

IBM Visual Warehouse for Windows NT



Planning and Installing Visual Warehouse and DataGuide

Version 5 Release 2

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Note

Before using this information and the product it supports, be sure to read the general information under "Notices" on page 137.

Seventh Edition (July 1999)

This edition replaces and makes obsolete the previous edition, SC26-3496-05. The technical changes for this edition are indicated by vertical bars in the left margin.

This edition applies to Version 5 Release 2 of Visual Warehouse (5639-VW5), and to any subsequent releases until otherwise indicated in new editions or technical newsletters. Make sure that you are using the correct edition for the level of the product.

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About this book

This book provides the information you need to plan for and install the Visual Warehouse components: Visual Warehouse and DataGuide, the information catalog manager. Be sure to read the README file that is included with the components for important updates to product information.

Who should read this book

You should read this book if you are responsible for planning to implement Visual Warehouse or if you are responsible for installing Visual Warehouse on workstations. You should be familiar with database concepts, client/server architectures, TCP/IP connectivity, and networking concepts.

You should also read this book if you are a Visual Warehouse and DataGuide administrator, especially if you will be installing the products.

Prerequisite publications

The following publications contain information that you need before and during the installation of Visual Warehouse.

DB2 Universal Database information

You can view these publications from the DB2 Web site (<http://www.software.ibm.com/data/db2/>) or order them for a fee.

- *IBM DB2 Universal Database: Quick Beginnings for Windows NT* (S10J-8149)
- *IBM DB2 Universal Database: Administration Getting Started* (S10J-8154)
- *IBM DB2 Universal Database: Command Reference* (S10J-8166)

Distributed Relational Database Architecture information

IBM Distributed Relational Database Architecture Connectivity Guide (SC26-4783)

DB2 OLAP Server information

Using DB2 OLAP Server (SC26-9235)

About this book

Visual Warehouse information

Several publications are available on the Visual Warehouse CD-ROM.

Visual Warehouse publications

The BOOKS subdirectory on the Visual Warehouse CD-ROM contains publications in portable document format (PDF) and as PostScript (PS) files. You can also purchase printed versions of these publications from IBM.

- *Managing Visual Warehouse* (GC26-8822)
- *Managing DataGuide* (SC26-3362)
- *Managing ETI•Extract Programs with Visual Warehouse* (SC26-9467)
- *Visual Warehouse Host Adapters: MVS Planning and Installation Guide* (GC26-8821)

To view the PDF files, use the Adobe Acrobat Reader. You can download a free copy of the Adobe Acrobat Reader for your operating system from the Adobe Web site (<http://www.adobe.com>).

To print the PS files, use a utility that can print PostScript documentation.

DataGuide publications

You can view the publication, *Using DataGuide*, from the DataGuide folder.

Messages and reason codes

You can view the publication, *Visual Warehouse and DataGuide Messages and Reason Codes*, from the Visual Warehouse folder. This book is provided in HTML; you need an HTML 3.2-enabled Web browser to view this book.

How to send your comments

Your feedback helps IBM to provide quality information. Please send any comments that you have about this book or other Visual Warehouse publications. Send your comments from the Web. Visit the Web site at <http://www.software.ibm.com/data/vw/>

The Web site has a feedback page that you can use to enter and send comments.

Chapter 1. Introducing Visual Warehouse

The information services (IS) team is swamped. Budgets are shrinking and new projects come under increasing scrutiny. Users are screaming for more access to better, cleaner data. One group in particular, the Marketing and Sales (M&S) group at headquarters, is especially vocal. They seem to know exactly what they want. The only problem is that the IS team cannot support their requirements.

But what are their requirements? M&S wants to be able to access sales and revenue data and correlate it with compensation data. More specifically, they want to analyze sales trends and reward strong performers. They want to look at existing sales and compensation data to see if the current compensation system is adequate. To do this, M&S requires access to two different systems: the payroll system and the sales and inventory system. The two systems couldn't be further from each other in compatibility and function.

In addition, the two systems contain *operational data*; they run the day-to-day affairs of the business and have high performance and reliability requirements. These systems cannot handle the impact of end users running ad-hoc queries and high-volume analytical processing. The IS team simply cannot turn users loose on these systems.

Data warehousing

Data warehousing is the concept of creating stores of *informational data*: data that is extracted and derived from existing operational systems and then optimized for end-user decision making. Informational data is at the heart of a data warehouse.

Although your IS team knows about data warehousing, they also know that building an enterprise-wide warehouse is a time-consuming and expensive task. And with constrained resources, they'll have to prove that the warehousing concept works before they'll get funded for an enterprise-wide approach.

Datamarts

Thankfully, there is a solution for the M&S group; they can build a *datamart*. Like a data warehouse, the datamart contains informational data optimized for end-user decision making and data analysis. And like a minimart or convenience store, the datamart contains only the essentials for a small set of

Introducing Visual Warehouse

users. A datamart does not attempt to satisfy the needs of everyone in the corporation. Rather, it serves the specific needs of a department or group, such as the M&S group at headquarters.

Visual Warehouse's datamart solution

Visual Warehouse is an easy-to-use, cost-effective datamart and data warehousing product. Visual Warehouse handles the tasks that are typically associated with designing, implementing, and deploying business analysis processes within a department or enterprise. With Visual Warehouse, you can extract data from any of the leading database systems. These database systems include the IBM DB2 family, Oracle, Microsoft SQL Server, Sybase, Informix, and IMS. You can also use standard file systems, VSAM data sets, and data sources accessible through ODBC or DataJoiner as input to a Visual Warehouse datamart or data warehouse. Visual Warehouse uses established connectivity methods, such as TCP/IP and ODBC, to access data sources and target databases.

With Visual Warehouse, you use *business views* to create and maintain a data warehouse. Business views control how data is transformed into meaningful business information. You can use business views to automatically extract, transfer, transform, and refresh the data in a warehouse.

Visual Warehouse is a metadata-driven system. Metadata, or information about your data, provides administrators and business users with descriptions of the data that is stored in the data warehouse. The Visual Warehouse information catalog, DataGuide, provides a graphical representation of data relationships and object definitions for business views.

The information catalog enables business professionals to view aggregations, histories, data derivations, data sources, and descriptions of data. The information catalog helps the business user understand the warehouse data through a browse-and-search interface. Using this interface, business users can launch any program or command file required to display the data or business object.

Visual Warehouse components

Visual Warehouse includes the following components:

- The server
- The administrative client
- Agents
- Transformers

- The information catalog (DataGuide)
- Visual Warehouse for the Web
- DataGuide for the Web

Visual Warehouse server

The Visual Warehouse server, which runs on Windows NT[®], controls the interaction of the product components, provides the scheduling functions, and controls and monitors the agents.

The Visual Warehouse server logs messages and controls the interactions of the other components. The Visual Warehouse server uses a control database that contains metadata about objects that you define within Visual Warehouse, such as information resources and business views. The Visual Warehouse server includes a default agent.

You can have more than one Visual Warehouse server in a Visual Warehouse installation, but you can have only one Visual Warehouse server on a workstation. Each active Visual Warehouse server uses one control database, but multiple Visual Warehouse servers cannot use the same control database at the same time.

Visual Warehouse administrative clients

The administrative clients, which run on Windows NT, provide an interface for the administrative functions, such as defining business views and scheduling extracts. You install administrative clients on workstations on which your business analysts and administrators work. You can have an unlimited number of administrative clients in a Visual Warehouse installation.

Visual Warehouse agents

Visual Warehouse agents manage the flow of data between the data sources and the target warehouses. Agents are available on the Windows NT, AIX, OS/2, OS/400, and SUN Solaris operating systems. The agents use Open Database Connectivity (ODBC) drivers or DB2 CLI to communicate with different databases. Several agents can handle the transfer of data between sources and target warehouses. You can have an unlimited number of agents in a Visual Warehouse installation. The number of agents that you use depends on your existing connectivity configuration and the volume of data that you plan to move through your datamart or data warehouse.

Visual Warehouse transformers

Visual Warehouse transformers are stored procedures and user-defined functions that you can use to transform data in a business view. You can use

Visual Warehouse components

transformers to clean, invert, and pivot data; generate primary keys and period tables; and calculate various statistics.

To use Visual Warehouse transformers, you create a business view that specifies one of the transformers. When you run the business view, the transformers writes data to one or more output tables in the target warehouse.

Visual Warehouse information catalog

The Visual Warehouse information catalog, DataGuide, provides a powerful, business-oriented solution to help end users locate, understand, and access enterprise data. You can use an information catalog to describe business metadata in business terms, organize it into subject areas, and customize it to your workgroup or enterprise's needs. The Visual Warehouse information catalog consists of three components: DataGuide Administrator, DataGuide User, and DataGuide extractor utilities.

DataGuide Administrator enables metadata exchange and keeps your information catalog current with Visual Warehouse. After you install the DataGuide Administrator, you can access functions for both the DataGuide Administrator and DataGuide User components. Extractor utilities are available for many popular data and information sources, such as Oracle and Microsoft Excel.

Visual Warehouse and DataGuide for the Web

You can use Visual Warehouse for the Web to monitor the operation of your datamart or data warehouse from any Web browser. You can use DataGuide for the Web to access information catalogs and obtain descriptions of available data, including format, currency, owner, and location. From any Web browser, users can run available helper applications to view data.

ISV Toolkit

The ISV Toolkit provides templates and samples that developers of data warehousing solutions can use to integrate their applications with Visual Warehouse. Use these templates to write programs or automated interfaces that transfer and transform an application's metadata into a format that Visual Warehouse or DataGuide can use.

Complementary components

This section provides information on products and tools that you can use with Visual Warehouse to get the most out of your datamart or data warehouse.

DB2 Universal Database

Visual Warehouse comes with DB2 Universal Database (DB2 UDB), IBM's award-winning database management system. DB2 UDB provides the database features most important to data warehouse users:

Scalability

DB2 UDB is scalable from uniprocessor to SMP to MPP environments. This scalability means that DB2 UDB can support hundreds of users and terabytes of data, enabling you to preserve your warehousing investment as usage grows.

Performance

Query parallelism and dynamic bitmapped indexes speed query results to business analysts who issue complex queries. Query rewrite optimizes poorly structured queries that are commonly generated from popular ODBC tools to enable much faster query processing. Business analysts can use database extenders to embed complex logic in the database, thereby maximizing the performance of complex calculations.

Accessibility

Fully enabled Web interfaces allow access from virtually any client platform and facilitate broad-based end-user deployment.

Manageability

Integrated management tools provide an easy-to-use interface for managing the warehouse database. These integrated tools allow automation of routine maintenance, monitoring of the database environment, query governing, and performance management.

Availability

High availability options, coupled with rigorous database testing, result in a database environment that is designed to meet the high expectations of end-user access to data.

DB2 OLAP Server

The IBM DB2 OLAP Server is an enterprise-scale online analytical processing (OLAP) system that is designed for a wide range of multidimensional reporting and analysis applications. The DB2 OLAP Server integrates the Hyperion Essbase OLAP engine directly with DB2 and other leading relational database software for data access, navigation, application program interfaces (APIs), application design and management, and data calculation. While Essbase stores data in a specialized multidimensional data store, the DB2 OLAP Server stores data in a relational database management system (RDBMS) by using a star-schema data structure.

Complementary components

ETI•Extract

ETI•Extract provides the broadest range of support for data sources. It supports complex data mapping, cleaning, transformations, and summarization. ETI•Extract generates all programs and control scripts for data movement. You can customize business rules, coding standards, and data sources, as well as capture metadata automatically.

You can use ETI•Extract to create rules for transforming data from your data sources into your data warehouse. ETI•Extract uses those rules to establish the most efficient path to your data sources to collect the appropriate data to store in your datamart or data warehouse.

ETI•Extract works with Visual Warehouse through metadata interchange to simplify administrative processes and to speed system integration.

Vality

Vality Integrity addresses the data quality and reengineering challenges that are common among existing systems or between applications that need to be merged into a common data warehouse. Common problems addressed by Integrity include:

Unknown or incomplete metadata

Integrity mines the metadata in existing systems through sophisticated string analysis capabilities to allow clients to recover information embedded in hidden fields.

Correlating records with no common identifier

Getting value from a data warehouse implementation often requires that you integrate data from different application systems. These systems commonly evolved through different application groups, or through different companies. Typically, correlating records such as customer records is very difficult, because no common keys are available and name matching is complicated by inconsistent data entry practices and data entry mistakes. Integrity offers sophisticated fuzzy-matching logic to correlate such records necessary to create a comprehensive view of the business or of a customer.

Similar to ETI•Extract, Vality Integrity works with Visual Warehouse through metadata interchange to simplify administrative processes and to speed system integration.

Data access and analysis tools

You can purchase Visual Warehouse with data access and analysis tools from Brio, Business Objects, or Cognos. These tools provide flexible query and

Complementary components

report generation capabilities, allowing users to connect to datamarts or data warehouses and construct queries by using simple graphical interfaces.

You can save the results of these queries as reports or use them as input to multidimensional tools. These multidimensional tools enable users to look for trends or anomalies that provide market insight. You can use these tools by themselves, fostering the development of multidimensional cubes that individuals can use. Users can also use the tools to connect directly to DB2 OLAP Server, facilitating complex OLAP techniques.

