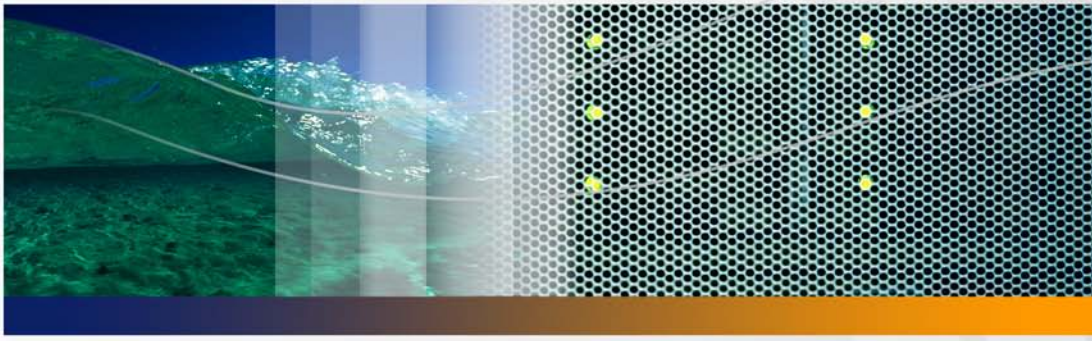
Product Documentation

Peregrine Systems, Inc.

Network Discovery® 5.2.3



Data Export Guide

Part No. DPND-523-EN13

Peregrine SYSTEMS

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1 About Exporting Data

CHAPTER

This book is for people who want to create custom reports of Network Discovery data.

Note that Network Discovery also has reports you can access from within its own interface (see the Reports menu by clicking the Reports button on the Toolbar).

Topics in this chapter include:

- What you need to know before you start on page 5
- About the Network Discovery database on page 6

What you need to know before you start

There are some skills you should have before attempting to follow the procedures in this book.

For Microsoft Word

To export data into a Microsoft Word document, you should already:

- be comfortable with the environment in which you are working (Windows 95/98/2000/NT4.0)
- have a high level of expertise with Microsoft Word 97 or 2000

For data access applications

To create custom reports with your own data access application, you should already be comfortable with:

- the environment in which you will be working (Windows 95/98/2000/NT/XP or UNIX)
- Microsoft Access 2000
- the Open Database Connectivity Standard (ODBC)
- the reporting application you want to use

About the Network Discovery database

The schema of the database is optimized for reporting performance and human understandability rather than for real-time access and statistic storage. In particular, the tables and columns are clearly named and the schema is fully normalized.

The database includes inventories of:

- devices
- ports
- attributes
- connections
- events

Open database access

The Reports database is open. That means the schema is published in standard description languages and you can access and export the data in a number of ways by means of standard protocols.

The schema of the reports database is described using English, SQL and XML DTDs. All descriptions are available from the appliance.

The data can be accessed directly on the appliance (queries only, no updates) through the ODBC protocol. MySQL provides an ODBC driver for Windows. The ODBC driver is available on the appliance, in the Download directory.

Using this driver, Windows-based applications can remotely access the Reports database.

Creating your own reports

There are three ways to use Network Discovery data.

1. Network Discovery has its own reports accessible through the Network Discovery interface.

2. You can export Network Discovery data into Comma Separated Values (CSV) or into XML format for use with Microsoft Word documents or spreadsheets (see "Exporting Data into Microsoft Word Documents on page 9").

3. A third option is to export Network Discovery data into a data access application that operates on the Open Database Connectivity (ODBC) standard. You can use a third-party data access application to customize the presentation of Network Discovery data, if your application operates on the ODBC standard. ODBC applications into which you can export Network Discovery data comprise (but are not limited to):

   a. Microsoft Access

   b. Crystal

   c. Cognos Impromptu

   d. PowerPlay OLAP tool

Note: The data imported into the data access application is read-only. You cannot manipulate Network Discovery or your network from within the application.

CHAPTER 2 Exporting Data into Microsoft Word Documents

You can create custom Microsoft Word report documents with any text you want and include any graphs and pie charts that appear in Network Discovery. Because the graphs are actually linked to the Network Discovery appliance, they update automatically.

Topics in this chapter include:

- What you need before you start on page 9
- Two Word files are included with Network Discovery on page 11
- Download the Word files on page 12
- The example file is a report you can customize on page 14
- Start a report from scratch with the template file on page 16
- Update the graphs in your report on page 18

What you need before you start

You must have either Word 97, Word 2000, or Word 2003 on one of the following operating systems:

- Windows 95
- Windows 98
- Windows 2000
- Windows NT 4.0

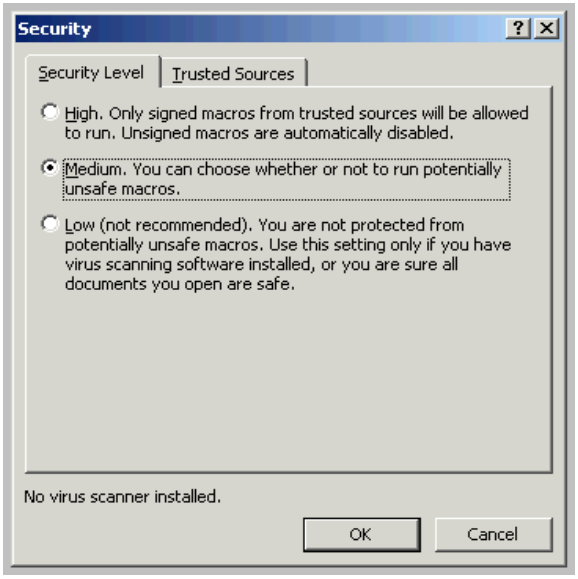
Note: You must have Internet Explorer (IE) on the computer you're working with. Even if you do not use IE with Network Discovery, you must have it loaded onto your management workstation for the Word file to work properly.

You must enable macros in Word.

To enable macros

1 For example, in Word 2000, click **Tools** > **Macro** > **Security**.

2 In the **Security Level** tab, select one of the following security levels to enable macro execution: **Medium** or **Low.**



Two Word files are included with Network Discovery

Microsoft Word can import diagrams from URLs. Since most of the components of Network Discovery are web-based, they have URLs that Microsoft Word can reference. See your Microsoft Word documentation for a full explanation of how to create and manipulate a document with URL references.

To make it easier to prepare your Word report, Network Discovery comes with two documents for Microsoft Word that you can download.

The two files are:

- SumRepExample.doc, a sample Microsoft Word file
- SumRepTemplate.dot, a Microsoft Word template file

The first document is an example report framework for the intermediate Microsoft Word user. To use it, you use the Microsoft **Cut** and **Paste** commands to rearrange the built-in graphs. The second document, the template, is for an advanced Microsoft Word user who is comfortable with Word field codes and macro substitution.

Each document contains links to graphs on your Peregrine appliance. Once you customize the report with the name of your Peregrine appliance, you can easily update the graphs—to present at weekly meetings for example.

Note: To use the SumRepExample.doc report framework, you must download both files. You need the template file to be able to update the example file.

Download the Word files

Important: When you download the two Word files, you must save them both to your Microsoft Word template directory.

To download the example file

1 From the Network Discovery Home page, click **Download.**

2 Right-click **SumRepExample.doc** > **Save Target As**.

Save the file to your Microsoft Word template directory (in Word 2000, the path is C:\Program Files\Microsoft Office\Templates\1033).

Filename	Size	Description
agent.exe	972.27 kilobytes	Listener agent for Windows
deltascan.pl	3.72 kilobytes	Sample script to automate delta scans
DI-ND.reg	475 bytes	Registry entry to Enable Network Discovery Awareness features in Desktop Inventory
j2re-1_4_2_03-windows-i586-p.exe	14.52 megabytes	Java Runtime Engine for Windows
manager.exe	972.27 kilobytes	Windows console for QuickDeploy
MyODBC-3.51.06.exe	731.18 kilobytes	MySQL ODBC driver for MS Windows
MyODBC-3.51.06.tar.gz	314.51 kilobytes	MySQL ODBC driver source code
PeregrineTrapMIB.txt	10.39 kilobytes	Peregrine MIB for SNMP Trap notifications
SumRepExample.doc	67.50 kilobytes	Document to create MS Word based reports
SumRepTemplate.dot	104.00 kilobytes	Template to create MS Word based reports

Remember you also need the template file to use the example file.

