take standard Lookout data names, including the computer name and process name elements of the path.

Known Issues

The following known issues exist for Lookout 4.5.

Lookout Control Sources and Refresh Value Operations

Under some circumstances, a bug in an early version of Lookout 4.0 resulted in certain unpredictable or incorrect behaviors with respect to remote source URL connections. Additionally, the circumstances in which Lookout refreshed a value were not previously documented. This section describes the corrected behavior in Lookout 4.0.1 and greater.

Lookout has two basic connections: URL connections for remote source of a control, and direct connections, made with the Edit Connections dialog box for local source controls.

A Lookout control using a remote source URL connection to a PLC or object takes its value from that PLC or object, so you can think of the PLC

or object as "owning" the value. If the PLC or object changes, the control with the remote source connection changes to reflect the new value or status. When the remote connection is made to field hardware, Lookout refreshes the control's value when the driver polls the hardware.

If you operate a Lookout control with a remote source connection, and the PLC register it is connected to cannot or does not change when Lookout writes the new value out to the PLC, the control changes back to display the actual PLC register value or status. (The time this takes depends on data transmission time between your Lookout computer and the field hardware. See the discussion of the `snapDelay` data member for the Switch object in the Lookout Help or the *Lookout Object Reference Manual PDF* file for further information.)

A Lookout control with a local source and a direct connection (made through the Edit Connections dialog box) "owns" the value held by the control. The control value will not change if something acts to alter the value or status of the PLC or object it is connected to, and Lookout will restore the control's value to the PLC or object in the following circumstances:

- When the driver object is modified
- When the process is reloaded
- After communication is restored after a communications failure
- After 100 polls in some cases (this varies from driver to driver and may depend on INI settings)
- Any time I/O reconfigures (meaning any time you add or remove a read or a write to a driver)

Notice that these rules apply to Lookout client and server connections. Clients should use remote source URL connections to objects in a Lookout server, so that the server process will "own" the values, at least relative to the client (even though the server process may itself use a remote source URL connection to field hardware).

The bug fix for this problem involves both Lookout and the individual driver object CBX files. While Lookout and the most frequently used driver object classes have been fixed, the following drivers still need this fix incorporated.

AdvantechPCL	ASCII	Cutler-Hammer
DeltaTau	Dynamic	FisherROC
Hitachi	IPASCII	Philips
Phoneducer	ProfibusDP	ProfibusL2

RKC F series	Reliance	S53964
Sixnet	Wizdom	
<i>Special Cases:</i>	Aquatrol	DeviceNet

There are two Lookout drivers which cannot support remote source connections because the underlying protocols themselves do not allow this sort of connection. These are the Aquatrol and the DeviceNet drivers. The DeviceNet Explicit Messaging driver does, however, support remote source connections, and the current DeviceNet Explicit Messaging driver does work properly with this type connection.

Check the Lookout download site at

<ftp://ftp.ni.com/support/lookout/Lookout4fixes/>

for new versions of these CBXs, which will be posted as soon the fix is implemented in each.

Security File Compatibility

Lookout security files are backward but not forward compatible. In other words, if you edit or import a `lookout.sec` or a `Lookout.lka` file from an earlier version of Lookout with Lookout 4.5 it will work properly. You will not be able to use any converted files with the earlier versions of Lookout, however.

Connection Browser Open with No Processes Visible

Occasionally the Connection Browser may open with no processes visible in the window. Close the Connection Browser and then reopen it. This will usually clear the problem. If for some reason it does not, close the Connection Browser again and make sure you select a process in your Object Explorer before reopening the Connection Browser.

Exporting a Web Client

You can only export a web client process that is in the `Lookout` directory; the `.l4p`, `.lks`, and `.l4t` files must be in your `Lookout` directory when you export the client.

Roadmap for Experienced Users of Lookout

This section tells where you can find more detailed information on the new features and functionality of Lookout 4.5.

You can find information on using the new Lookout objects in the *Lookout Object Reference Manual*, distributed as a PDF file installed in the Documentation folder of your Lookout directory during installation (*ObjectRef.pdf*), and also in the Lookout Windows Help system. Look there for information on the Aggregate, ActiveX, Report, DataSocket, Mouse, and Joystick object classes. You will also find information on the new drivers in these locations as well.

Lookout installs ten ActiveX controls from National Instruments ComponentWorks. Learn more about these controls through their own online help, which you can access through each control's property pages.

Detailed information on the new Image Navigator graphics is available in the *Image Navigator* section of Chapter 2, *Graphics*, of the *Lookout Developer's Manual*, as well as in the Image Navigator online help.

Using the convenient new list server and auto-detection features for registering computers is described in the *List Servers and Auto-Detection* section of Chapter 4, *Networking*, of the *Lookout Developer's Manual*, and in the Lookout online help. Access this new set of capabilities by selecting **Options»Network** in Lookout.