Chapter 2. Planning for Visual Warehouse

Visual Warehouse is designed to facilitate business evolution. Small companies or departments can benefit from deploying and managing datamarts with Visual Warehouse. Visual Warehouse is ideal for business groups that want to build their own datamarts, because Visual Warehouse has a low cost of ownership and rapid implementation. These features allow workgroups to become productive very quickly. As the needs of these workgroups grow, or as other departments and organizations within a company look to data warehousing as a source of competitive advantage, the role of Visual Warehouse can be expanded to handle very large volumes of data, a large number of users, and many datamarts.

Large corporations can also use Visual Warehouse to design and implement enterprise-wide data warehouses. Rapidly growing companies can scale from gigabytes to terabytes of data, or from single-workstation to distributed and multi-tiered implementations. Because a single Visual Warehouse implementation can manage many datamarts, the value of centralized warehouse management within a company can be significant. This benefit can enable a single information technology group to deploy and maintain disparate business analysis systems at minimal cost.

As you plan your Visual Warehouse solution, you need to consider issues related to your datamart or data warehouse, your project team, your users, your information requirements, the data for your datamart or data warehouse, the metadata in your datamart or data warehouse, and your network. This chapter provides information that helps you resolve these issues.

Planning your warehousing solution

Business data is the key to decision making for business professionals. Visual Warehouse gives you the ability to access, retrieve, and enhance your business data at different levels, using the tools most appropriate for your enterprise.

Like any project that involves more than one person and more than one system, successful datamarts and data warehouses require good planning. You need to determine the purpose of the datamart and who will use it. You need to choose the source data carefully and construct business views that will grow with your business. And you need to understand the components of Visual Warehouse so that you can build a datamart that you can extend to an enterprise-wide data warehouse.

Planning your warehousing solution

Building a warehouse is an iterative process. Visual Warehouse lets you iterate by easily changing the sources, targets, agents, and business views that you work with as the requirements of the warehouse change.

What to consider before building a datamart or data warehouse

To determine how Visual Warehouse can help your business, identify the business problems that Visual Warehouse can help solve. You can identify a problem, such as, “Our sales data never seems to be accurate,” or a goal, such as, “We need a better method for tracking sales data across all regions.” Ideally, you should be able to define your business problem in one or two statements.

Next, determine which components of the solution fit your business needs. Your strategy should include both short-term and long-term objectives. To determine which components of Visual Warehouse are right for your enterprise, consider the two fundamental capabilities that Visual Warehouse provides:

- The ability to manipulate data and transform it into data that your organization needs
- A flexible system structure that lets you deploy datamarts across several servers to meet your business’s needs

How you address these capabilities will guide you in choosing the appropriate Visual Warehouse components for your enterprise.

Choosing between a datamart and data warehouses

In a data warehouse, you move data from source databases to target databases. During the move, you might reformat, transform, and clean the data. These operations, which include aggregating, summarizing, and removing data, improve end-user access. You can also schedule regular updates of the data.

A datamart is similar to a data warehouse, but smaller in scale. A datamart serves a specific business purpose or solves a particular business problem. Although you still need to collect, transform, and clean your data, there is less of it. Consequently, you spend less money, less time, and fewer resources to put your datamarts into place and maintain them.

You can use several datamarts to create a data warehouse. This method requires strategic planning. You need to ensure that your datamarts use common data types, so that queries will work across the datamarts. You also need to minimize redundant or duplicate data across datamarts. One way to

do this is to start with a small number of datamarts. Then you can spend time at the beginning of your project building the architecture for the data warehouse as you build the datamarts.

Which approach is best to use for building a warehousing solution? Some people believe that it is better to start with a datamart and build up to a data warehouse. Others believe that it is best to build a data warehouse that you can later break down into datamarts. The answer is to choose the methodology that meets your organization's goals.

If datamarts are the right option for you now, but you plan to build a data warehouse later, Visual Warehouse can get you started and working quickly. You can scale Visual Warehouse over time to include the tools that you need to grow your datamart to a full-scale warehousing solution.

Building a project team

After you decide to build a datamart or data warehouse with Visual Warehouse, you need to build a project team. A project team is a group of people with the skills and authority to help you define the information that you want and access the data that you need. This project team, which consists of representatives from your IS group and your user community, defines:

- The business problems that the datamart or data warehouse will address
- The scope of the datamart or data warehouse
- The users that the datamart or data warehouse will serve
- How much the datamart or data warehouse will grow over time

The datamart or data warehouse that you build with Visual Warehouse will be most effective and give you the best return on your investment when you build it with a cross-functional team.

Identifying your users' requirements

The purpose of a datamart is to serve a set of users who are focused on a specific purpose or major data subject. Conversely, a data warehouse focuses on serving a larger enterprise. The number of users depends in part on the size of your organization and the constraints of your network. Your project team should define the users in terms of:

- Data processing knowledge
- The operating system that is used
- Users' proximity to each other; for example, are they on the same local area network (LAN)?

Planning your warehousing solution

After you identify your users, the next step is to understand how the users will use the datamart or data warehouse. Involve the users in this process. Users should help define:

- Overall datamart requirements
- Informational data requirements
- The organizational structure and system requirements of the user group
- The query or analysis tools that the group uses or wants to use

Users will probably use query and analysis tools that they are familiar with to access the datamart that Visual Warehouse creates. In fact, users probably will not know that they are using components of Visual Warehouse. Therefore, it's important that you understand what tools your users currently use to access data, and what your users do with the data after they access it. When you understand the users' tools and the purpose of the users' activities, you can build datamarts that serve your users most effectively. There are several questions you can ask your users that will help you understand these issues:

- What tools do you currently use to access data?

Users probably use several tools to access data. They might even log on to several different systems in a given day just to access the data they need. The users should list all the tools and systems they use to access data.

- How do you manipulate the data when you get it?

Your users should list the tools and products they use to manipulate the data after they access it. Users might be moving data between spreadsheets, databases, and word processors to get it in the format they need to do their analyses.

- Do your users have processes in which they manually transcribe data from a source into the tool that they want to use?

Without a systematic way of moving data from existing sources into workstation-based targets, users often find themselves manually cutting and pasting data from a mainframe source into spreadsheets or other decision-support tools. If users are engaged in this kind of activity, a datamart is the ideal solution.

Visual Warehouse gives you the tools to help users help themselves. In a controlled, systematic way, users within your company can independently access the data they need without affecting the system that contains the operational data.

Classifying your information requirements

The information that you need is a reflection of the business problem that you want to solve. Most of your information requirements can be classified in one of several information categories. You can use these information categories to

define your information requirements and to design your datamart so that it will solve the business problem you defined previously:

- **Status reports**

Any report that you build on a regular basis is a *status report*. Status reports help you manage a business process over time, such as tracking sales volumes each month. Usually, status reports consist of data that is aggregated or summarized into a chart or simple graph.
- **Exceptions**

When trends show sudden changes, you want to know why. Exception handling requires that you look at the details within a small subset of the data. For example, you might want to track sales of products whose revenues have decreased in the last six months.
- **Historical**

Operational data is often very detailed, which is necessary for the operation of the business. For example, an inventory system might keep detailed records of every part in a manufacturing process. But because the number of records could be large, the system does not keep a history of every part that the process uses. The business analyst might not need all the details about the parts, but she might need a summarized history of when different parts are used. A datamart helps you build and keep historical summaries of operational data.
- **Consolidation**

Operational data is not always consistent. For example, your international sales office might express financial data in several currencies. Or, operational data from different divisions or subsidiaries might be in separate databases that are designed differently.
- **Publication**

A workgroup might want to make selected information available to the rest of the enterprise or to the public. You can use a datamart to extract relevant information and store it in a place where it will be securely accessible from your enterprise's intranet or from the public Internet.

These information categories have two common requirements. First, they require scheduling, because they are repetitive and require regular updates. Second, they require data cleaning, because they deal with raw data that might be relevant and irrelevant, correct and incorrect, and possibly inconsistent. You will need to filter this data before you can generate reliable information.

Choosing data for your datamart or data warehouse

After you define the business problem that you need to solve, your project team needs to begin planning what data will go into the datamart or data

Planning your warehousing solution

warehouse. Your team should focus on the data that currently exists, rather than the data that you would like to have. After you identify a data source, answer the following questions:

- What is the content of the data source?

You need only identify the content at a high level, such as the table level of a relational database. Lower-level content analysis, such as at the field level of the database, will take place later.

- What connectivity already exists?

Your information technology group and your project team can work together to determine the level of connectivity already available across your enterprise. If you plan to use a mainframe data source that has connectivity to desktop applications, your configuration will be much easier than if you want to access a mainframe source that has never been connected to a desktop application. In these cases, you must establish connectivity to the desktop before you can use Visual Warehouse to access that data source.

- Who can access your data sources?

If your data source is tightly controlled, you need to determine ways to access the data source that do not violate security policies. For example, if you need to access employee salary data, but you do not need to see the individual salaries associated with employee names, you might not have the authority to access the payroll database. However, your information technology group can create a database view of the payroll database that will show salary data without employee data. Then, you can use the datamart to access the database view without threatening the security of the overall payroll database.

Using metadata in your solution

A necessary function of any datamart or data warehouse is access to metadata. When users have access to the right metadata, you can reduce the cost associated with your datamart or data warehouse because you will:

- Minimize errors for redundantly entered data
- Improve the descriptions of the warehouse architecture and operations
- Better support end-user access to information

There are two types of metadata: technical metadata and business metadata. Both types of metadata are necessary in building, maintaining, and using a datamart or data warehouse.

Technical metadata describes the data in the datamart or data warehouse. Technical metadata includes information about source data, target data, and the rules that are used to extract, filter, enhance, clean, and transform source data to target data. Warehouse and transformation tools and the warehouse

manager create technical metadata. You can use technical metadata to manage and control the datamart or data warehouse operations.

Users access *business metadata* primarily to locate information in the datamart or data warehouse. They can use business terms to search for information in the datamart or data warehouse. After users find the information they need, they can access that information in the form that best suits their needs. The information might be a graph or chart viewed through a presentation tool, a query or report returned from a decision-support or OLAP tool, or a document retrieved from a file system.

You can use metadata to improve the usability of your datamart or data warehouse. The technical metadata in your datamart helps administrators maintain and manage a datamart or data warehouse by providing information about operational data, source data, and target data. The business metadata in your datamart helps your users make better-informed decisions, because the users can understand the data they access.

Metadata interchange is a key aspect of a warehouse implementation. Visual Warehouse supports the Metadata Interchange Standard (MDIS) and the tag language of DataGuide (the Visual Warehouse information catalog) through the DataGuide APIs. When you interchange metadata among components of Visual Warehouse, you can minimize costs and maximize warehouse usability for your users.

You can use the process flow and scheduling capabilities of Visual Warehouse to synchronize metadata between products on a timed or ad hoc basis. This means that you can synchronize and manage metadata in the same way as warehouse data.

Planning your network

This section provides information to help you plan to install Visual Warehouse and DataGuide within a network that can grow over time. This section includes information about:

- Designing for a three-tiered environment
- Replication considerations
- TCP/IP considerations
- Reviewing your network
- Defining data dependencies

If your long-term objective is to have multiple datamarts supporting several workgroups, you need to give careful consideration to how you will use your network.

Planning your network

Designing for a three-tiered environment

A basic three-tiered environment consists of a data source, an application server, and a client data-access tool. If you are building a datamart but will move to a three-tiered environment later, itemize the data requirements of the source data as either common or specific to a set of users. This will minimize the workload on your network.

Replication considerations

You need to decide which data requirements are common across the user groups and which data requirements are unique to a set of users. For common replication requirements, you should plan to perform the replications and place the results in a staging table or on an intermediate server. From that table or intermediate server, you can replicate data to the different user groups. You can perform additional replications as needed.

TCP/IP considerations

Visual Warehouse components communicate by using TCP/IP host names. You must have a TCP/IP network configured and operational before you begin installing components of Visual Warehouse. Any workstation that has Visual Warehouse components installed on it must be connected to a TCP/IP network. You need to verify that the workstations can communicate with other workstations in the network. Even if you install all the necessary components on the same workstation, you still need to install TCP/IP on that workstation to enable communication between the components.

You can use protocols other than TCP/IP for data access. For example, to access data on DB2 for OS/400 and DB2 for MVS, Visual Warehouse supports Distributed Relational Database Architecture (DRDA) over SNA.

To enable TCP/IP communications for DB2 CAE or for a DB2 server, see *IBM DB2 Universal Database: Quick Beginnings for Windows NT*.

Reviewing your network

While you are planning to install Visual Warehouse, you need to determine:

- Where you will place the databases and files that Visual Warehouse needs to access to support business view requests for data.
- On which workstation you want to install the Visual Warehouse administrative client, and the logical name of that workstation or workstations.
- On which servers you want to install the other Visual Warehouse components, and the names of those servers.

- Which physical processors require changes to the host system and remote adapters, and their logical host names.

You need to determine if you require VM or MVS connections for the following host-based data sources:

- DB2 for OS/390 through DRDA
 - VSAM files
 - IMS databases
 - MVS flat files
 - VM/CMS flat files
- What administrative and security requirements you need for restricting data access.