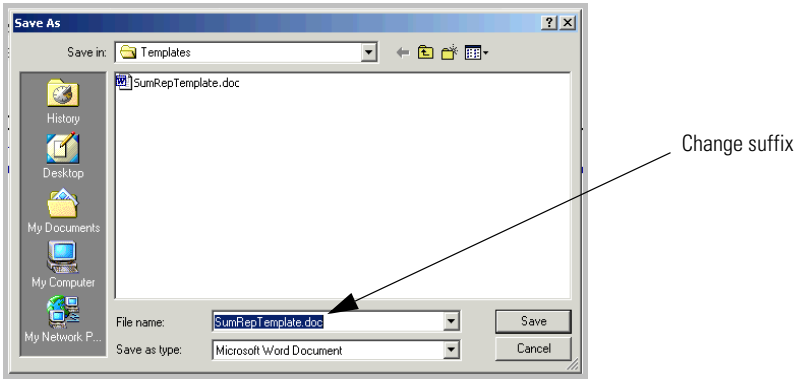
To download the template file

You can use the template file either on its own or with the example file.

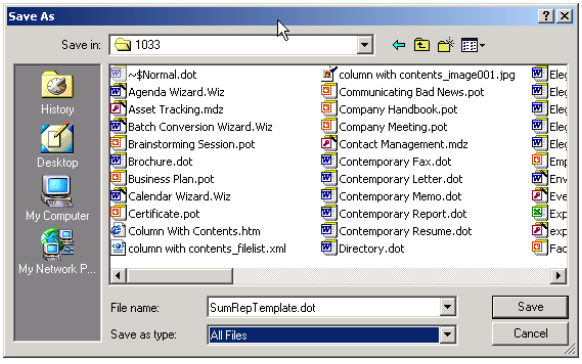
1 In Network Discovery, click **Home** > **Download.**

2 Right-click **SumRepTemplate.dot** > **Save Target As**. Save the template file in your local Word template directory. If you don't know where this directory is on your PC, see your Microsoft documentation.

Important: Before you save the file, change the file name suffix from .doc to .dot



In this example (see figure below), the path for saving the file is C:\Program Files\Microsoft Office\Templates\1033. This is using Microsoft Word 2000 on Windows NT 4.0.



In Word XP, the directory is C:\Documents and Settings\Application Data\Microsoft\Templates.

Your template directory may be in a different location, so refer to your Microsoft documentation.

3 Click **Save**.

The example file is a report you can customize

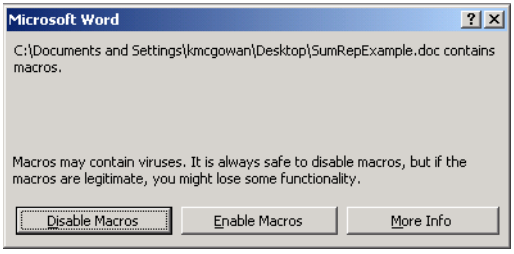
The example file includes all the graphical reports available on your Peregrine appliance. You can use the example report to create your own reports by deleting what you do not need, and by adding your own descriptive text.

To work with the Example file

1 In Microsoft Word, click **File** > **Open**.

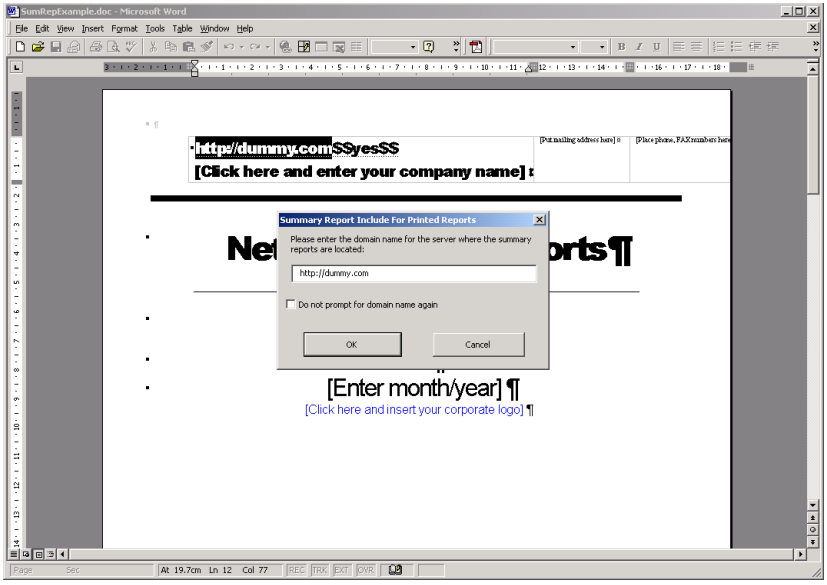
2 Select the file SumRepExample.doc.

A dialog asks if you want to enable macros.



3 Click **Enable Macros**.

A dialog box appears, called "Summary Report Include for Printed Reports." The dialog allows you to connect to your Peregrine appliance to import the Network Discovery graphs.



4 Enter the IPv4 address or domain name for your Peregrine appliance.

5 Click **OK**.

A dialog asks if you want to continue searching at the beginning.

6 Click **Yes**.

You are prompted for your user name and password for the appliance.

7 Enter your name and password.

Four more dialogs appear, asking if you want to search the document.

8 Click **Yes** to all of the dialogs.

The Word document is now full of graphs from your appliance. Use Word's Cut and Paste commands to make the example file your own report.

Start a report from scratch with the template file

The template file allows you to create a report from scratch rather than cutting and pasting within a prepared document as you can do with the example file. It is for expert Microsoft Word users. You should be comfortable with Word field codes and macro substitution.

To start a new Word report file

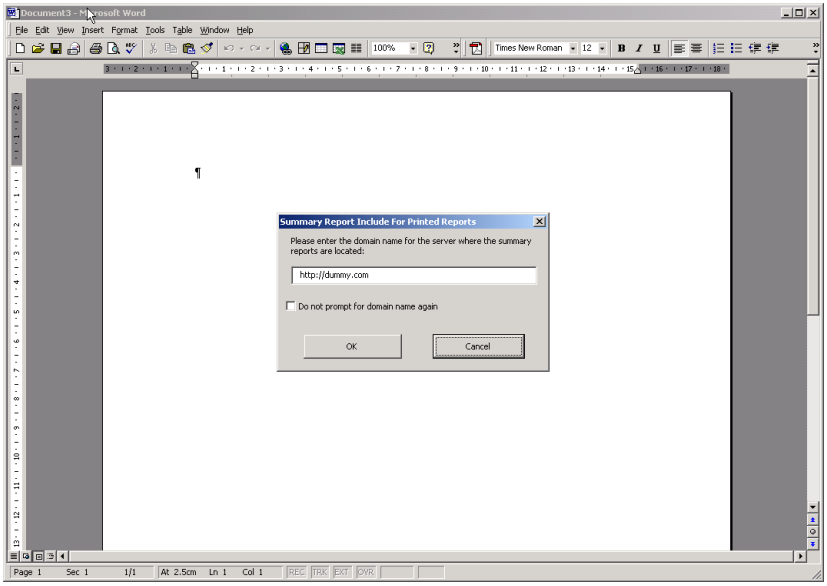
1 Open Word.

2 Click **File** > **Open**.

3 Select the file **sumreptemplate.dot**.

4 Click **Open**.

A dialog box, called “Summary Report Include for Printed Reports”, appears.



5 Enter the URI or domain name for your Peregrine appliance.

6 Click **Save**.

You can now create your document from scratch.

You can use shortcuts to include graphs automatically

Instead of typing the exact URI for the graph stored on your appliance, you type a shortcut that translates automatically into the exact URI that INCLUDEPICTURE requires. The shortcut takes this form:

```
?graph(group,attr,stat,period,legend)?
```

Spaces are permitted between each element, but not within elements.

Once you have typed the shortcut into the template, you run a pre-recorded macro to translate the shortcut into a field code that loads a fresh graph right from the Network Discovery appliance.

Note: The available shortcuts and what graphs they map to are in the original example file.

From the Word example report:

This chapter provides statistics on network performance over various time periods. Graphs are included using the INCLUDEPICTURE field code. You insert a field code by selecting the Insert-Field... menu item. Under the Links and References category, pick INCLUDEPICTURE. After the INCLUDEPICTURE keyword, insert the URL for the graph you wish to include (make sure the URL is enclosed between double quotes). The required URLs are noted with every graph illustrated here.