The usability enhancements for Lookout may best be explored by using them. Right-click on objects in the Object Explorer and you will find that you can now cut, copy, and paste objects. You can also open both the Edit Connections and Edit Database box by right-clicking on an object or even on a data member in the Object Explorer, and find the box opening to your selected object or data member. For a more formal explanation of these enhancements, consult the *Object Explorer* section of Chapter 3, *Lookout Basics: Windows, Tools, and Files* in the *Getting Started With Lookout* manual.

In the Connection Browser you will notice that you can now see the data values being passed between Lookout connections. For more information on the Connection Browser, see the *Connection Browser* section of Chapter 3, *Lookout Basics: Windows, Tools, and Files* in the *Getting Started With Lookout* manual.

Notice that the Lookout User Manager has been renamed the National Instruments User Manager. This is because the permissions based network security of Lookout is being integrated with other National Instruments

products, such as the LabVIEW Datalogging and Supervisory Control module. The User Manager functions the same way it did in Lookout 4.0.

Object class parameters are now documented in order of their appearance in the Connection Browser and a Lookout `.lks` file. This documentation is necessary for using the Aggregate Object introduced in Lookout 4.5. You can find this documentation in Appendix A, *Object Class Parameters*, of the *Lookout Object Reference Manual*, which is installed as a PDF file in your Lookout `Documentation` directory.

Compatibility and Conversion with Lookout 4.5

To open Lookout 4.0 processes in Lookout 4.5, open the `.lks` file instead of the `.l4p` file when you load a process. As soon as the process opens, save it to update the `.l4p` file.

If you are upgrading from Lookout version 3.8, you should be able to open all your processes in Lookout 4.5 with little or no difficulty. Some minor adjustments may have to be made in some processes, and you will have to change redundancy using backup computers. This section covers compatibility and conversion issues for those upgrading from version 3.8 of Lookout.

Lookout 3.8 and Lookout 4.5 Compatibility

The following list contains known compatibility issues and fixes for Lookout 4.5:

- Lookout 4.5 does not run on Windows NT version 3.51 or earlier—you must be using Windows NT 4.0 or later.
- Earlier versions of Lookout process files used the file extension `.l4p`, and state files used the extension `.l4st`. Lookout now uses the `.l4p` extension for process files and `.l4t` for state files.

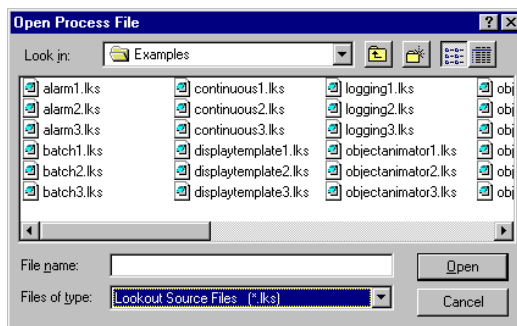
If you want to run your old 3.8 processes on a 3.8 version, save backups of the files. Otherwise, recompiling a 3.8 process in Lookout 4 or greater will create (if you save) new `.lks`, `.l4p`, and `.l4t` files. Lookout also creates new security files using the extension `.lka`.

- Avoid installing Lookout 4.5 over Lookout 3.x.xx. Either uninstall your previous version of Lookout, or put Lookout 4.5 in a new directory, transferring or copying files for conversion.
- Lookout 3.x.xx can run on the same computer with Lookout 4.5, and a process in one can be networked to a process in the other using DDE. If you intend to run both versions at one time, start the earlier version of Lookout first.

- Lookout 3.8 Citadel files cannot be used by Lookout 4.5. You should maintain old Citadel files separately from Lookout 4.5 database files.
- Events are now stored with alarms and process data in the Citadel database.
- The default location for data logged with the Spreadsheet object is the Lookout directory. The Lookout directory is also the default for any spreadsheet files you might export from the DataTable object or .csv (comma separated value) files you might create with the **Print Alarms** dialog box. If you do not want these files to be created in the Lookout directory, enter a complete path (including file name) for the location where you want the file created.

Converting Lookout 3.8 Processes to Lookout 4.5

To load a Lookout 3.8 process file in Lookout 4.5, select **File»Open** and set the **Files of type** to Lookout Source Files (*.lks).



Select the file you want to convert and click on the **Open** button (or double-click on the file name). Lookout uses the built-in CBL compiler to recompile the 3.8 source file into a Lookout 4.5 process file.

Converting 3.8 files may require the following adjustments:

- Lookout 3.8 versions of the Pot, Switch, Pushbutton, and TextEntry objects that are remoted convert as L3Pot, L3Switch, and so on, and continue to function as they formerly did. You cannot create new 3.8 objects like these through Lookout 4.5.

Because remote position source connections have changed in response to the demands of networking, you may find you want to replace L3 versions of these controls with the new Lookout 4.5 versions, especially if you want these controls to operate over a network. Delete the old controls and replace them with new controls using the same names. The Connection Browser and Object Explorer can help you track all the connections that may need to be re-established if you decide to make these replacements.