While you are reviewing your network, remember that although you must install some Visual Warehouse components on the same workstation, you can install other components on different workstations. Figure 1 shows one possible configuration for the Visual Warehouse components within your network.

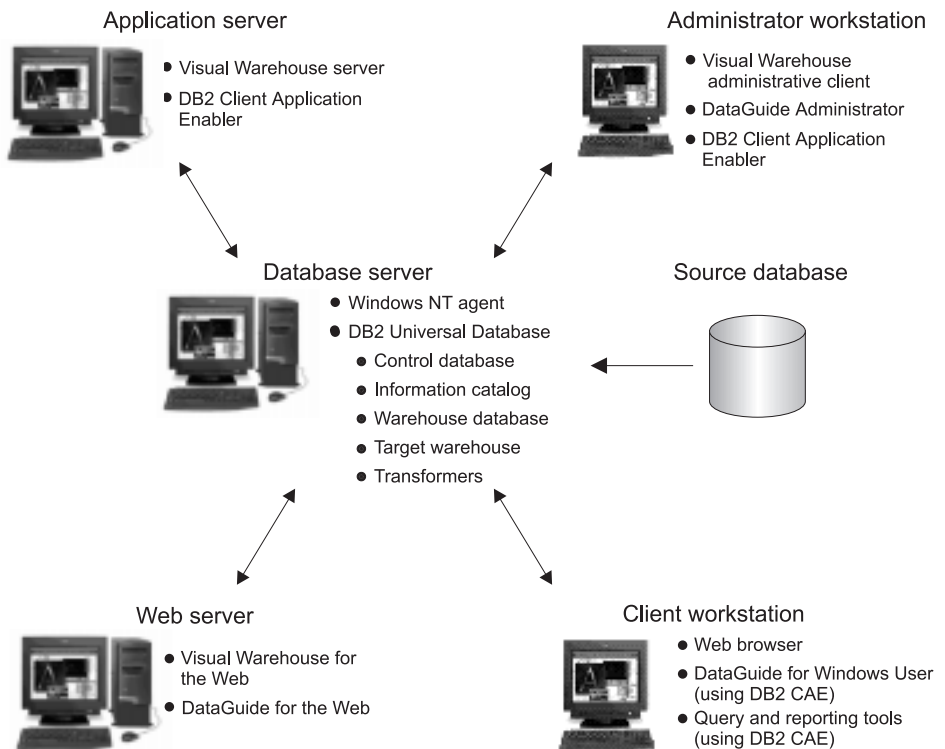


Figure 1. Sample configuration for Visual Warehouse, DataGuide, and DB2 Universal Database

Planning your network

Defining data dependencies

As you define your own warehouse systems and operating environment, you also need to establish the system and administrative links to the data sources. This can require support from your information technology group, or the group in your organization that controls connectivity to host systems and networks. You also need the owners of remote data to grant you access to their systems.

If you need to obtain data from multiple, interdependent sources, create a plan to coordinate how and when to access the data. Consider:

- How many servers you need to use for your business requirements
- How you will get access agreements from owners of remote data that you want to access

To access data, Visual Warehouse uses *agents*, which manage the flow of data between the data sources and the target warehouses. The Visual Warehouse server includes a default agent. Here are some guidelines for deciding how many additional agent sites you might need and where to place them on your network:

Use existing connectivity

If you have already connected a workstation to the data source that you plan to use, place the agent on that workstation. For example, if a Windows NT workstation has a channel attachment to an MVS data source, place the agent on that workstation.

You can also reduce the workload on your network if you place the target warehouse on the same LAN that your users regularly access.

Map your data sources and target warehouses

If multiple target warehouses access a single data source, place one agent at each target warehouse location. If agents move data from multiple data sources to a single target warehouse, place one agent at each data source location.

Each data source must provide an ODBC driver, and a Visual Warehouse agent must have connectivity to the data source.

Determine the number of agent sites, based on the volume and frequency of data access

If your datamart accesses a small number of data sources, or if the datamart accesses the data sources on only a weekly or monthly basis, minimize the number of agent sites.

You should also consider how much time you have to access the source data when you run your business views. For example, if you

access source data once a month, but you have only a two-hour window in which to access the data, you might need more than one agent site.

Place your agent near the target warehouse that receives the largest volume of data.

Enable metadata synchronization between Visual Warehouse and DataGuide

If the administrative client and the Windows NT agent are on different workstations, install the DataGuide Administrator on the Windows NT agent site.

The administrative client workstation, the Windows NT agent site, and the Visual Warehouse server workstation must have DB2 connectivity with the Visual Warehouse control database.

For more information about metadata synchronization, see *Managing DataGuide*.

Enable metadata synchronization between Visual Warehouse and DB2 OLAP Server/Essbase

Install both DataGuide Administrator and the DB2 OLAP Server/Essbase client locally on the Visual Warehouse Windows NT agent site. The Visual Warehouse Windows NT agent site must have access to the DB2 OLAP Server workstation that contains the Essbase APIs.

If all other considerations are equal, place agents near the target warehouses

Because buffering performs better on an SQL SELECT statement than on an INSERT statement, agents generally perform better if they are close to the target warehouses.

Planning your network

Chapter 3. Preparing to install Visual Warehouse

Before you install Visual Warehouse, you must perform the following tasks:

- Install DB2 Universal Database.
- Create, catalog, and register databases that are used for the control database and the initial target warehouse.

You do not need to complete this step if you plan to perform a stand-alone installation (described in “Installing the Visual Warehouse stand-alone configuration” on page 42).

- Install connectivity software and verify connectivity between workstations.
- Set up access to remote databases.
- Install the Java™ Developer’s Kit (if you plan to install the Visual Warehouse transformers).

Install DB2 Universal Database

You can install Visual Warehouse components only on workstations that have connectivity to a DB2 server. Therefore, you need to install DB2 Universal Database (DB2 UDB) on the workstation where you plan to create your control database and warehouse databases. You also need to install DB2 UDB Client Application Enabler (DB2 CAE) on the workstations where you plan to install Visual Warehouse components.

To prepare for Visual Warehouse:

1. Install DB2 UDB.

For information about installing DB2 UDB, see *IBM DB2 Universal Database: Quick Beginnings for Windows NT*.

2. Install DB2 CAE on the workstations where you plan to install Visual Warehouse administrative clients and Visual Warehouse agents.

For information about installing DB2 CAE, see *IBM DB2 Universal Database: Quick Beginnings for Windows NT*.

3. On AIX and OS/2, set the DB2COMM environment variable for any DB2 server that will be accessed by nodes other than the one on which DB2 UDB resides:

```
SET DB2COMM=TCPIP
```

Create, catalog, and register databases

Create, catalog, and register databases

After you install DB2 UDB, create a control database and a warehouse database, and set up ODBC access to them. You do not need to do these steps if you are performing a stand-alone installation.

Do not use the control database as a source database or a warehouse database. The control database contains metadata, and the source databases and warehouse databases contain data.

See the *IBM DB2 Universal Database: Command Reference* for more information about the commands that are used in the following procedures.

Creating databases

To create a Visual Warehouse control database and warehouse database on Windows NT:

1. Use the DB2 Command Line Processor to enter the following command:

```
CREATE DATABASE database-name
```

where *database-name* is the name of the control database.

2. Enter the CREATE DATABASE command again, this time by specifying *database-name* as the name of the database that will contain the target warehouse.

Tip: On Windows NT, you can use the DB2 Control Center to complete this task. See *IBM DB2 Universal Database: Administration Getting Started* for more information.

Cataloging and registering databases

If the DB2 server is on a different workstation than the Visual Warehouse server, catalog the node that contains the control database, and the control database itself, on the Visual Warehouse server workstation.

If the Visual Warehouse clients and the Visual Warehouse server are on different workstations, also catalog the node that contains the control database, and the control database itself, on the Visual Warehouse client workstations.

1. Catalog the node that contains the control database by entering the following command in the DB2 Command Line Processor:

```
CATALOG TCP/IP NODE hostalias REMOTE ipaddress SERVER svcname
```

You can also catalog an NPIPE, advanced program-to-program communications (APPC), or NetBios node.

2. Catalog the control database by entering the following command in the DB2 Command Line Processor:

```
CATALOG DATABASE database-name AS dbalias AT NODE hostalias
```

You do not need to catalog the control database on the agent site. Agents communicate with the control database only through the Visual Warehouse server, so the agents do not need direct access to the control database.

3. Register each database as a system DSN by entering the following command in the DB2 Command Line Processor:

```
CATALOG SYSTEM ODBC DATA SOURCE database-name
```

You must register the source databases and warehouse databases, even if they are local, with the ODBC manager. If several agent sites use the same database, you must register that database under the same name in ODBC for all the sites.

Tip: On Windows NT, you can use the DB2 UDB Client Configuration Assistant to complete this task. See *IBM DB2 Universal Database: Quick Beginnings for Windows NT* for information about registering databases with the DB2 UDB Client Configuration Assistant.

Install connectivity software

To access your data sources and target warehouses, you need to install ODBC drivers, connectivity software (such as TCP/IP), and database clients on your Visual Warehouse agent sites.

1. Install ODBC drivers. The Visual Warehouse agents have connectivity to the source databases and target warehouses through the ODBC driver that is associated with that database.

The DB2 UDB for Windows NT CD-ROM that is included in your Visual Warehouse package includes a set of ODBC drivers for DB2.

The Visual Warehouse CD-ROM contains several Intersolv ODBC drivers. You can install the drivers using the Custom installation choice, described in “Custom installation” on page 58.

For other types of databases, see the product documentation for information about obtaining and installing an ODBC driver.

2. Install the connectivity products that are needed to access remote source databases and warehouse databases. This might include TCP/IP or NetBIOS customization, SNA Client for Windows NT, or SNA Server for Windows NT.

You need to install the connectivity products on the Visual Warehouse server (if you are using a local agent) and on your Visual Warehouse agent sites. For example, you can access a DB2 family database through TCP/IP

Install connectivity software

or NetBIOS. You can also access a DB2 for MVS database through TCP/IP or NetBIOS if a DB2 Connect gateway is accessible on the network with connectivity to the host database that you need.

For more information about non-DB2 source databases and defining sources and targets within Visual Warehouse, see *Managing Visual Warehouse*.

See *Visual Warehouse Host Adapters: MVS Planning and Installation Guide* for connectivity requirements when you are using a Visual Warehouse Host Adapter.

See *Start Here: Basics and Installation—Microsoft Windows NT Workstation* for information about installing TCP/IP on Windows NT.

3. Install the client component of remote databases on your Visual Warehouse agent sites and on your Visual Warehouse server (if you are using a local agent).

For the DB2 family of databases, you need DB2 UDB Client Application Enabler (DB2 CAE) for Windows NT and Windows 95. The Visual Warehouse package includes DB2 CAE. You can also download DB2 CAE from the IBM DB2 Web site (<http://www.software.ibm.com/data/db2>). Make sure that you follow the instructions in the product's README files.

For non-IBM databases, see *Managing Visual Warehouse*. In general, follow the instructions for the database.

4. Test TCP/IP connectivity between the following workstations:
 - Visual Warehouse server to the Visual Warehouse agent sites
 - Visual Warehouse agent sites to the Visual Warehouse server
 - Visual Warehouse administrative client to the Visual Warehouse server
 - Visual Warehouse server to the Visual Warehouse administrative client

To test the connectivity, open an MS-DOS command prompt window and enter `ping hostname` where *hostname* is the TCP/IP host name of the server, administrative client, or agent site. You will see several messages in the window that verify the TCP/IP connection, such as those shown in Figure 2 on page 25.

```
[C:\]ping dgntserv2.stl.ibm.com
PING dgntserv2.stl.ibm.com: 56 data bytes
64 bytes from 9.112.46.127: icmp_seq=1. time=0. ms
64 bytes from 9.112.46.127: icmp_seq=2. time=0. ms
64 bytes from 9.112.46.127: icmp_seq=3. time=0. ms
64 bytes from 9.112.46.127: icmp_seq=4. time=0. ms

----dgntserv2.stl.ibm.com PING Statistics----
5 packets transmitted, 4 packets received, 20% packet loss
round-trip (ms)  min/avg/max = 0/0/0
```

Figure 2. Sample response from PING command

For a workstation with OS/2 or AIX agents, make sure that you can ping the workstation using only the host name without the local domain name. For example, enter `ping dgntserv2` instead of `ping dgntserv2.stl.ibm.com`. You might need to add an entry in the `/etc/hosts` file such as:

```
123.45.67.89      dgntserv2      dgntserv2.stl.ibm.com
```

5. Test ODBC connectivity between any non-DB2 database clients and servers. If you are using a Windows NT agent, verify that connectivity can be established as a Windows NT system process.

Set up access to remote databases

After you create databases, you need to set up access to any remote databases that you might use:

1. On the Visual Warehouse agent site, set up user IDs with database and table privileges to the source databases and warehouse databases.
2. If DB2 Connect is on a remote workstation, set up a gateway site for DB2 DRDA source databases or a DB2 for OS/400 warehouse database.
3. If you are using remote DB2 source databases or warehouse databases, catalog the nodes that contain those databases.

For DB2 DRDA source databases or a DB2 for OS/400 warehouse database, catalog the DB2 Connect site by entering the following command in the DB2 Command Line Processor:

```
CATALOG TCPIP NODE hostalias REMOTE ipaddress SERVER svcname
```

You also can catalog APPC, NetBios, or NPIPE nodes.