To translate a shortcut:

1 Select the shortcut.

2 Do one of the following:

   a Click **Tools** > **Macro** > **Macros**.

   b Press **Alt** + **F8**.

Update the graphs in your report

To update the graphs

1 In your Word report, click **Tools** > **Macro** > **Macros**.

   (The shortcut is **Alt** + **F8**.)

2 Select **SumRepUpdate**.

3 Click **Run**.

   A dialog asks you to confirm the name of the server you want the data to update from (the domain name of the Peregrine appliance).

4 Click **Yes**.

You are prompted for your user name and password for the appliance.

5 Enter your name and password.

Four more dialogs appear, asking if you want to continue searching at the beginning.

6 Click **Yes** to all of the dialogs.

The graphs in your report have updated.

7 Select the "SumRepUpdate" macro, then click **Run**.

When you open a document created with the template, the graphs update automatically.

To update one graph at a time

1 Select the graph in your Word file.

2 Press F9 on your keyboard.

The graph should update automatically.

Note: When the graph updates, it may shrink. You will need to manually fix the graphic.

CHAPTER 3 Exporting Data into Data Access Applications

This chapter contains a tutorial that walks you through a simple example of how to connect to the Network Discovery database from Microsoft Access 2000 by means of ODBC; how to link in the tables and perform two basic queries.

Topics in this chapter include:

- Step 1: Set up Network Discovery to export data on page 22
- Step 2: Putting data into CSV format first works better on page 22
- Step 3: Select MYSQL as the data source (create an ODBC alias) on page 23
- Step 4: Create a new database in Microsoft Access 2000 on page 27
- Step 5: Link in the Network Discovery tables on page 28
- Step 6: Create a basic license query on page 32
- Step 7: Create a basic assets and recognition query on page 36

Step 1: Set up Network Discovery to export data

To set up Network Discovery to export data

1 In Network Discovery, click **Administration** > **System Preferences** > **Appliance Services**.

2 Next to **MySQL access enabled**, click **Yes**.

Note: Remote access to the MySQL database must also be granted to at least one account.

3 Click **Administration** > **Account administration** > **Account Capabilities**.

4 Select the account that should have MySQL access.

5 Click **Modify Capabilities**.

6 Select **Yes** for MySQL ODBC.

7 Click **Modify Capabilities**.

Step 2: Putting data into CSV format first works better

Putting Network Discovery data into "comma-separated values" (CSV) format first, allows you to export it into a Microsoft Word document or into a spreadsheet more successfully.

To export Reports data into CSV format

1 In Network Discovery click on the [Export] link in a Report list.

A dialog box asks if you want to export the data to a file, or open the file from the Peregrine appliance.

2 Select **Export**.

3 Click **OK**.

If you select **Open the file from its current location**, the data is displayed in a spreadsheet using the default program designated by your system to display CSV files, such as Microsoft Excel.

If you select **Save this file to disk**, follow the prompts to save the CSV file for opening later.

Step 3: Select MYSQL as the data source (create an ODBC alias)

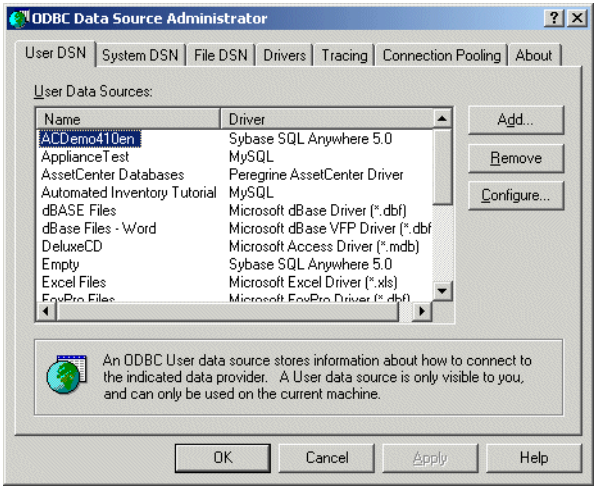
Before you can use the Network Discovery data with Microsoft Access 2000 you need to create an ODBC alias for the database.

To set up MySQL as the data source

1 From the Windows **Control Panel**, select **Data Sources (ODBC)**.

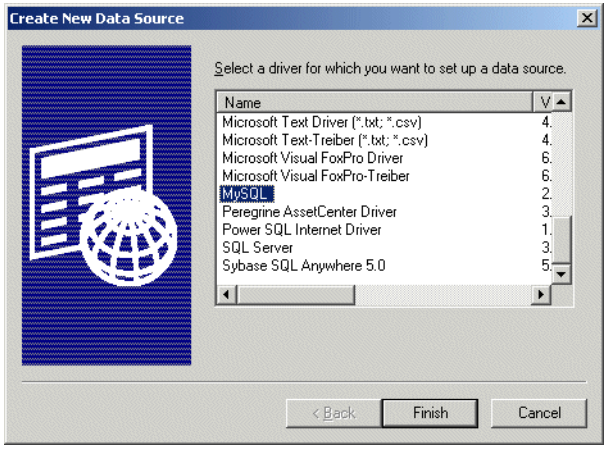
Note: In Windows 2000, select **Setting|Control Panel|Administrative Tools|Data Sources (ODBC)**

The **ODBC Data Source Administrator** appears.



2 In the **User DSN** tab, click **Add.**

The **Create New Data Source** dialog appears.



3 In the list box select **MySQL**.

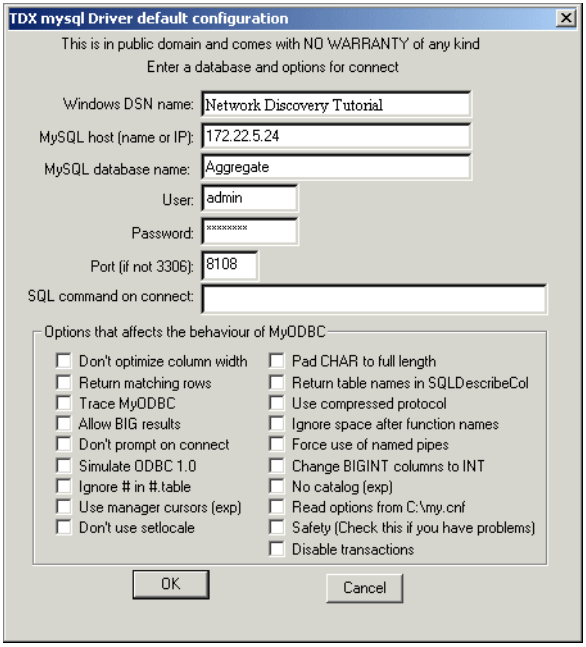
4 If your computer does not already have a MySQL driver, you can do one of two things:

   a Go to http://www.mysql.com. Follow the directions on the web site to download the ODBC driver.

   b Download the MYSQL driver from the appliance. From the Home page, click **Download**. On the **Download** page click the **MyODBC-Windows-3.51.06.tar.gz** link.

5 Click **Finish**.

   The **TDX MySQL Driver default configuration** dialog appears.



6 Enter the following information:

- The Windows DSN name (Data Source Name). In the following example we have called it **Network Discovery Tutorial**.

- The name or IP address of the Peregrine appliance.
  (Ask your network administrator if you are not sure of the IP address or name of your appliance).
- In the MYSQL database name field, enter the name of the database. Enter **Aggregate**.

7 For the name of the user, enter one of the following:

- "demo" for anyone
- "admin" for anyone who has the administrator password or
- the account name of anyone who has been set up with a user account

8 Enter the password for the above user.

9 For the number of the port, always enter **8108**.

10 Once you have entered these fields, click **OK**.

Now you are returned to the **UserDSN** tab in the **ODBC Data Source Administrator** dialog box.

11 Click **OK** to exit.

You are now ready to connect to the Network Discovery database with applications such as MS Access 2000 by means of ODBC.