- ODBC/SQL limitations: With the introduction of networking and hierarchical arrangement of objects within processes, it is easy to exceed the 62 character limit that exists in Microsoft Access and Microsoft Query. Even fully-compliant ODBC programs are limited to 126 characters, so some consideration of these limitations when assigning computer, process, and object names is necessary, if you intend to use SQL queries.
- The old LKSwap CBX no longer works. If you used this special object class from the old Lookout Evaluation Guide, you will have to replace it with the Lookout Loader object, which is more flexible and powerful than the old LKSwap object. Remember too that Lookout 4.5 can run multiple processes, so it is not necessary to shut one process down before running another.
- Fonts are preserved when converting Lookout 3.8 process files to 4.5 using the .lks file, but font code page information is lost. This appears to mostly affect international users whose languages use a different code page than the US code page.
- The \$Alarm object syntax in an .lks file has changed. The full URL for a \$Alarm object will be as follows:

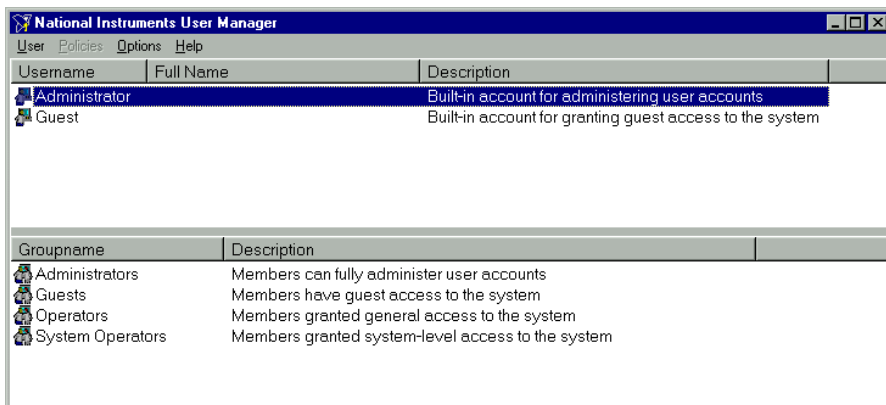
```
\\machine\process\$Alarm
```
- Your custom built Lookout 3.8 CBXs should run in Lookout 4.5, as long as they were developed using the Lookout Object Developer Toolkit. If you have problems with a custom CBX, contact National Instruments technical support for help in resolving the problem.
- The Lookout HyperTrend object now accesses data through a URL connection. The data source for that connection must be logged to the Citadel database for the HyperTrend to display the data.
- When you convert a process with a Lookout 3.xx HyperTrend in it, Lookout automatically creates a named expression to make the URL connection to. Lookout automatically logs this named expression to the Citadel database. To maintain your converted HyperTrend objects, you must use or replace these named expressions.
- If you have Lookout 3.8 processes that use the NIDAQ or NISCXI objects, and you have a version 6.5.1 or earlier of NI-DAQ installed on your computer, you must upgrade to NI-DAQ 6.5.2 or better to use Lookout 4.5. You can download the current version of NI-DAQ software from the National Instruments web site, at ni.com.

If your Lookout process will be running on the same computer as your National Instruments Data Acquisition or SCXI hardware, we recommend that you edit your process to use the OPCClient object to connect to NI-DAQ, for performance reasons.

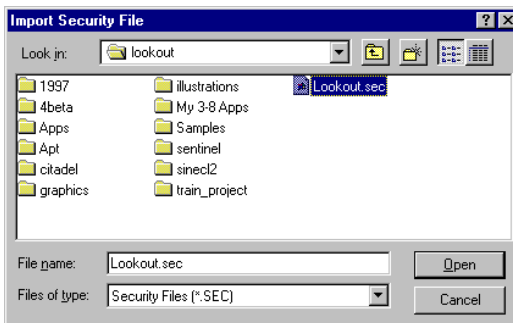
Importing Old Security Files into Lookout

You can import the user account information from your Lookout 3.8 processes into Lookout 4.5 using the National Instruments User Manager. (Importing is not necessary if you are upgrading from Lookout 4.0 to Lookout 4.5; Lookout converts the file automatically when you open it with the User Manager.)

1. Select **Options»User Manager** from the Lookout menu. You must be in edit mode for the User Manager item to appear in the **Options** menu. The **User Manager** dialog box appears.



2. Select **User»Import Security File** from the **User Manager** dialog box. The following dialog box appears.



3. Navigate to your old Lookout 3.8 security file `Lookout . sec`, and select it. Lookout 3.8 kept the `Lookout . sec` security file in the Lookout directory.
4. Click on the **Open** button.

5. If you have already created any user accounts in Lookout 4.5 that are the same as accounts you used in Lookout 3.8, you will receive a message informing you that a user account with that name already exists. You may replace your recently created account, or choose not to use the old account information.
6. Exit the User Manager.



Note Unlike Lookout 3.8, Lookout 4.5 maintains the `Lookout.sec` security file in the `Windows System` directory.

The User Manager creates a unique identification number for each user account. This means that to maintain identical accounts, you must use the same `Lookout.sec` file for each copy of Lookout running on your network. Copy your `Lookout.sec` file to the `Windows System` directory in every computer you intend to run Lookout on.