You do not need to catalog nodes that contain non-DB2 source databases.

4. Catalog the source databases and warehouse databases by entering the following command in the DB2 Command Line Processor:

```
CATALOG DATABASE database_name AS dbalias AT NODE hostalias
```

Set up access to remote databases

You do not need to catalog non-DB2 source databases.

5. Test the connection to each database that you cataloged by entering the following command in the DB2 Command Line Processor:

```
CONNECT TO database_name USER userid USING password
```

Test the connection to each database from the Visual Warehouse server workstation, Visual Warehouse administrative client workstations, and Visual Warehouse agent sites.

6. On each workstation where DB2 Connect is installed, catalog the DCS entry.
7. Register each database that you cataloged as a system DSN with the ODBC Driver Manager, even if the database is local. Enter the following command in the DB2 Command Line Processor:

```
CATALOG SYSTEM ODBC DATA SOURCE database-name
```

Register the control database on the Visual Warehouse administrative client workstations.

Register the warehouse database on the Visual Warehouse agent sites.

If several agent sites use the same database, you must register it under the same name in ODBC for all the sites.

8. Verify that you can access your data through ODBC by using a query tool that supports ODBC, such as Brio, Business Objects, or Cognos.
Perform this verification from the Visual Warehouse agent sites.

Install the Java Developer's Kit

If you plan to perform a stand-alone installation, or if you plan to install the Visual Warehouse transformers using the custom installation choice, you must first install the Java Developer's Kit (JDK).

You can install the transformers on database servers that run on operating systems other than Windows NT. For information about obtaining and installing the JDK on other operating systems, see "Chapter 6. Installing Visual Warehouse transformers" on page 63.

The Visual Warehouse CD-ROM includes the installation program for the IBM Developer Kit for Windows[®], Java[™] Technology Edition 1.1.7. You need to install only the Program Files component. This component uses approximately 11 MB of disk space.

To install the Java Developer's Kit:

1. Run the file `ibm-jdk-n117p-win32-x86.exe`, which is located in the `JAVAWIN` directory on the Visual Warehouse CD-ROM. Follow the directions that are displayed.
2. After the installation program completes, update the Windows NT Path and `CLASSPATH` environment variables:
 - a. Open the Windows NT Control Panel.
 - b. Double-click **System**.
 - c. Click the **Environment** tab to view the variables.
 - d. Click System Variable **Path** and add the path of the JDK bin subdirectory to the end of the path. The default path is `C:\JDK1.1.7\BIN`.
 - e. Click **Set**.
 - f. Click System Variable **CLASSPATH**. Add the path where the transformers are installed, and the path of the directory that contains the DB2 Java support classes. Separate the path names with a semicolon. If the `CLASSPATH` variable does not exist, you must define it.

For example, you might add
`C:\SQLLIB\FUNCTION;C:\SQLLIB\JAVA\DB2JAVA.ZIP;` to your `CLASSPATH` variable.
 - g. Click **Set**.
 - h. Click **OK** to close the window.
3. Use the DB2 Command Line Processor to change the following database settings:
 - Set the JDK path parameter (`JDK11_PATH`) to the subdirectory where the JDK is installed:

```
UPDATE DATABASE MANAGER CONFIGURATION USING JDK11_PATH path
```

where *path* is the subdirectory where the JDK is installed. The default path is `C:\JDK1.1.7`.
 - Set the Java Virtual Machine heap size parameter (`JAVA_HEAP_SZ`) to 4096:

```
UPDATE DATABASE MANAGER CONFIGURATION USING JAVA_HEAP_SZ 4096
```
4. Close all windows and restart your workstation.

Install the Java Developer's Kit

Chapter 4. Hardware and software requirements

Before you install Visual Warehouse and DataGuide, verify that you have the necessary hardware and software. Hardware requirements for all components are summarized in Table 1. Software requirements begin on page 31.

Hardware requirements

Table 1 identifies the hardware requirements for each component that is included on the Visual Warehouse CD-ROM. If you install more than one component on a workstation, ensure that the workstation meets the necessary minimum combined requirements. For example, to install the Visual Warehouse server, Visual Warehouse administrative client, and a Visual Warehouse Windows NT agent on a single workstation, that workstation must have at least 64 MB of RAM and 546 MB of available disk space.

Unless you install all of the Visual Warehouse components on the same workstation, you need to install LAN connectivity hardware and software on all workstations where Visual Warehouse components are installed, including Visual Warehouse for the Web and DataGuide for the Web.

Table 1. Hardware requirements for Visual Warehouse components

Component	Processor type	Operating system	Minimum RAM	Monitor	Hard disk space
Visual Warehouse server	Pentium®	Microsoft Windows NT Workstation or Windows NT Server 4.0	32 MB (48 to 64 MB recommended)	SVGA	260 MB plus log file space (see “Visual Warehouse disk space requirements” on page 30)
Visual Warehouse administrative client	Pentium®	Windows NT Server or Windows NT Workstation 4.0	32 MB	SVGA	50 MB
Visual Warehouse Windows NT agent	Pentium®	Windows NT Server or Windows NT Workstation 4.0	32 MB	Not applicable	50 MB
Visual Warehouse AIX agent	Any processor that supports RS/6000	AIX Version 4.1 or later	64 MB	Not applicable	50 MB

Hardware requirements

Table 1. Hardware requirements for Visual Warehouse components (continued)

Component	Processor type	Operating system	Minimum RAM	Monitor	Hard disk space
Visual Warehouse OS/2 agent	Pentium®	OS/2 Warp Version 3 or later	16 MB	Not applicable	50 MB
Visual Warehouse AS/400 agent	133 MHz or 233-300 MHz processor (if agent and database are on the same workstation)	AS/400 Version 4.2 plus PTF SF49042	64 MB or 256 MB plus 100 MB bufferpool (if agent and database are on the same workstation)	Not applicable	Not applicable
Visual Warehouse Sun agent	Not applicable	Solaris 2.6 or later	Not applicable	Not applicable	50 MB
Visual Warehouse transformers	Not applicable	Not applicable	Not applicable	Not applicable	12 MB for JDK; 321 KB for transformers
DataGuide	486	Windows NT 4.0, Windows 95, or Windows 98	16 MB	8514/A, XGA, or SVGA	2 MB to 25 MB (see "DataGuide disk space requirements" on page 31)

Visual Warehouse disk space requirements

The Visual Warehouse server requires hard disk space for the product, its prerequisites, and the warehouse databases that are on the server:

- 60 MB of hard disk space for the product
- 200 MB of hard disk space for the prerequisites and their PAGEFILE (swapper) space

To determine the hard disk space that is needed for your database server installation, include the expected size of any warehouse databases that you plan to use on the server. You also need to include log files and tables, and any database backups that you plan to keep on the server.

DB2 UDB for Windows NT log files hold transaction data until the transaction is committed. You must reserve log file space that can hold the sum of all transactions occurring at peak load. For example, if you run two 50 MB business views concurrently and each one replaces an old edition of the same business view, then this activity uses 200 MB of log file space:

- 50 MB (new edition of business view 1)
- 50 MB (deleted edition of business view 1)
- 50 MB (new edition of business view 2)

- 50 MB (deleted edition of business view 2)

When the transaction is committed, the log file space is freed.

DataGuide disk space requirements

In addition to fixed disk space that is required for operating systems and application programs, DataGuide requires the following fixed disk space:

Shared files

Each DataGuide Administrator installation requires 24.5 MB of shared drive disk space:

- 9.5 MB for product files
- 3 MB for sample extractors
- 12 MB for sample data and sample information catalog

Local files

You need the following amounts of local disk space for each DataGuide Administrator and DataGuide User installation:

Administrator

1.7 MB fixed disk

User (LAN environment)

1.7 MB fixed disk

User (Stand-alone)

9.1 MB fixed disk

Software requirements

This section describes the software requirements for the Visual Warehouse and DataGuide components.

Visual Warehouse server

Visual Warehouse requires the following software on the server:

- Microsoft Windows NT Workstation or Windows NT Server Version 4.0 or later
- IBM DB2 UDB for Windows NT Server Version 5.0 or later, or DB2 UDB CAE for Windows NT Version 5.0 or later for access to remote control databases
- IBM DB2 Open Database Connectivity (ODBC) support

If you want DRDA connectivity to DB2 databases that reside on host systems, install DB2 Connect. You can install one of the following products on a workstation on the LAN:

Software requirements

- DB2 Connect Enterprise Edition
- IBM DDCS for Windows NT Version 2.3.1 Multi-User Gateway or later
This DDCS product requires SNA Client Support of Microsoft Windows NT 4.0 SNA Server Version 2.11 or later, or IBM Network Communications Server for Windows NT Version 5.01.
- IBM DDCS for OS/2 Version 2.3 Multi-User Gateway or later
- IBM DDCS for AIX Version 2.3 Multi-User Gateway or later

DB2 Connect and DDCS also require the appropriate LAN connectivity.

Database communications

DB2 UDB for Windows NT uses the base operating system to support NetBIOS, TCP/IP, and Novell IPX/SPX protocols for both server and client function. DB2 UDB for Windows NT supports TCP/IP and Advanced Program-to-Program Communications (APPC) through DB2 Connect.

The communication software that you need depends on the protocol that you want to use. The database server can accept requests from multiple protocols concurrently. If you want to use several protocols, make sure that you install all of the required products (see the appropriate DB2 UDB for Windows NT publication for additional details).

ODBC drivers

To connect to data sources and target warehouses, you need to install ODBC drivers. You do not need to install ODBC drivers if you are using an AS/400 agent.

DB2 UDB for Windows NT, which is included in the Visual Warehouse package, includes a DB2 ODBC driver. Visual Warehouse includes ODBC drivers for several other databases.

For additional ODBC drivers, see the appropriate documentation for the database that you want to access.

Source databases

Visual Warehouse supports the following DB2 databases as source databases:

- IBM DB2 for OS/2 Server Version 2.1.2 or later
- IBM DB2 for OS/400 Version 3.7 or later
- IBM DB2 for AIX/6000 Version 2.1.2 or later
- IBM DB2 for Windows NT Version 2.1.2 or later
- IBM DB2 for MVS Version 4 or later

- IBM DB2 DataJoiner Version 2.1 (or later) for AIX and Windows NT
- IBM DB2 for HP-UX Version 2.1 or later
- IBM DB2 for the Solaris Operating Environment Version 2.1.2 with Fixpack 454490 or later
- IBM DB2 for SCO or later
- IBM DB2 for SINIX or later
- IBM DB2 Universal Database Version 5.2 for SCO Unixware 7

For information about non-DB2 source databases, see “Accessing non-DB2 source databases” on page 35.

Warehouse databases

You must define at least one warehouse database before you install Visual Warehouse. You can define additional warehouse databases later. For remote warehouse databases, you can install any of the following additional database products on the remote system:

- IBM DB2 Universal Database Version 5.0 (or later) for AIX, OS/2, Windows NT, HP-UX, or SUN Solaris
- IBM DB2 Universal Database Version 5.2 for SCO Unixware 7
- IBM DB2 for OS/400 Version 4.2
- IBM DB2 for MVS Version 4
- IBM DB2 DataJoiner Version 2.1 (or later) for AIX or Windows NT

Visual Warehouse administrative clients

Visual Warehouse requires the following software on workstations where you plan to install the Visual Warehouse administrative clients:

- Microsoft Windows NT Workstation or Windows NT Server Version 4.0
- For the control database, IBM DB2 UDB for Windows NT Server Version 5.0, or IBM DB2 UDB Client Application Enabler for Windows NT Version 5.0 or later, to provide access to a remote control database
- A DB2 ODBC driver to connect to the control database on the Visual Warehouse server. DB2 UDB for Windows NT includes the DB2 ODBC driver.

Visual Warehouse agent sites

Visual Warehouse supports the following operating systems as agent sites:

- Microsoft Windows NT Workstation or Windows NT Server Version 4.0
- IBM AIX Version 4.1.4 or later
- IBM OS/2 Warp Version 3.0 or later
- IBM OS/400 Version 4.2 or later

Software requirements

- SUN Solaris Version 2.6 or later

You must install DB2 UDB for Windows NT or DB2 UDB Client Application Enabler for Windows NT on the agent site workstation before you install the Visual Warehouse Windows NT agent.

If you are using OS/2 Warp Version 3, the Visual Warehouse OS/2 agent requires TCP/IP for OS/2 Version 2 or later. If you are using OS/2 Warp Connect or OS/2 Warp Version 4, TCP/IP for OS/2 is not required.

Connectivity

Visual Warehouse requires connectivity from the agent sites to the source and warehouse databases.

For access to relational source databases, use DRDA and LAN connectivity. For DRDA, the minimum software product requirement is identified in the *IBM Distributed Relational Database Architecture Connectivity Guide*.

ODBC connection types

When you install the Visual Warehouse SUN Solaris agent or the AIX agent, two ODBC connection types are available:

DB2 CLI

This connection type accesses the following sources:

- DB2 family
- Heterogeneous data sources through DataJoiner, including:
 - Oracle
 - Sybase
 - Microsoft SQL Server
 - Informix
 - VSAM
 - IMS

If you use the DB2 CLI connection type, you must have DataJoiner for heterogeneous data access. VSAM and IMS source access also requires DataJoiner Classic Connect.