Step 4: Create a new database in Microsoft Access 2000

To create a new database

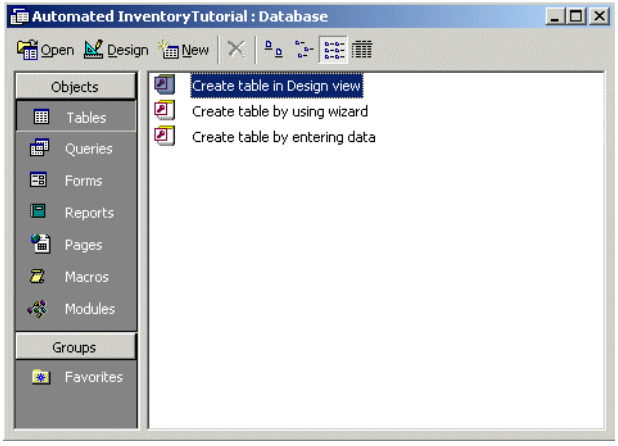
1 Start Microsoft Access 2000.

2 Create a new blank database. Give it a name and save it.

The following screen is displayed. In this example, the database has been named **Automated InventoryTutorial.mdb** and saved in the following directory

```
C:\Program Files\Peregrine\Network Discovery\
```

The following dialog is displayed.

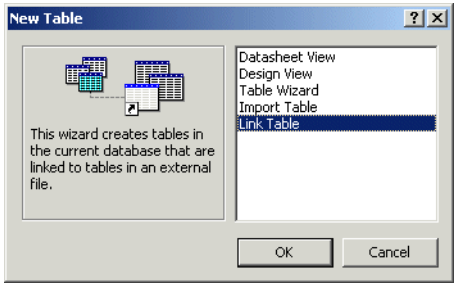


Step 5: Link in the Network Discovery tables

To link in the Network Discovery tables

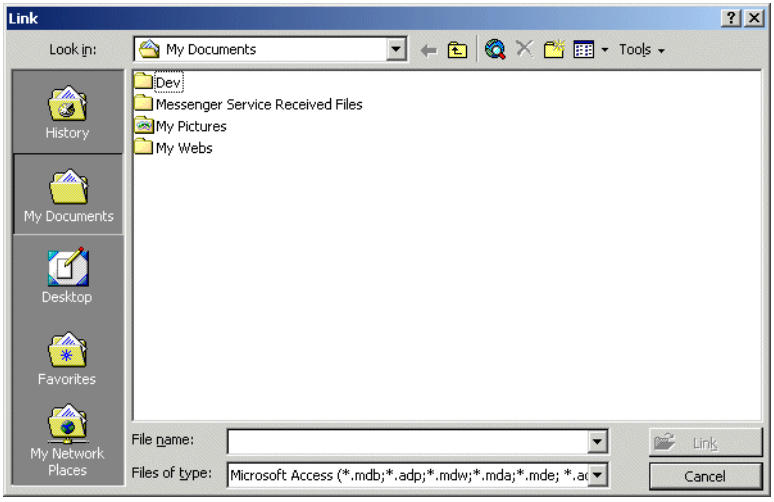
1 In the Objects menu, select **Tables** and click **New**.

The following dialog appears.



2 Select **Link Table** and click **OK**.

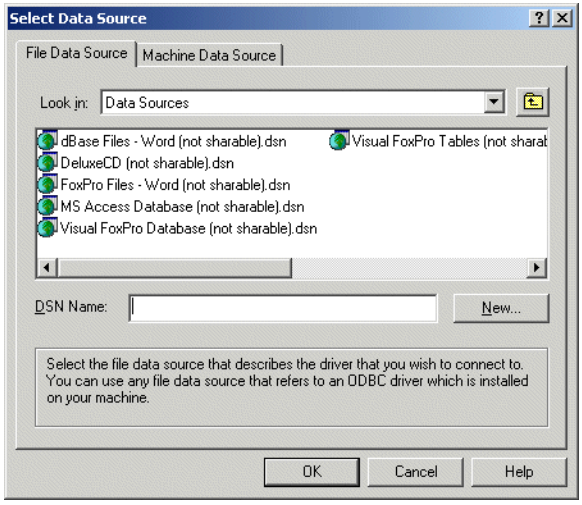
The following screen appears.



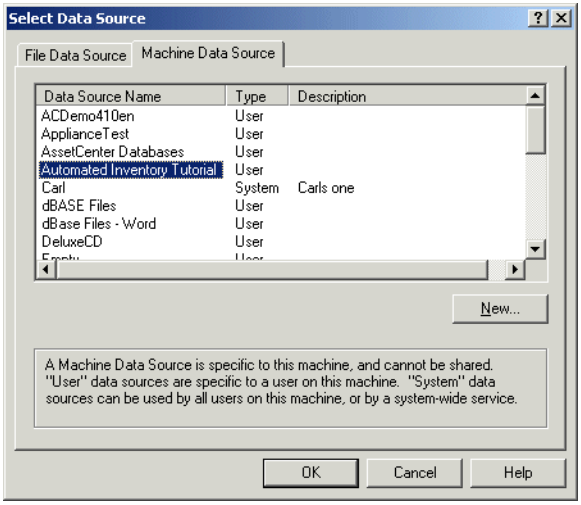
3 In the **Files of type** pull-down list select **ODBC Databases**.

The following dialog appears.

Note: The **Automated InventoryTutorial.mdb** file is not supplied with Network Discovery, but is the file that you created in Step 2 on page 27.



4 Click the **Machine Data Source** tab.

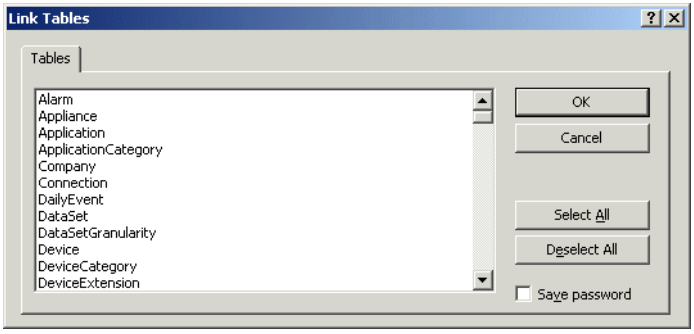


5 Select your entry (in this case **Automated Inventory Tutorial**) and click **OK**.

The **Logon to InterBase** dialog appears.

Note: Note, that this is the Tutorial data source name that you created in Step 6 on page 25.

The following **Link Tables** dialog is displayed.

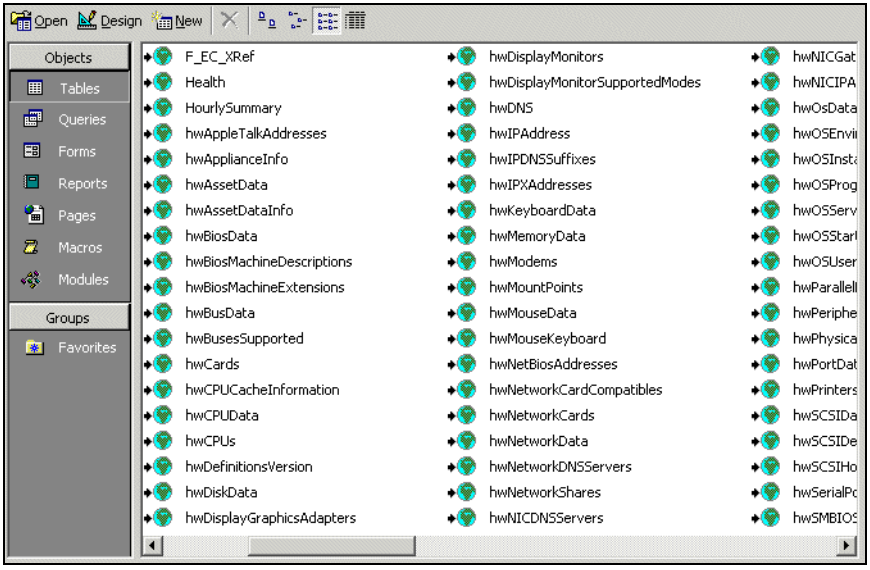


6 Click **Select All**.

All the entries are now highlighted.