Intersolv-enabled ODBC

This connection type accesses the following sources:

- DB2 family
- Oracle
- Sybase

- Informix
- Data file

Both connection types support the following warehouse databases:

- DB2 UDB EE
- DB2 UDB EEE
- DB2 for OS/400
- DB2 for OS/390
- DataJoiner
- Oracle (through DataJoiner)
- Sybase (through DataJoiner)
- Informix (through DataJoiner)

Both connection types include Visual Warehouse executable files.

Accessing non-DB2 source databases

Visual Warehouse supports access from agent sites to several non-DB2 source databases by using ODBC. The Visual Warehouse CD-ROM includes several ODBC drivers. You can install them using the Custom installation choice, described in “Custom installation” on page 58.

To avoid errors, do not configure Informix databases with Oracle or Sybase databases on the same workstation.

You must install the client software that is shown in Table 2 on the agent site, and you must configure that client software for ODBC.

Table 2. Software requirements for agent sites

Data source	Windows NT agent	AIX agent	OS/2 agent	SUN Solaris agent
Informix	Informix-Connect 7.x or 9.1.3 for Windows NT	For Informix-Connect 7.x, Intersolv Version 3.0.1 Driver Manager and Informix driver	Intersolv Version 2.1.1 Driver Manager and Informix driver	For Informix-Connect 7.x, Intersolv Version 3.0.1 Driver Manager and Informix driver
Oracle	Oracle Net 8 Client 8.0.4 for Windows NT	For Oracle Version 7.3.2, Intersolv Version 3.0.1 Driver Manager and Oracle driver	Oracle SQL*Net Version 2.1.4 for OS/2	For Oracle Version 7.3.2, Intersolv Version 3.0.1 Driver Manager and Oracle driver

Software requirements

Table 2. Software requirements for agent sites (continued)

Data source	Windows NT agent	AIX agent	OS/2 agent	SUN Solaris agent
Microsoft SQL Server Version 6.x	Microsoft SQL Server DB-Library and Net-Library Version 6.x	Not supported	Sybase Open Client Version 10 for OS/2	Not supported
Microsoft SQL Server Version 7.0	Microsoft SQL Server DB-Library and Net-Library Version 7.0	Not supported	Not supported	Not supported
Sybase	Sybase Open Client Library Version 10.03 or later (for Intel systems) <i>or</i> Version 11.01 (for Alpha systems), plus the appropriate Sybase Net-Library	For Sybase 11, Intersolv Version 3.0.1 Driver Manager and Sybase driver	Sybase Open Client Version 10 for OS/2	For Sybase 11, Intersolv Version 3.0.1 Driver Manager and Sybase driver
IMS and VSAM	Visual Warehouse Host Adapter Version 1.3. Some configurations of the host adapter might require SNA Client Support of Microsoft Windows NT 4.0 SNA Server Version 2.11 or later.	DataJoiner and DataJoiner Classic Connect	Not supported	Not supported
Text files	An ODBC driver manager and a text driver	Intersolv Version 3.0.1 Driver Manager and text driver	An ODBC driver manager and a text driver	Intersolv Version 3.0.1 Driver Manager and text driver
Generic ODBC	An ODBC driver manager and an appropriate driver	Intersolv Version 3.0.1 Driver Manager and an appropriate driver	An ODBC driver manager and an appropriate driver	Intersolv Version 3.0.1 Driver Manager and an appropriate driver

For NFS or SNA connectivity, you need additional connectivity software. The software that you need depends on the communication protocol that is used on the agent site workstation.

Visual Warehouse transformers

When you install Visual Warehouse transformers, they are registered on the warehouse database as user-defined functions (UDFs) and stored procedures.

You must install the Java Developer's Kit (JDK) Version 1.1.6 or later on the database where you will install the transformers. The Visual Warehouse CD-ROM includes the JDK for Windows NT.

To install the Visual Warehouse transformers, you need one of the following databases:

Windows NT Version 4

One of the following products:

- DB2 UDB Version 5.2 or later
- DB2 UDB Version 5.0 with Fixpack 9044

AIX Version 4.1.5

One of the following products:

- DB2 UDB Version 5.2 or later
- DB2 UDB Version 5.0 with Fixpack 5, U457588 for Extended Enterprise Edition
- DB2 UDB Version 5.0 with Fixpack 5, U457227 for non-Extended Enterprise Edition

OS/2 Warp Version 4

One of the following products:

- DB2 UDB Version 5.2 or later
- DB2 UDB Version 5.0 with Fixpack 5, 9043

The drive where you plan to install the transformers must be formatted as HPFS.

SUN Solaris Version 2.6

One of the following products:

- DB2 UDB Version 5.2 or later
- DB2 UDB Version 5.0 (with Fixpack 5, U457589 for Extended Enterprise Edition)
- DB2 UDB Version 5.0 (with Fixpack 5, U457228 for non-Extended Enterprise Edition)

DataGuide Administrator

DataGuide Administrator requires the following products:

- Microsoft Windows NT Version 4.0 or Windows 95

Software requirements

- DB2 UDB Client Application Enabler Version 5.0 or later, or DB2 Connect if your information catalog is located remotely on an MVS or OS/400 database

You also need a connection to your LAN.

Visual Warehouse supports the following DB2 family databases as information catalog (DataGuide) databases:

- DB2 UDB Version 5.0 or later
- DB2 UDB Version 5.0 Extended Enterprise Edition (single node) for AIX
- DB2 for OS/390 Version 4 (or later)
- DB2 for OS/400 Version 3.1 (or later) that runs on the complex instruction set processors

DataGuide for Windows User

DataGuide for Windows User requires the following products:

- Microsoft Windows NT or Windows 95
- DB2 UDB Client Application Enabler Version 5.0 or later, or DB2 Connect if your information catalog is located remotely on an MVS or OS/400 database
- A connection to your LAN, unless you plan to install a stand-alone version of DataGuide for Windows User

Visual Warehouse for the Web

The Web server requires the following products:

- Web server software
- Net.Data Version 1.0.12 or later (and the latest fixpack for languages other than English)
- Perl 5 Interpreter
You can download Perl for Windows 95 and Windows NT from the ActiveState Web site <http://www.ActiveState.com/>
- DB2 CAE for access to the Visual Warehouse control database

The Web server workstation can be the same workstation where the Visual Warehouse control database is located, or a different workstation.

To access Visual Warehouse for the Web, the client workstation must have a Web browser that is enabled for HTML 3.2, such as Netscape Navigator 3.0 or Microsoft Internet Explorer 3.0.

DataGuide for the Web

The Web server requires the following products:

- Web server software
- Net.Data Version 1.0.12 or later (and the latest fixpack for languages other than English)
- Perl 5 Interpreter
You can download Perl for Windows 95 and Windows NT from the ActiveState Web site <http://www.ActiveState.com/>
- DB2 CAE for access to information catalogs

You must install DB2 UDB and the Visual Warehouse information catalog on the database server. The Web server workstation can be the same workstation as the database server, or a different workstation.

To access DataGuide for the Web, the client workstation must have a Web browser that is enabled for HTML 3.2, such as Netscape Navigator 3.0 or Microsoft Internet Explorer 3.0.

Chapter 5. Installing Visual Warehouse and DataGuide

This chapter describes the installation process for the basic Visual Warehouse configurations, and for the custom installation choices.

The basic Visual Warehouse configurations for Windows NT are shown in Table 3.

Table 3. Basic Visual Warehouse installation configurations for Windows NT

This configuration:	Is described in:
Stand-alone	“Installing the Visual Warehouse stand-alone configuration” on page 42
Server	“Installing the Visual Warehouse server configuration” on page 45
Administrative client	“Installing the Visual Warehouse administrative client configuration” on page 47
Windows NT agent	“Installing Visual Warehouse agents” on page 48
Transformers	“Chapter 6. Installing Visual Warehouse transformers” on page 63

The custom installation choices are described in “Custom installation” on page 58.

For information about installing Visual Warehouse agents on operating systems other than Windows NT, see “Installing Visual Warehouse agents” on page 48.

For information about installing Visual Warehouse transformers on operating systems other than Windows NT, see “Chapter 6. Installing Visual Warehouse transformers” on page 63.

For information about installing Visual Warehouse for the Web and DataGuide for the Web, see “Chapter 7. Installing Visual Warehouse Web components” on page 71.

Installing a stand-alone configuration

Installing the Visual Warehouse stand-alone configuration

The stand-alone configuration installs all the necessary Visual Warehouse components on a single workstation. A stand-alone configuration consists of the following components:

- Visual Warehouse server
- Visual Warehouse administrative client
- Visual Warehouse transformers
- DataGuide Administrator
- DataGuide online documentation
- Sample extractors
- Sample information catalog
- Intersolv 3.10 ODBC drivers
- ISV Toolkit
- Online publications (PDF files)

The installation process creates a default control database, VWCNTRL, and a default warehouse database, VWTGTWHS. A default information catalog is created in the control database, and a default target warehouse is created in the warehouse database.

The installation process changes some environment variables. See “Appendix B. Visual Warehouse environment structure” on page 125 for information about checking the length of your PATH variable and other changes that are made to your environment variables.

Before you install a stand-alone configuration:

- Ensure that DB2 UDB is installed on the workstation.
- Ensure that the JDK 1.1.6 is installed on the workstation.
- Ensure that the Windows NT user ID that you plan to use to install Visual Warehouse has administrator privileges.

For information about installing DB2 UDB and the JDK, see “Chapter 3. Preparing to install Visual Warehouse” on page 21.

To install a stand-alone configuration:

1. Close all Windows programs.
2. Insert the Visual Warehouse CD in your CD-ROM drive.
3. In the Welcome window, click **Next**.
4. In the Setup Type window, click **Stand-alone Configuration**. Click **Next**.

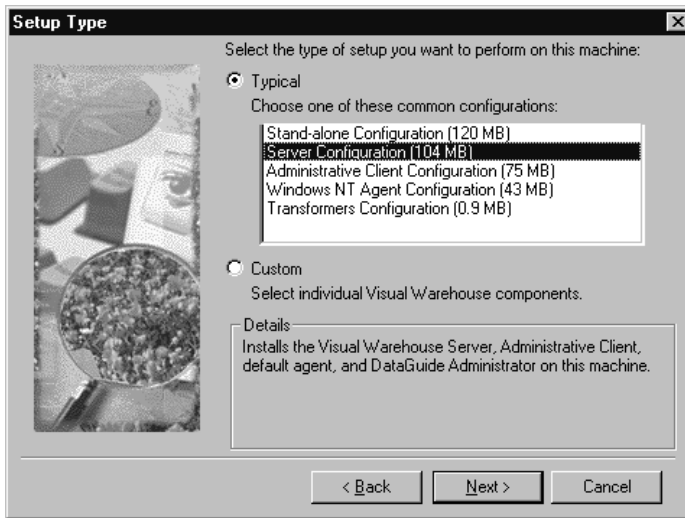


Figure 3. Setup Type window

5. In the Select Destination window, specify the path where the Visual Warehouse files will reside, and the path where the DataGuide shared files will reside. If you want to change the default paths, click **Browse**.
6. In the Database Access window, type the Windows NT user ID and password.

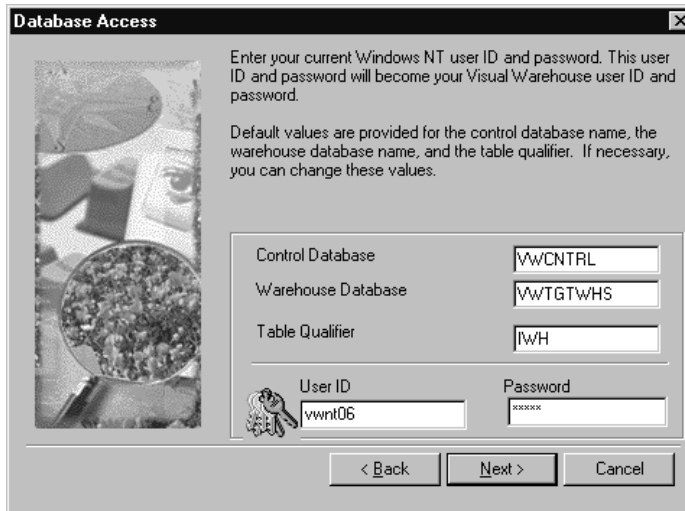


Figure 4. Database Access window

Installing a stand-alone configuration

The default control database and warehouse database are created with this user ID and password. This user ID and password will also become your Visual Warehouse user ID and password.

You can change the name of the default control database, the name of the default warehouse database, and the default table qualifier in this window.

7. In the Specify Parameters window, verify the host name of the workstation and the name of the warehouse database that you want to install the transformers on.

Select whether to register the transformers as fenced or not fenced stored procedures.

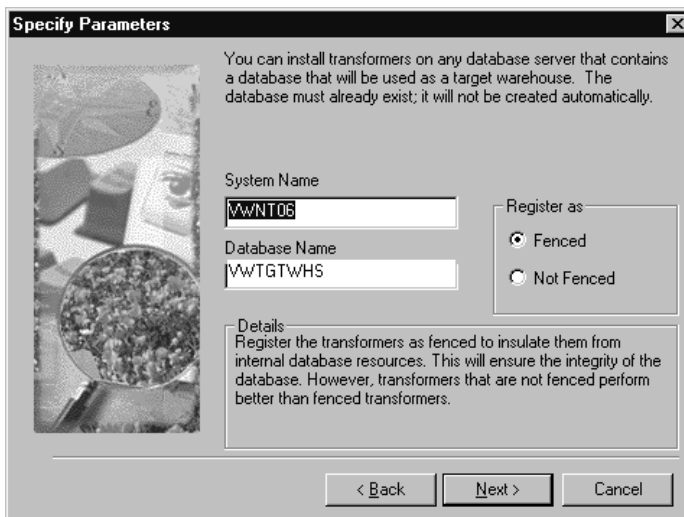


Figure 5. Specify Parameters window

8. In the Select Program Folder window, click **Next** to accept the default folder, Visual Warehouse, as the location for component icons.
9. In the Start Copying Files window, review your selections. If you want to change any of your selections, click **Back** to return to the window where you can change the selection. Click **Next** to begin copying files.
10. A message is displayed about the length of your environment variables. Click **OK** in the message window to continue.

At this point, Visual Warehouse creates the default control database, warehouse database, information catalog, and default warehouse. Visual Warehouse also catalogs the databases in DB2 UDB and registers them with ODBC.

Installing a stand-alone configuration

Visual Warehouse initialization also takes place at this point. After initialization completes, the status of the initialization process is displayed.

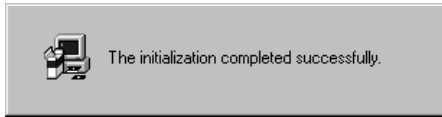


Figure 6. Initialization status window

If the initialization process was successful, the installation process continues and starts checking the installation of the transformers.

If the initialization process was not successful, note the error, then click **OK** to continue and start checking the installation of the transformers.

11. After the installation of the transformers is checked, the README file is displayed and the Software Registration Tool window opens.
 - Read the README file, then close the window.
 - Follow the instructions in the Software Registration Tool window to register Visual Warehouse.
12. Minimize the Visual Warehouse Setup window and use the DB2 Command Line Processor to set the default application heap parameter (APPLHEAPSZ) for the default database to 1024:

```
UPDATE DATABASE CONFIGURATION FOR VMTGTWHS USING APPLHEAPSZ 1024
```
13. Maximize the Visual Warehouse Setup window and click **Finish** to restart the workstation.

Installing the Visual Warehouse server configuration

A Visual Warehouse server installation consists of the following components:

- Visual Warehouse server
- Visual Warehouse administrative client
- DataGuide Administrator
- DataGuide online documentation
- Sample extractors
- Sample information catalog
- Intersolv 3.10 ODBC drivers
- ISV Toolkit

The installation process changes some environment variables. See “Appendix B. Visual Warehouse environment structure” on page 125 for

Installing the Visual Warehouse server

information about checking the length of your PATH variable and other changes that are made to your environment variables.

Before you install the Visual Warehouse server:

- Ensure that DB2 UDB or DB2 CAE is installed on the workstation.
- Ensure that the Windows NT user ID that you plan to use to install the Visual Warehouse server has administrator privileges.

To install the Visual Warehouse server:

1. Close all Windows programs.
2. Insert the Visual Warehouse CD in your CD-ROM drive.
3. In the Welcome window, click **Next**.
4. In the Setup Type window, click **Server Configuration**, then click **Next**.
5. In the Select Destination window, specify the path where the Visual Warehouse files will reside, and the path where the DataGuide shared files will reside.
6. In the Control Database Access window, type the name of the control database.

Type the DB2 user ID and password that you want to use to initialize or migrate the database.

If necessary, change the table qualifier. You might need to change it if the control database you are migrating uses a table qualifier other than IWH.

7. In the Select Program Folder window, click **Next** to accept the default folder, Visual Warehouse, as the location for component icons.
8. In the Start Copying Files window, review your selections. If you want to change any of your selections, click **Back** to return to the window where you can change the selection. Click **Next** to begin copying files.
9. A message is displayed about the length of your environment variables. Click **OK** in the message window to continue.

Visual Warehouse initialization takes place at this point. During initialization, the installation process attempts to access the database you specified in the Control Database Access window. If the database cannot be accessed with the user ID and password that you entered, the window is displayed again so you can change the information.

If the initialization process was successful, the installation process continues.

If the initialization process was not successful, note the error, then click **OK** to continue.

10. After installation, the README file is displayed and the Software Registration Tool opens.
 - Read the README file, then close the window.

- Follow the instructions in the Software Registration Tool window to register Visual Warehouse.
11. In the Setup Complete window, click **Finish** to restart the workstation.

Installing the Visual Warehouse administrative client configuration

If you need to access Visual Warehouse from a remote workstation, install the Visual Warehouse administrative client. You can install a Visual Warehouse administrative client on the same workstation as a Visual Warehouse server, or on a client workstation. You can install as many Visual Warehouse administrative clients as you need.

A Visual Warehouse administrative client installation consists of the following components:

- Visual Warehouse administrative client
- DataGuide Administrator
- ISV Toolkit

The installation process changes some environment variables. See “Appendix B. Visual Warehouse environment structure” on page 125 for information about checking the length of your PATH variable and other changes that are made to your environment variables.

Before you begin to install Visual Warehouse administrative clients:

- Make sure that you catalog the node that contains the control database and the control database.
- Make sure that you registered the control database as a system DSN.

See “Cataloging and registering databases” on page 22 for more information.

To install Visual Warehouse administrative clients:

1. Close all Windows programs.
2. Insert the Visual Warehouse CD in your CD-ROM drive.
3. In the Welcome window, click **Next**.
4. In the Setup Type window, click **Administrative Client Configuration**, then click **Next**.
5. In the Select Destination window, specify the paths where the Visual Warehouse files will reside, and the path where the DataGuide shared files will reside, then click **Next**.
6. In the Select Program Folder window, click **Next** to accept the default folder, Visual Warehouse, as the location for component icons.

Installing administrative clients

7. In the Start Copying Files window, review your selections. If you want to change any of your selections, click **Back** to return to the window where you can change the selection. Click **Next** to begin copying files.
8. A message is displayed about the length of your environment variables. Click **OK** in the message window to continue.
Visual Warehouse initialization takes place at this point. If the initialization process was successful, the installation process continues.
If the initialization process was not successful, note the error, then click **OK** to continue.
9. The README file opens. Close the README file after reading it.
10. In the Setup Complete window, click **Finish** to restart the workstation.

Installing Visual Warehouse agents

When you install a Visual Warehouse server as part of a stand-alone or server configuration, a default agent is installed. If you require an agent that is remote from the server, install a Visual Warehouse agent.

You can install the Visual Warehouse agent on Windows NT, OS/2, AIX, SUN Solaris, or OS/400. For information about installing a Visual Warehouse agent on AS/400, see *Installing and Using the Visual Warehouse AS/400 Agent*.

Agent workstations must have access to source and warehouse databases. You must register these databases with ODBC as system DSNs. This applies also to the server workstation for data that is accessed by the default local agent.

You must install TCP/IP on the agent site workstation to establish connectivity between the agent site and the Visual Warehouse server. You will customize TCP/IP for Visual Warehouse later, when you install the Visual Warehouse agent code. (If you use the server workstation, this customization has been completed.)

Installing the Windows NT agent configuration

When you install the Visual Warehouse Windows NT agent on your workstation, Intersolv 3.10 ODBC drivers are also installed.

Before you install the Visual Warehouse Windows NT agent:

- Ensure that either DB2 UDB or DB2 CAE is installed on the agent workstation.
- Ensure that you are using a Windows NT user ID that has administrator privileges.

The installation process changes some environment variables. See “Appendix B. Visual Warehouse environment structure” on page 125 for information about checking the length of your PATH variable and other changes that are made to your environment variables.

1. Close all Windows programs.
2. Insert the Visual Warehouse CD in your CD-ROM drive.
3. In the Welcome window, click **Next**.
4. In the Setup Type window, click **Windows NT Agent Configuration**, then click **Next**.
5. In the Select Destination window, specify the path where the Visual Warehouse files will reside, then click **Next**.
6. In the Select Program Folder window, click **Next** to accept the default folder, Visual Warehouse, as the location for component icons.
7. In the Start Copying Files window, review your selections. If you want to change any of your selections, click **Back** to return to the window where you can change the selection. Click **Next** to begin copying files.
8. A message is displayed about the length of your environment variables. Click **OK** in the message window to continue.
Visual Warehouse initialization takes place at this point. If the initialization process was successful, the installation process continues.
If the initialization process was not successful, note the error, then click **OK** to continue.
9. The README file opens. Close the README file after reading it.
10. In the Setup Complete window, click **Finish** to restart the workstation.

After you install the Visual Warehouse Windows NT agent, click **Start** → **Settings** → **Control Panel** → **ODBC** to register your source and target databases as system DSNs.

Installing the OS/2 agent

Installing a Visual Warehouse agent on OS/2 consists of installing the agent code and cataloging the DB2 nodes and databases.

Before you install the OS/2 agent:

- Verify that you installed DB2 CAE on the agent site.
- Verify that the DB2 ODBC driver and driver manager (available from the DB2 UDB CD-ROM included in your Visual Warehouse package) are installed in the \OS2 directory of your boot drive.
- To access databases with the installed ODBC drivers, ensure that the correct client software is installed for the data sources that you plan to use. Table 2 on page 35 shows the software requirements for supported data sources.

Installing Visual Warehouse agents

To install the OS/2 agent and executable versions of the sample Visual Warehouse programs:

1. Navigate to the VWAGTOS2 directory.
 - If you are installing the agent from a CD-ROM:
 - a. Insert the Visual Warehouse CD in your CD-ROM drive.
 - b. Open an OS/2 window.
 - c. Change to the VWAGTOS2 directory.
 - If you are installing the agent from an image:
 - a. Open an OS/2 window.
 - b. Change to the drive where the image is located.
 - c. Change to the VWAGTOS2 directory.
2. Run `install.exe`.
3. To ensure that the correct ODBC driver will be used, find the file `ODBC.DLL` located in the directory where you installed the OS/2 agent components and rename it to `ODBC.BAK`.
4. Restart your workstation.

You must catalog the DB2 nodes and databases, and register each source and warehouse database that you want to use with the OS/2 agent as a system DSN. See “Cataloging and registering databases” on page 22 for more information.

When you install the Visual Warehouse OS/2 agent, the OS/2 agent daemon is added to your OS/2 Startup folder. When the OS/2 agent daemon starts from the OS/2 Startup folder, the daemon runs in a window in a foreground session. While the daemon is running, this window provides status information about the daemon. You can end this session by closing the window.

The OS/2 agent creates log files in the directory that is specified by the `VWS_LOGGING` environment variable. The default value for this variable is `C:\IWH\LOGGING`.

Installing AIX and SUN Solaris agents

Installing a Visual Warehouse agent on AIX or SUN Solaris consists of the following tasks:

- Installing the agent code
- Configuring the agent environment
- Cataloging the DB2 nodes and databases

See “Appendix D. Visual Warehouse AIX and SUN Solaris agent environment structure” on page 135 for information on the AIX and SUN Solaris directory structure.

Installing the AIX agent

Before you install the AIX agent, ensure that you configured at least one DB2 instance. For more information, see *IBM DB2 Universal Database: Quick Beginnings for UNIX*.

To install the AIX agent:

1. Insert the Visual Warehouse CD into your CD-ROM drive.
2. Log on to AIX as *root*.
3. Enter the following command to mount the CD-ROM:

```
mkdir /cdrom;mount -v cdrfs -r /dev/cd0 /cdrom
```
4. Enter *smit*.
The System Management window opens.
5. Click **Software Installation and Maintenance**.
The Software Installation and Maintenance window opens.
6. Click **Install and Update Software**.
The Install and Update Software window opens.
7. Click **Install/Update Selectable Software (custom install)**.
The Install/Update Selectable Software (custom install) window opens.
If the Install/Update Selectable Software option is not available, select **Install and Update from ALL Available Software** and skip steps 8 and 9.
8. Click the **Install Software Product at Latest Level** box.
The Install Software Product at Latest Level window opens.
9. Click the **Install New Software Products at the Latest Level** box.
The Install New Software Products at the Latest Level window opens.
10. In the **INPUT device/directory for software** field, type `/cdrom/VWAGTAIX`, or the fully qualified file name of the Visual Warehouse AIX Agent install image.
11. Click **OK**.
The Install New Software Products at the Latest Level configuration window opens.
12. Type `IWH` in the **SOFTWARE to install** field.
13. Type `No` in the **Preview only?** field.
14. Type `Yes` in the **Commit software update** field.
15. Click **OK**.
A confirmation window opens.

Installing Visual Warehouse agents

16. Click **OK** to confirm your selection.
17. Exit SMIT.

The installation process begins. After installation is complete, the Output window opens. The Results column at the bottom of the Output window displays the status of the installation. If the installation was successful, the AIX agent will start automatically.

Follow the instructions in “Configuring the AIX and SUN Solaris agent environments” on page 54 to configure the AIX agent environment and to catalog the DB2 nodes and databases.