7 Click **OK**.

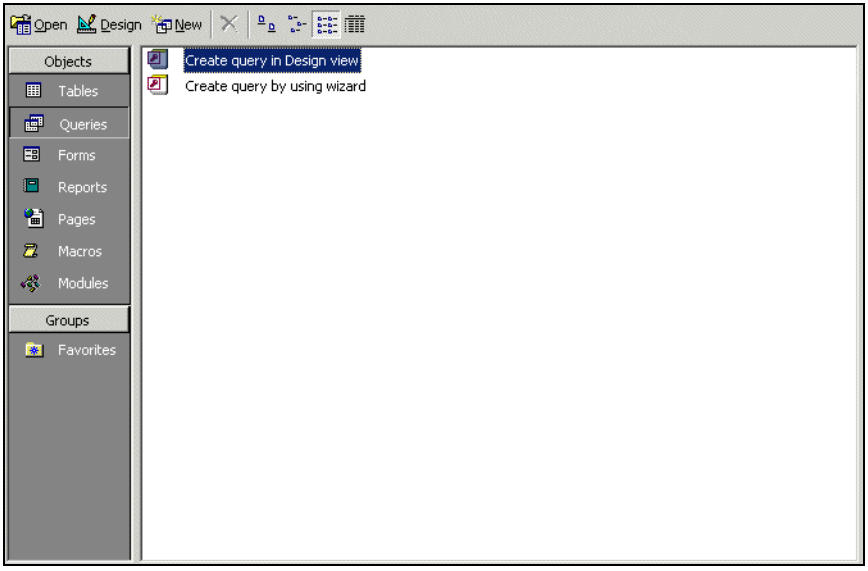
You are returned to the **Tables** Tab which shows the newly linked Network Discovery tables.



Step 6: Create a basic license query

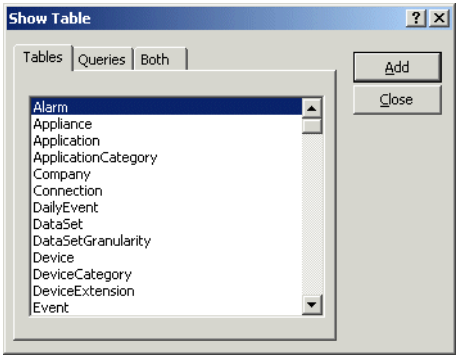
To create a basic license query

1 From the **Objects** list, select **Queries**.



2 Double click **Create query in Design view**.

The **Show Table** dialog appears.

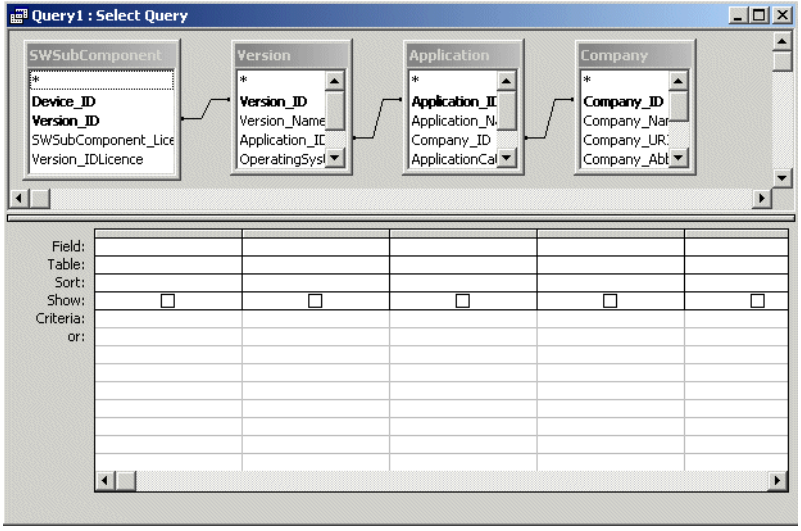


3 In the **Tables** tab page, select:

- SWSubComponent
- Version
- Application
- Company

4 With the table selected, click **Add**, then **Close**.

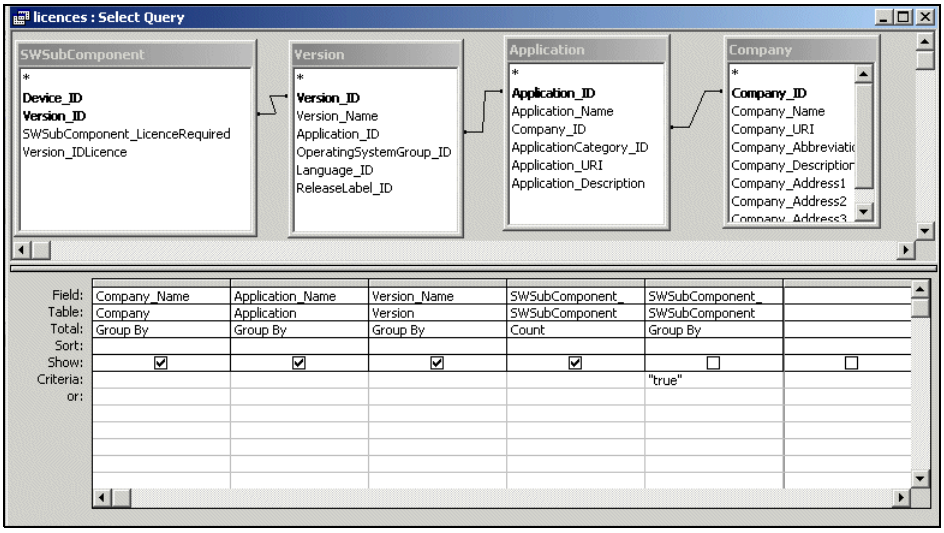
The table displayed is similar to this:



5 Click **File** > **Save As** and save the query

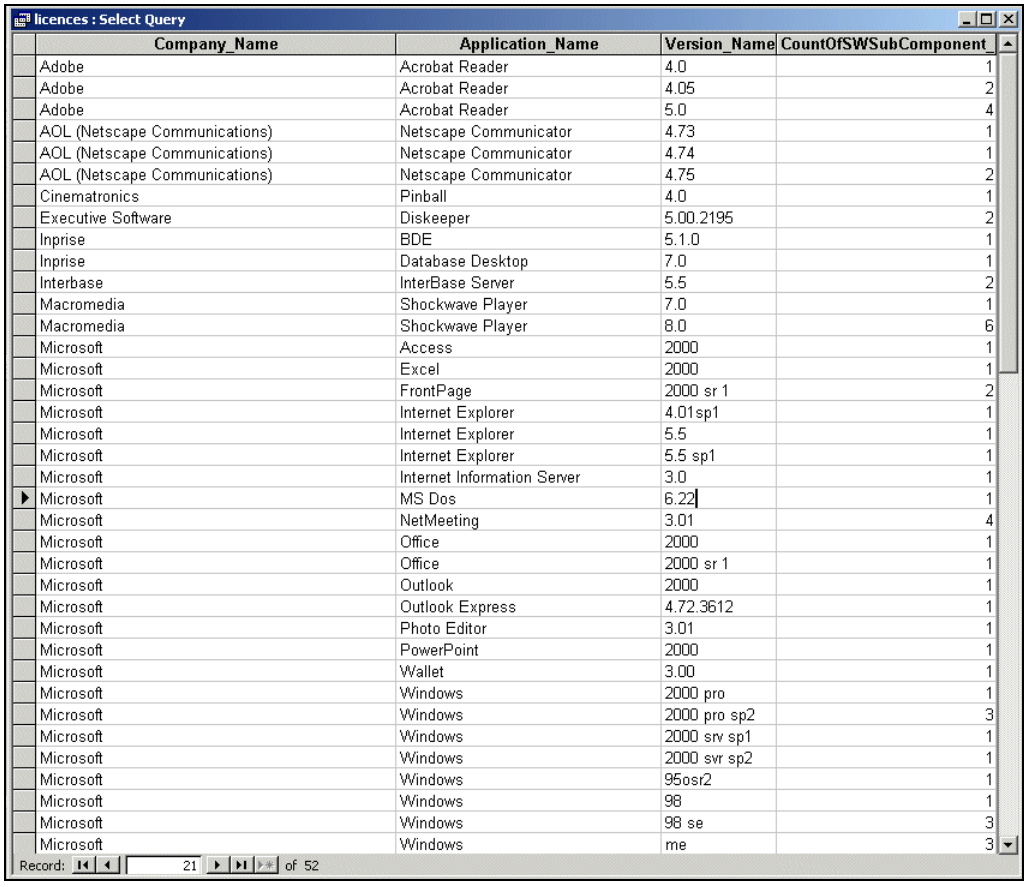
In this example, we have called it **Licenses**.