If the installation failed, contact the IBM Support Center.

Installing the SUN Solaris agent

You can install the SUN Solaris agent from CD-ROM or from an FTP site.

Installing the SUN Solaris agent from the CD-ROM: Before you begin to install the SUN Solaris agent from the CD-ROM, ensure that you configure at least one DB2 instance. For more information, see *IBM DB2 Universal Database: Quick Beginnings for UNIX*.

To install the SUN Solaris agent from the CD-ROM:

1. Insert the Visual Warehouse CD into your CD-ROM drive. Volume management automatically mounts the CD-ROM on /cdrom/cdrom0.
2. Log on as root.
3. Change the directory to /cdrom/cdrom0/VWAGTSUN/iwhpkg.
4. At the # prompt, enter the fully qualified pkgadd command. For example, enter:

```
/usr/sbin/pkgadd -d . IBMiwh
```

The installation process begins. After the installation completes, the status of the installation is displayed.

If the installation was successful, the /etc/inittab program starts the SUN Solaris agent.

Follow the instructions in “Configuring the AIX and SUN Solaris agent environments” on page 54 to configure the SUN Solaris agent environment and to catalog the DB2 nodes and databases.

If the installation failed, contact the IBM Support Center.

Installing the SUN Solaris agent from the FTP site: Before you begin to install the SUN Solaris agent from the FTP site:

- Ensure that you configure at least one DB2 instance. For more information, see *IBM DB2 Universal Database: Quick Beginnings for UNIX*.
- The SUN Solaris operating system on which you install the Visual Warehouse agent must have the proper code page translation tables between the UNICODE and the languages that you want to set and use. If the correct translation tables are not installed, contact your SUN Solaris system support before you install the Visual Warehouse SUN Solaris agent.

To install the SUN Solaris agent from the FTP site:

1. Download the following files from the FTP site:
 - `iwhpkg.tar`
 - `install_iwh.sh`
 - `README`
2. Select a directory that you will use as temporary working storage for the installation. The directory must be a fully qualified directory. You will need approximately 10 MB of free space.
3. If the `PATH` environment variable is not set for the current directory, specify the full path. To specify the full path, at the `#` prompt, enter:
`PATH=$PATH:.`
4. Change the installation script to an executable file. To change the file, at the `#` prompt, enter:
`chmod +x install_iwh.sh`
5. Run the install script by entering the following command at the `#` prompt:
`install_iwh.sh`
6. At the first command prompt, enter the fully qualified tar file name. For example: `iwhpkg.tar`
7. Enter the name of the directory that you created to use as a temporary storage directory.
8. Specify whether you want to install the SUN Solaris agent in the default directory, `/opt/IBMiwh`.
If you want to use the default directory, enter `yes` and enter the name of the directory that you want to use.
If you want to change the installation directory, enter `no`.
If you change the installation directory, do not include `IBMiwh` at the end of your directory path. `IBMiwh` is the name of the package that the installation process stores on your workstation. For example, if you enter `/xyz` as the directory path, the package is installed in `/xyz/IBMiwh`.
9. After you specify the installation directory, enter `yes` to begin the installation process.

Installing Visual Warehouse agents

After the installation is complete, the status of the installation is displayed.

If the installation is successful, the `/etc/inittab` program starts the SUN Solaris agent.

Follow the instructions in “Configuring the AIX and SUN Solaris agent environments” to configure the SUN Solaris agent environment and to catalog the DB2 nodes and databases.

If the installation failed, contact the IBM Support Center.

Configuring the AIX and SUN Solaris agent environments

After you install an AIX or SUN Solaris agent, you must configure the agent environment for the agent. Both of the connection types contain executable files.

This section describes the environment variables that you need to set in your `IWH.environment` file. All the environment variables that you must change are located between the `START` and `END` comment lines. Figure 7 on page 57 displays the configurable portion of a sample `IWH.environment` file.

The following rules apply when you set environment variables:

- You must set the `DB2INSTANCE` variable in all situations.
- For DB2 CLI access, you need to set only DB2 environment section variables.
- For Intersolv ODBC access, you must set the `IS_ODBC` variable. This variable must not have comments.
- Set the Intersolv driver variables for the database or databases that you selected.
- Remove the comment characters (`#`) for the variables that you set.

When you change settings in the `IWH.environment` file, you must restart the agent daemon.

To configure the AIX or SUN Solaris agent environment:

1. Set the connection type:
 - a. Log on as root.
 - b. Change to the install directory (see “Appendix D. Visual Warehouse AIX and SUN Solaris agent environment structure” on page 135).
 - c. Establish the correct soft link to `IWH2AGNT`. To do this, run the `IWH.agent.db.interface` command. The syntax for this command is:

```
IWH.agent.db.interface [ intersolv | db2cli ]
```


The agent executable file has two versions:

- The IWH2AGNT.db2cli2 file is the DB2 CLI link. Use this link to access DB2 family and heterogeneous data through DataJoiner (Oracle, Sybase, Microsoft SQL Server, Informix, VSAM, and IMS). This is the default link.
- The IWH2AGNT.ivodbc file is the Intersolv ODBC link. Use this link to access DB2 family, Oracle, Sybase, Informix databases, and data files.

2. To access DB2 or DataJoiner data, set the following variables in your IWH.environment file. You need to set these variables whether you use a double-byte character set (DBCS) or a single-byte character set (SBCS).

- DB2INSTANCE = <the name of the DB2 instance on which you plan to run the agent>

If you have multiple DB2 instances, you must choose one instance to be the master DB instance.

- LANG = <your local locale>
- LC_ALL = <your local locale>

The LANG and LC_ALL environment variables direct the agent to set the locale to your local locale.

- DB2CODEPAGE = <the code page of the client database>

The DB2CODEPAGE variable overrides the system code page. This variable is used to communicate with servers that cannot interpret the default code page from the client. The DB2CODEPAGE variable sets the default code page to a code page that the server supports. For more information, see *IBM DB2 Installing and Using DB2 Clients* for your operating system.

3. To access ODBC data using the Intersolv ODBC driver, set the following variables in your IWH.environment file:

- IS_ODBC = <your Intersolv base install directory>
- To access Oracle data, set the following environment variables:
 - ORACLE_HOME
 - TNS_ADMIN
 - ORACLE_SID
- To access Sybase data, set the following environment variables:
 - SYBASE
 - DSQUERY

Installing Visual Warehouse agents

- To access Informix data, set the following environment variables:
 - INFORMIXDIR
 - INFORMIXSERVER
- 4. To access Essbase or DB2 OLAP Server data, set the ARBORPATH environment variable in your IWH.environment file.
- 5. Optional: Customize your environment further by setting the following variables in your IWH.environment file:
 - VWS_LOGGING = <directory where the agent traces, Visual Warehouse program output logs, and environment output files are stored>
The default directory is /var/IWH.
 - ODBCINI = <default .odbc.ini file for ODBC users>
- 6. If you are using a shared /etc/services file in the NIS or AFS environment, add the following services to the shared /etc/services file. You must add these services because the install process updates only your local /etc/services file.

Port Name	Port Number
vwd	11001/tcp
vwlogger	11002/tcp

If these port numbers are already in use in your operating environment, you can change them in the /etc/services file on your system. However, you must also change the same port numbers on the Windows NT workstation where the Visual Warehouse client and server are installed, and on all the associated Visual Warehouse agent sites.

7. For these changes to take effect, stop and restart the agent daemon:
 - a. Determine the daemon process ID by entering:

```
ps -e | grep vwdaemon
```
 - b. Stop the daemon by entering:

```
kill [-9] pid
```

where pid is the daemon process ID.

After you stop the daemon, it will restart automatically.

Installing Visual Warehouse agents

```
# !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!! ATTENTION !!!!!!!!!!!!!!!!!!!!!!!!!!!!!
# !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
# !      START OF MUST SET ENVIRONMENT VARIABLES SECTION      !
# !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
# ! DB2 environment section. Please set DB2 instance id      !
#
DB2INSTANCE=<... your DB2 instance id ...>
LANG=en_US
LC_ALL=en_US
DB2CODEPAGE=850
export DB2INSTANCE LANG LC_ALL DB2CODEPAGE

# ! If using Intersolv odbc drivers, set the IS_ODBC          !
# ! environment variable to the path for Intersolv odbc      !
# ! directory.                                               !
#
# IS_ODBC=<.../intersolv/.../odbc>
# Should have path for Intersolv odbc dir

# ! For essbase udp, set the following path :                !
#
# ARBORPATH=<.../essbase>
# export ARBORPATH

# ! If using Oracle Intersolv driver, set the following paths: !
#
# ORACLE_HOME=<... your Oracle client HOME dir ...>
# TNS_ADMIN=<... your TNS_ADMIN dir ...>
# ORACLE_SID=<... your ORACLE_SID ...>
# export ORACLE_HOME TNS_ADMIN ORACLE_SID

# ! If using Sybase Intersolv driver, set the following paths: !
#
# SYBASE=<... your Sybase client dir ...>
# DSQUERY=<... your DSQUERY value ...>
# export SYBASE DSQUERY

# ! If using Informix Intersolv driver, set the following paths: !
#
# INFORMIXDIR=<... your Informix client dir ...>
# INFORMIXSERVER=<... your Informix Server ...>
# export INFORMIXDIR INFORMIXSERVER

# Environment variables for JCL templates and logs.
# You can choose to change values for following environment variables !
#
VWS_LOGGING=/var/IWH/                # default path
export VWS_LOGGING

# !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!! ATTENTION !!!!!!!!!!!!!!!!!!!!!!!!!!!!!
# !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
# !      END OF MUST SET ENVIRONMENT VARIABLES SECTION      !
# !!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
```

Figure 7. Sample IWH.environment file

Installing Visual Warehouse agents

Cataloging the DB2 nodes and databases

After you install the AIX or SUN Solaris agent and configure the agent environment, you must configure the DB2 nodes and databases:

1. Log on to the DB2 instance ID.
2. Catalog the DB2 nodes and databases that you plan to access. See “Cataloging and registering databases” on page 22 for more information.
If you have multiple DB2 instances on the same workstation, catalog as a remote database any database that was not created on the instance specified by the DB2INSTANCE variable in the IWH.environment file.
3. For Intersolv ODBC users: When you define the DB2 data source in the appropriate .odbc.ini file, ensure that the DSN is the true name of the DB2 database name or database alias name. The user ID that starts the agent must have the DB2INSTANCE set in the .profile file.

Tip: If you are using Intersolv ODBC drivers, see the sample .odbc.ini file located in the install directory. The name of the file is odbc.ini.intersolv.

Custom installation

You can use the Custom installation choice to selectively install Visual Warehouse components on Windows NT.

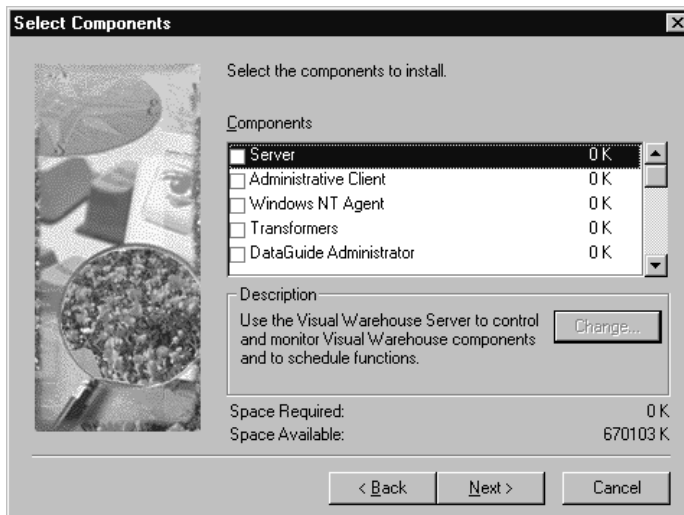


Figure 8. Custom installation window

You can install one or more of the following Visual Warehouse components:

Server Select this choice to install a Visual Warehouse server, DataGuide Administrator, and Intersolv 3.10 ODBC drivers on a workstation. To complete this installation, you need a DB2 user ID and password, the name of the control database, and the table qualifier used in that database.

You can choose which DataGuide Administrator components you want to install. Click **DataGuide Administrator**, then click **Change**.

Administrative Client

Select this choice to install the Visual Warehouse administrative client and DataGuide Administrator on your users' workstations.

You can choose which DataGuide Administrator components you want to install. Click **DataGuide Administrator**, then click **Change**.

Windows NT Agent

Select this choice to install a Windows NT agent and Intersolv 3.10 ODBC drivers to a workstation.

Transformers

Select this choice to install transformers on a database server. Before you install the transformers, you must install the JDK. See "Install the Java Developer's Kit" on page 26 for more information.

To complete this installation, you need to know the host name of the workstation and the name of the warehouse database where you are installing the transformers. You also need to specify whether to install the transformers as fenced or not-fenced stored procedures and user-defined programs.

DataGuide Administrator

Click the **Change** button in the Details area to specify which components to install:

- Product files
- Online documentation
- Sample extractors
- Sample information catalog

Initially, all of the components are selected.