6 Enter the query field parameters as shown below:



7 Run the Query. From the **Query** pull down menu, select the **Run** option.

A query is generated, showing license data from the inventory scans in the Inventory Database.



licences : Select Query

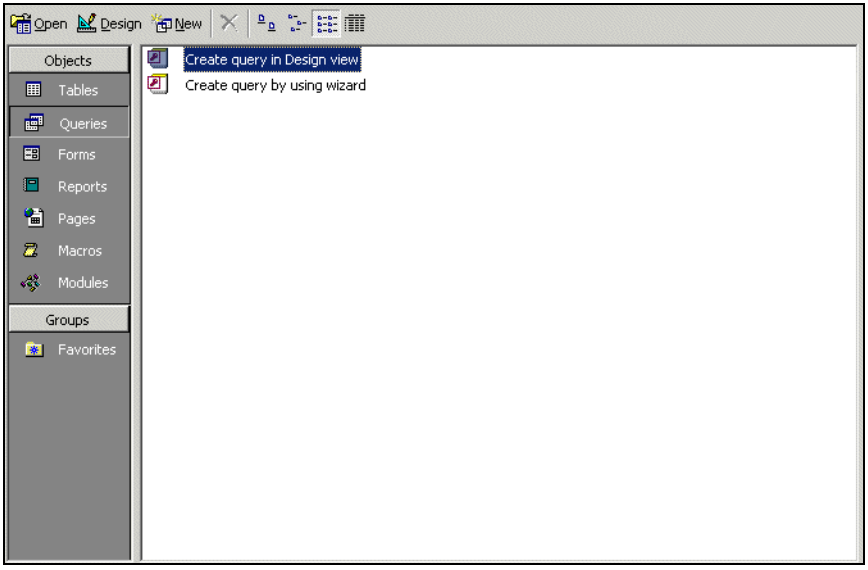
Company_Name	Application_Name	Version_Name	CountOfSWSubComponent_
Adobe	Acrobat Reader	4.0	1
Adobe	Acrobat Reader	4.05	2
Adobe	Acrobat Reader	5.0	4
AOL (Netscape Communications)	Netscape Communicator	4.73	1
AOL (Netscape Communications)	Netscape Communicator	4.74	1
AOL (Netscape Communications)	Netscape Communicator	4.75	2
Cinematronics	Pinball	4.0	1
Executive Software	Diskeeper	5.00.2195	2
Inprise	BDE	5.1.0	1
Inprise	Database Desktop	7.0	1
Interbase	InterBase Server	5.5	2
Macromedia	Shockwave Player	7.0	1
Macromedia	Shockwave Player	8.0	6
Microsoft	Access	2000	1
Microsoft	Excel	2000	1
Microsoft	FrontPage	2000 sr 1	2
Microsoft	Internet Explorer	4.01sp1	1
Microsoft	Internet Explorer	5.5	1
Microsoft	Internet Explorer	5.5 sp1	1
Microsoft	Internet Information Server	3.0	1
Microsoft	MS Dos	6.22	1
Microsoft	NetMeeting	3.01	4
Microsoft	Office	2000	1
Microsoft	Office	2000 sr 1	1
Microsoft	Outlook	2000	1
Microsoft	Outlook Express	4.72.3612	1
Microsoft	Photo Editor	3.01	1
Microsoft	PowerPoint	2000	1
Microsoft	Wallet	3.00	1
Microsoft	Windows	2000 pro	1
Microsoft	Windows	2000 pro sp2	3
Microsoft	Windows	2000 srv sp1	1
Microsoft	Windows	2000 svr sp2	1
Microsoft	Windows	95osr2	1
Microsoft	Windows	98	1
Microsoft	Windows	98 se	3
Microsoft	Windows	me	3

Record: 21 of 52

Step 7: Create a basic assets and recognition query

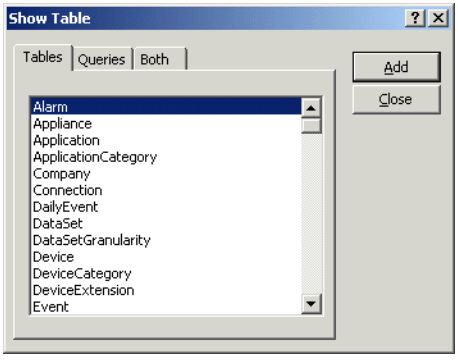
To create a basic assets and recognition query

1 From the **Objects** list, select **Queries**.



2 Double click **Create query in Design view**.

The **Show Table** dialog appears.



3 In the **Tables** tab page, from the list, select:

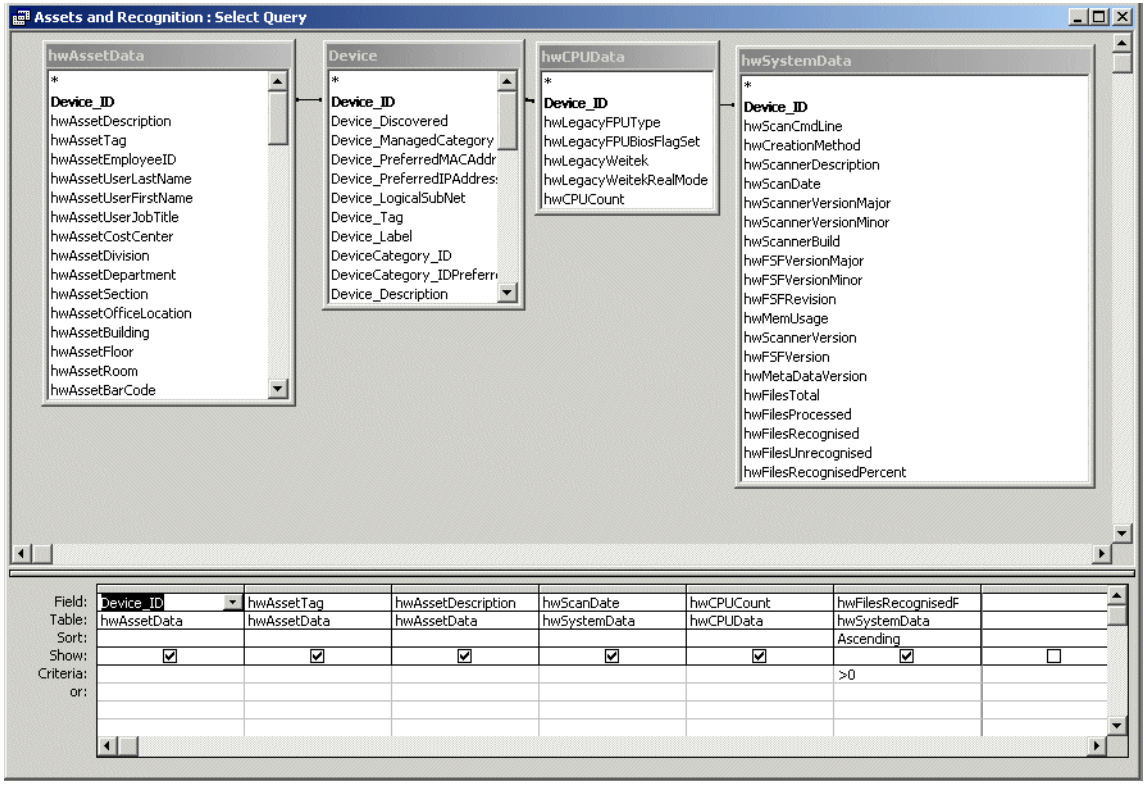
- hwAssetData
- Device
- hwCPUData
- hwSystemData

4 With the table selected, click Close.

The table appears.

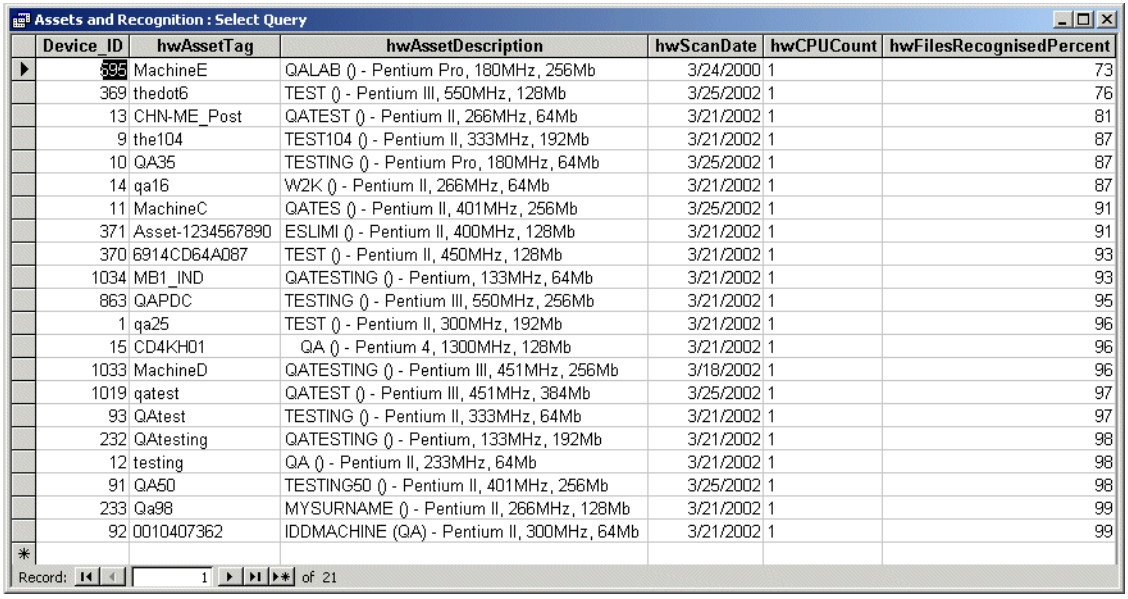
5 Save the query. In this example we have called it **Assets and Recognition**.

6 Enter the query field parameters as shown below:



7 Run the Query. From the **Query** pull-down menu, select **Run**.

A query is generated, showing asset and recognition data from the inventory scans in the Inventory Database.



Assets and Recognition : Select Query

Device_ID	hwAssetTag	hwAssetDescription	hwScanDate	hwCPUCount	hwFilesRecognisedPercent
595	MachineE	QALAB () - Pentium Pro, 180MHz, 256Mb	3/24/2000	1	73
369	thedot6	TEST () - Pentium III, 550MHz, 128Mb	3/25/2002	1	76
13	CHN-ME_Post	QATEST () - Pentium II, 266MHz, 64Mb	3/21/2002	1	81
9	the104	TEST104 () - Pentium II, 333MHz, 192Mb	3/21/2002	1	87
10	QA35	TESTING () - Pentium Pro, 180MHz, 64Mb	3/25/2002	1	87
14	qa16	W2K () - Pentium II, 266MHz, 64Mb	3/21/2002	1	87
11	MachineC	QATES () - Pentium II, 401MHz, 256Mb	3/25/2002	1	91
371	Asset-1234567890	ESLIMI () - Pentium II, 400MHz, 128Mb	3/21/2002	1	91
370	6914CD64A087	TEST () - Pentium II, 450MHz, 128Mb	3/21/2002	1	93
1034	MB1_IND	QATESTING () - Pentium, 133MHz, 64Mb	3/21/2002	1	93
863	QAPDC	TESTING () - Pentium III, 550MHz, 256Mb	3/21/2002	1	95
1	qa25	TEST () - Pentium II, 300MHz, 192Mb	3/21/2002	1	96
15	CD4KH01	QA () - Pentium 4, 1300MHz, 128Mb	3/21/2002	1	96
1033	MachineD	QATESTING () - Pentium III, 451MHz, 256Mb	3/18/2002	1	96
1019	qatest	QATEST () - Pentium III, 451MHz, 384Mb	3/25/2002	1	97
93	QAtest	TESTING () - Pentium II, 333MHz, 64Mb	3/21/2002	1	97
232	QAtesting	QATESTING () - Pentium, 133MHz, 192Mb	3/21/2002	1	98
12	testing	QA () - Pentium II, 233MHz, 64Mb	3/21/2002	1	98
91	QA50	TESTING50 () - Pentium II, 401MHz, 256Mb	3/25/2002	1	98
233	Qa98	MYSURNAME () - Pentium II, 266MHz, 128Mb	3/21/2002	1	99
92	0010407362	IDDMACHINE (QA) - Pentium II, 300MHz, 64Mb	3/21/2002	1	99

Record: 1 of 21

CHAPTER 4 How the Network Discovery schema is organized

This chapter explains how the data has been named and how and why the data refreshes at different rates. It also gives a brief description of each type of data available.

Topics in this chapter include:

- Naming conventions on page 40
- An entry can come from another table—foreign keys on page 41
- Data refreshes at different rates on page 42
- The data sorted by refresh rate category on page 42
  - The Classification sub-schema on page 42
  - The Network Inventory sub-schema on page 44
  - The Reports sub-schema on page 45
  - The Control sub-schema on page 46
  - The Events sub-schema on page 47

Naming conventions

The following conventions have been used to name tables and fields in the Aggregate schema to ease reading and understanding.

Table Names

Table names start with a capital letter followed by lower case letters—"Device", "Port", or "Connection"—unless the name itself is an abbreviation. If the table name is an abbreviation, capital letters are kept for the acronym part of the name—"IPv4", "MAC", and so on.

Table names always use the singular form— "Connection" not "Connections".

If the name of a table is formed by putting more than one word together, the words making up the name start with capitals to differentiate them—"DeviceCategory" or "PortCategory".

Field Names

As with table names, field names start with a capital letter followed by lowercase letters—"Index" or "Description"—unless the name itself is an abbreviation. If the name is an abbreviation, the acronym part of the name keeps its capital letters— "CIR" or "URI".

If the name of a field is formed by putting more than one word together, the words forming the name start with capitals to differentiate them—"SpeedIn", "SpeedOut", or "IsFullDuplex".

Field names are always prefixed by the name of the table to which they belong, followed by an underscore character, followed by the name of the field—"Device_Label", "Port_Speed", "MAC_Address".

Usually, primary keys of tables are simply sequential numbers (positive integers). In these cases, the name of the primary key field is "ID", so the complete field (key) name becomes "<table name>_ID – Device_ID" (or "Port_ID" or "Connection_ID" and so on).

If a primary key field enters a table as a foreign key, it keeps its original name, thus indicating its origin. When two or more primary keys from the same table

are imported into one table, a suffix follows each foreign key name to indicate the different purpose of the fields—"Company_IDHardware" and "Company_IDSoftware" or "DeviceCategory_ID" and DeviceCategory_IDPreferred".

Abbreviations

Use of abbreviations has been limited to a few widely spread conventions, such as using **Dt** to abbreviate Date. Also, as explained above, industry wide acronyms were kept where it was felt that they would easily be understood:

- BIOS (Basic Input/Output System)
- CIR (Committed Information Rate)
- DNS (Domain Name System)
- FDDI (Fiber Distributed Data Interface)
- IP (Internet Protocol)
- MAC (Media Access Control)
- NMID (Network Management Identifier—the ID (key) of the Device or Port in the Appliance)
- PVCS (Permanent Virtual Connection)
- URI (Universal Resource Identifier)

An entry can come from another table—foreign keys

The Network Discovery database is normalized. That means that information occurs only in one place so that it doesn't have to be updated more than once. For instance, if a company changes its name, the new name does not have to be updated in every table that uses the company name. Company_Name is only "real" in the Company table. Any other table that refers to Company_Name is using the Company table primary key, "Company_ID".

Data refreshes at different rates

It is important to understand that Network Discovery collects and refreshes different kinds of data at different rates. Different layers of the underlying software are responsible for refreshing different areas of the data at suitable intervals. The data falls into groups (or sub-schemas), depending on the refresh rate:

- Classification
- Network Inventory
- Events
- Reports
- Control

Note: A schema or a sub-schema is a group of database objects such as tables that are logically connected.

The data sorted by refresh rate category

The sub-schemas only indicate how and how frequently the data is refreshed. They do not affect how *you* access and retrieve data.

However, the following list arranges the tables by their sub-schemas, so that you can have a quick overview of the data available and understand which tables have their content refreshed more frequently than others.

The Classification sub-schema

The Classification sub-schema contains generic information common to any network. For example, it contains the list of hardware or software manufacturers (Company), the various categorization of devices or ports (DeviceCategory & PortCategory) and so on. This information is quite stable. It only changes when you upgrade Network Discovery with a new Rulebase software component.

The Classification sub-schema contains the following tables:

- **Application**: This table lists all the various applications that can be found on an end-user workstation or that can be run on network devices, such as Word, Excel, and Visio.
- **ApplicationCategory**: This table lists all the categories used to regroup applications, such as Word Processors, Spread Sheets, and Accounting Packages.
- **Attribute Group**: The AttributeGroup lists all the generic attributes categories supported by the system.
- **Company**: This table lists information on companies that manufacture computer equipment and/or produce software. Other tables (for example, Device, Application) reference this table to indicate which company manufactures certain kinds of hardware (Device) or which company produces certain software (Application).
- **DeviceCategory**: This table lists various categories of devices, such as printers, workstations, switches, routers, and web servers. It also stores some attributes of these categories.
- **Device Icon**: In a fashion similar to the DeviceCategory table, the DeviceIcon table lists grouping of Devices, along with some of the properties of these groupings.
- **Family**: This table lists product families, such as hubs, routers, workstations, switches, and so on. The Device table is related to this table so that a specific device can be related to information about the product family to which it belongs.
- **Language**: This table lists all the various languages that exist. It tells what language an application supports.
- **MediaCategory**: This table lists the media category of the line, such as Ethernet, CSMA / CD, Token Ring.
- **Model**: This table lists various models of devices, such as Cisco's Catalyst X series, HP's LaserJet X series, Compaq's (DEC) AlphaServer X series.
- **NetworkFunction**: Sometimes you need workstations or server platforms set up with commercial operating systems for the specific purpose of deploying a software application or a set of applications. In such cases NetworkFunction identifies the software application that is identified by the SNMP MIB II (RFC 1213, RFC 2011, RFC 2012, RFC 2013) data fields within the device.

- **OperatingSystem**: This table lists all the various operating systems that exist for networked devices—such as Windows, Unix, or Mac OS.
- **Operating System Group**: This table groups all variants (releases) of a particular generic operating system—such as Windows 95, Windows 97, Windows 2000, or Windows NT.
- **PortCategory**: This table lists categories (and subcategories) of ports, such as Token Ring, Serial, Ethernet, FDDI. Records in the Port table are related to records in this table so that each port is associated with a specific port category.
- **Property Group**: The PropertyGroup table lists all the properties that can be changed by a change Event.
- **ReleaseLabel**: This table lists major releases of applications—Word 97, Word 2000, Word XP are Release Labels of the Word application.
- **Report Details**: The ReportDetail table contains generic information about the various reports produced by the system and stored either in the ReportState or EventSummary tables.
- **Version**: This table lists all the various versions that exist for a specific release. For example, the release, Word 97, could have the following versions—Word 97, Word 97sr1, Word 97sr2, Word 97 sr2a/v, Word 97.

Note: An application can have Versions, without necessarily having ReleaseLabels.

The Network Inventory sub-schema

The Network Inventory sub-schema is usually refreshed on a daily basis. The Network Inventory sub-schema contains the following tables:

- **Connection**: This table lists all the connections between devices or ports within a network. In other words, it represents the connectivity between nodes in a network.
- **Device**: This table lists all the hardware equipment found in a network, including end-user workstations and interconnecting devices.
- **DeviceExtension**: This table lists additional information about devices. It is used for support purposes and should be ignored.
- **IPv4**: This table lists IPv4 addresses linked to a particular device or port. Both may have several addresses.

- **MAC**: This table lists MAC or IEEE802 style addresses linked to a particular device or port. Both may have several addresses.
- **Port**: This table lists information about all the ports discovered on each of the network devices.
- **Serial Number**: The SerialNumber table stores serial numbers associated with Device's components.
- **SubComponent**: The SubComponent table contains information gathered on resource managed devices, such as CPU speed, disk utilization, etc.
- **VLAN**: The VLAN table documents the virtual LANs found in the network.
- **VLAN Object**: The VLANObject table implements the many to many relationship between the VLAN and the Device or Port tables: it lists the participating Devices or Ports in each particular VLANs.

The Reports sub-schema

The Reports sub-schema contains reports generated on an ongoing basis, and is summarized and refreshed either hourly or daily to minimize the amount of disk space needed to hold them.

The data retention period is one year or 500 M Bytes of data—whichever limit is reached first.

The Reports sub-schema contains the following tables:

- **Report State**: The ReportState table contains the line items of the most recent reports generated by the system on a regular basis.
- **Event Summary**: The EventSummary table regroups events in categories and summaries them over time periods so one can have a quick idea of what happened in the network over time.
- **Report State Summary**: The Report State Summary table is a summary of all alarmed rows found in the Report State table (state > 1) grouped by Report, Object Type (device or port), Priority, and State. This table is primarily used to speed up the display of the Aggregate Health Panel.
- **HourlySummary**: This table contains summaries of certain statistics for certain pre-defined groups of devices summarized on an hourly basis. To spare disk space, HourlySummary records will be deleted after a certain period of time (currently set as 1 year).

The Control sub-schema

The Control sub-schema is relevant when you have an Aggregator. It contains tables that control how the database is refreshed by multiple appliances.

The Control sub-schema contains the following tables:

- **Appliance**: This table lists all the appliances contributing to the Reports Database. It describes all remote appliances that are aggregated by this system. If the system is not licensed as an aggregator, then this table contains one row: Appliance_ID = 0. Note that an appliance acting as an aggregator has entries for all remote appliances in the Appliance table and an entry for itself (Appliance_ID = 0).
- **Attribute Refresh Schedule**: The AttributeRefreshSchedule table stores the scheduling information entered by the user to refresh the Attribute table. Using this table, the user can determine the frequency at which the various Attribute table rows are refreshed based on the AttributeGroup they belong to.
- **DataSet**: This table lists all the data components that can be imported into the Reports database along with their characteristics. The information found here closely matches the sub schemas listed in this section.
- **DataSetGranularity**: This table lists all the possible granularities (resolutions) (certain) data sets can have.
- **DB Version**: This table contains the actual version of the Network Inventory sub-schema (and associated sub-schemas) and the Workstation Inventory sub-schema.
- **LastTime**: This table contains the last time a load operation was performed for a given appliance and data set.
- **NMID**: This table lists all the internal Network Manager IDs that contribute to populate the Reports database, along with their matching Appliance_IDs and the corresponding Object_IDs to which they are mapped. It also contains information stating when the last update was performed on a specific object as well as the status this object has in the source appliance.
- **Object**: This table lists all the Object_IDs and which table (Connection, Device, IPv4, MAC, Port, Serial Number, SubComponent, VLAN) they belong to. The Object table serves as a foreign key exported to these tables (Device, Ports, and so on.). This means that the primary keys of these tables can not overlap. For example, if the value 1 is assigned to the Device_ID (key) of the

Device table, then that value can not appear as the value of any primary key found in any of the other tables (such as Port_ID, Connection_ID).

- **RefreshRate**: Stores the various possible values for the data set refresh rate configuration parameter.
- **Schedule**: This table contains information related to scheduled jobs (jobs under the control of the sch_scheduler jobs scheduler).
- **ScheduleLog**: This table contains information and statistics about the status of jobs that have run or are currently running.
- **UpdateHistory**: This table gives the time a Network Inventory Sub-Schema update run was performed as well as how many objects were updated by that run. Note that update runs are performed on a per appliance basis.

The Events sub-schema

The Events sub-schema stores the various events that occurred on the network over the last 45 days. The retention period could be shorter if the number of events exceeds 200,000 (for each appliance).

The Events sub-schema contains the following tables:

- **Event**: The Event table lists all the events that have occurred on specific device attributes over time. As times goes by, old events are purged from this table to keep its size manageable.
- **Attribute**: The Attribute table lists all the attributes a given device or port can have. Note that the list of attributes (of a device or port) may not be exhaustive depending on the settings found in the AttributeRefreshSchedule table.
- **Attribute State**: The AttributeState table lists all the attributes of a device or port that are alarmed. It can also contain values of attributes that are not alarmed (such as the number of pages printed) based on criteria set up by the user (and stored in the AttributeRefreshSchedule table).
- **Connection Event**: The ConnectionEvent table stores information associated with "connection" Events: i.e., Events that are created following a change in the connectivity between two Devices (or Ports).
- **Attribute Group State**: The AttributeGroupStateSummary table is a summary of all alarmed rows found in the AttributeState table (State > 1) grouped by AttributeGroup, ObjectType (i.e., Device or Port), Priority, & State. This table is primarily used to speed up the display of the Aggregate Health Panel.

PEREGRINE

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