Custom installation

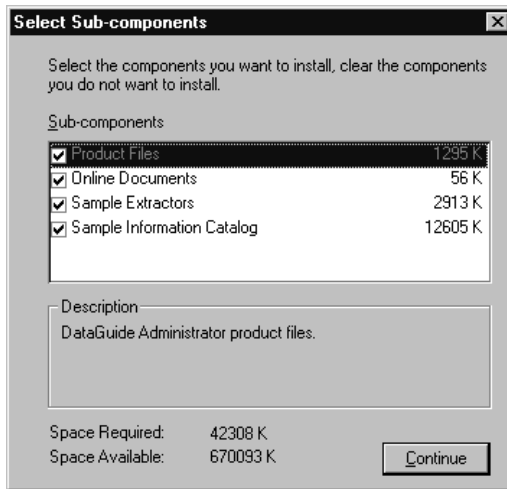


Figure 9. Specify Sub-components window

Intersolv 3.10 ODBC Drivers

Select this choice to add ODBC drivers to a workstation.

ISV Toolkit

Select this choice to install metadata templates and sample programs that you can use with the templates.

Documentation

Select this choice to install Visual Warehouse as PDF files.

To use the custom installation process:

1. Close all Windows programs.
2. Insert the Visual Warehouse CD in your CD-ROM drive.
3. In the Welcome window, click **Next**.
4. In the Setup Type window, click **Custom**, and then click **Next**.
5. In the Select Destination window, specify the path where the Visual Warehouse files will reside and, if necessary, the path where the DataGuide shared files will reside. If you want to change the default paths, click **Browse**.
6. In the Select Components window, select the check boxes for the component or components that you want to install. Descriptions for the components are displayed when you click them.
You can choose one or more components.
Click **Next**.
7. Provide the appropriate information in the windows that open.

Install DataGuide for Windows User

Install the DataGuide for Windows User component on DataGuide client workstations. You can install DataGuide for Windows User only on Windows 95 or Windows NT workstations. You can install as many DataGuide for Windows User instances as you need.

The following procedure describes how to install DataGuide for Windows on your users' workstations. If you want DataGuide for Windows users to install DataGuide for Windows themselves from a LAN drive, copy the DGWUSR directory from the Visual Warehouse CD to a LAN drive. Then notify your users of the location and the command they need to install the code on their workstation.

The installation process changes some environment variables. See "Appendix B. Visual Warehouse environment structure" on page 125 for information about checking the length of your PATH variable and other changes that are made to your environment variables.

1. Close all Windows programs.
2. Insert the Visual Warehouse CD in your CD-ROM drive.
3. Navigate to the DGWUSR directory on the CD-ROM and start the Setup program.
4. In the Welcome window, click **Next**.
5. In the Setup Type window, click either **Compact** or **Stand-alone**.
6. In the Select Destination window, specify the paths where you want the local and shared DataGuide files to reside, then click **Next**.
7. In the Select Program Folder window, click **Next** to accept the default folder, Visual Warehouse, as the location for component icons.
8. In the Start Copying Files window, review your selections. If you want to change any of your selections, click **Back** to return to the window where you can change the selection. Click **Next** to begin copying files.
9. A message is displayed about the length of your environment variables. Click **OK** in the message window to continue.
10. The README file opens. Close the README file after reading it.
11. In the Setup Complete window, click **Finish** to restart the workstation.

Installing samples

Visual Warehouse includes several samples. The samples are located in the VWSAMPLES directory on the CD-ROM. Each sample includes a README file that describes how to install the sample:

Installing samples

Demo1

This sample includes source data and tag language files that you can use to reconstruct a datamart that represents a beverage company. See the README file in the VWSAMPLE\DEMO1 directory for installation instructions.

Finance

This sample includes source data and tag language files that you can use to reconstruct a datamart that represents the operations of a manufacturing company. See the README file in the VWSAMPLE\FINANCE directory for installation instructions.

Reports

This sample includes tag language files that you can use to reconstruct business views that create reports on the Visual Warehouse log for day-to-day management of the warehouse. See the README file in the VWSAMPLE\REPORTS directory for installation instructions.

Chapter 6. Installing Visual Warehouse transformers

This chapter describes how to install the Visual Warehouse transformers. You can install transformers on any supported warehouse database.

Preparing to install the Visual Warehouse transformers

When you perform a stand-alone configuration installation on Windows NT, Visual Warehouse automatically installs the transformers (see “Installing the Visual Warehouse stand-alone configuration” on page 42 for more information). However, you might need to install the transformers on other operating systems and other database servers that contain target warehouses.

You need to install the transformers on every target warehouse on which you plan to use the transformers, even if you installed the transformers on another warehouse on the same database server.

Before you install the transformers on any operating system:

- Install DB2 UDB 5.2 (or DB2 UDB 5.0 with the latest fixpack). See *IBM DB2 Universal Database: Quick Beginnings* for the operating system for more information.
- Ensure that the JDK 1.1.6 or later is installed on the database server. If you already installed JDK 1.1.6 or later, you do not need to install it again.
 - The JDK for Windows NT is included on the Visual Warehouse CD-ROM. For information about installing the JDK on Windows NT, see “Install the Java Developer’s Kit” on page 26.
 - To install the JDK for AIX, go to <http://www.ibm.com/java/jdk/> and follow the instructions provided.
 - To install the JDK for OS/2 Warp, go to <http://www.ibm.com/java/jdk/> and follow the instructions provided.

To use the JDK on OS/2 Warp, install the following products from the IBM Software Choice Catalog at <http://www.software.ibm.com/os/warp/swchoice/>:

 - Netscape Navigator for OS/2 Version 2.02 or later.
 - OS/2 Feature Install Version 1.2 or later
 - OS/2 Warp Developer’s Kit for Java 1.1.6 (SBCS or DBCS) runtime package. You do not need to install the development package.
 - To install the JDK for SUN Solaris, go to <http://www.sun.com/java/products/platform.html> and follow the instructions provided.

Preparing to install transformers

- Use the DB2 Command Line Processor to update the DB2 UDB database manager configuration:

- Set the JDK installation path parameter (JDK11_PATH) to the subdirectory where the JDK is installed:

```
UPDATE DATABASE MANAGER CONFIGURATION USING JDK11_PATH path
```

where *path* is the subdirectory where the JDK is installed.

- Set the Java Virtual Machine heap size parameter (JAVA_HEAP_SZ) to 4096:

```
UPDATE DATABASE MANAGER CONFIGURATION USING JAVA_HEAP_SZ 4096
```

- If the control database is on a different DB2 server workstation than the warehouse database, catalog the node that contains the control database, and catalog the control database.

You need to catalog the node that contains the control database and the control database so that the Visual Warehouse metadata will be updated automatically when you run the transformers.

To catalog the node and the database, you can use the DB2 UDB Client Configuration Assistant, or you can use the DB2 Command Line Processor to complete the following steps on the workstation that contains the warehouse database:

- To catalog the node, enter the following command:

```
CATALOG TCPIP NODE hostalias REMOTE ipaddress SERVER serverport
```

where *hostalias* is the local name of the control database, *ipaddress* is the IP address or host name of the workstation where the control database is located, and *serverport* is the TCP/IP services port address for the DB2 server where the control database is located.

- To catalog the control database, enter the following command:

```
CATALOG DATABASE cntrldb-name AT NODE hostalias
```

where *cntrldb-name* is the name of the control database, and *hostalias* is the local name you gave to the control database when you cataloged the node.

- At the agent site workstation, catalog the node that contains the warehouse database, and catalog the warehouse database.

To catalog the node and the database, you can use the DB2 UDB Client Configuration Assistant, or you can use the DB2 Command Line Processor to complete the following steps on the agent site workstation:

- To catalog the node, enter the following command:

```
CATALOG TCPIP NODE hostalias REMOTE ipaddress SERVER serverport
```

where *hostalias* is the local name of the warehouse database, *ipaddress* is the IP address or host name of the workstation where the warehouse

database is located, and *serverport* is the TCP/IP services port address for the DB2 server where the warehouse database is located.

- To catalog the warehouse database, enter the following command:

```
CATALOG DATABASE database-name AT NODE hostalias
```

where *database-name* is the name of the warehouse database, and *hostalias* is the local name you gave to the warehouse database when you cataloged the node.

- Create target warehouses in the warehouse database.

Installing Visual Warehouse transformers on Windows NT

Before you begin to install Visual Warehouse transformers on Windows NT:

- Complete the steps in “Install the Java Developer’s Kit” on page 26.
- Complete the steps in “Preparing to install the Visual Warehouse transformers” on page 63.
- Log on to the database server by using a user ID and password that have either DBADMIN or SYSADM authority.

To install Visual Warehouse transformers on Windows NT:

1. Insert the Visual Warehouse CD in your CD-ROM drive.
The Welcome window opens.
2. In the Welcome window, click **Next**.
3. In the Setup Type window, click **Transformers Configuration**, then click **Next**.
4. In the Specify Parameters window, type the host name of the workstation and the name of the warehouse database where you want to install the transformers.

The host name value is case sensitive. It must match the value that is specified in the **System Name** field on the Database page of the Properties notebook for the target warehouse on which you are installing the transformers.

5. Select whether to register the transformers as fenced or not-fenced stored procedures and user-defined functions.
6. In the Start Copying Files window, review your selections. If you want to change any of your selections, click **Back** to return to the window where you can change the selection. Click **Next** to begin copying files.
7. Minimize the Visual Warehouse Setup window and use the DB2 Command Line Processor to set the default application heap parameter (APPLHEAPSZ) for this database to 1024:

```
UPDATE DATABASE CONFIGURATION FOR warehouse_database_name USING APPLHEAPSZ 1024
```

Installing transformers on Windows NT

8. Maximize the Visual Warehouse Setup window and click **Finish** to complete the installation.

Installing Visual Warehouse transformers on AIX and SUN Solaris

Before you begin to install the transformers on AIX or SUN Solaris:

- Complete the steps in “Preparing to install the Visual Warehouse transformers” on page 63.
- Ensure that you have either root or instance authority to install the transformers.
- If you installed the transformers on DB2 UDB, but want to install them on a different warehouse database in the same instance, start with step 9 of the following procedure.
- Set the PATH environment variable to *jdk11_path*/bin, where *jdk11_path* is the subdirectory where the JDK is installed.
- For SUN Solaris only: Update the db2profile file, located in the sqllib subdirectory (for example, /home/db2inst1/sqllib), to include *jdk11_path*/lib/sparc/native_threads in the LD_LIBRARY_PATH variable, where *jdk11_path* is the subdirectory where the JDK is installed.

To install the transformers on AIX or SUN Solaris:

1. Insert the Visual Warehouse CD into your CD-ROM drive.
2. Log on as root.
3. Mount the CD-ROM by entering the following command:

```
mkdir /cdrom;mount -v cdrfs -r /dev/cd0 /cdrom
```
4. From the instance function directory (for example, /home/db2inst1/sqllib/function), unpack the jet.tar file by entering the following command:

```
tar -xvf /cdrom/VWXFUNIX/jet.tar
```
5. In the ../function/com/ibm/data/xf directory, enter the following command to change the file permissions on the class file:

```
chmod u=rwx,g=rx,o=rx *.class
```
6. Make sure that the current directory is in the CLASSPATH by entering the following command:

```
$ echo $CLASSPATH
```

For example:

```
./home/db2inst1/sqllib/java/db2java.zip
```

If not, enter the following commands to change the CLASSPATH:

```
CLASSPATH=.:$CLASSPATH  
export CLASSPATH
```

Installing transformers on AIX and SUN Solaris

7. Make sure that the PATH includes sqllib/bin. For example:
/home/db2inst1/sqllib/bin
8. Make sure that the LIBPATH includes sqllib/lib. For example:
/home/db2inst1/sqllib/lib
9. Run the install program from the function subdirectory of the instance that contains the database in which you want to install the transformers. Use the information in Table 4 to determine what parameters you need to use.

For example, to install the transformers on a workstation with a host name of VWRSF50, a warehouse database named VWTGTWHS, and a control database named VWCNTRL, enter the following command on one line:

```
java com.ibm.data.xf.XfInstall -s VWRSF50 -td VWTGTWHS -dt 4 -tq IWH
-f fenced -cd VWCNTRL -u VWADMIN -p VWADMIN
```

10. Use the DB2 Command Line Processor to set the default application heap parameter (APPLHEAPSZ) for this database to 1024:

```
UPDATE DATABASE CONFIGURATION FOR warehouse_database_name USING APPLHEAPSZ 1024
```

Table 4. Parameters for installing the Visual Warehouse transformers

Parameter	Example	Description
-s	VWRSF50	Specifies the host name of the workstation that contains the warehouse database. This is the workstation on which this installation is taking place. This value is case sensitive. This value must match the value that is specified in the System Name field on the Database page of the Properties notebook for the target warehouse on which you are installing the transformers.
-td	VWTGTWHS	Specifies the host alias of the warehouse database.

Installing transformers on AIX and SUN Solaris

Table 4. Parameters for installing the Visual Warehouse transformers (continued)

Parameter	Example	Description
-dt	4	<p>Indicates to Visual Warehouse the type of warehouse database that is being used. This variable is used for updating metadata in the control database.</p> <p>AIX The value is 4.</p> <p> The value in the Type field on the Database page of the Properties notebook for the warehouse on which you are installing the transformers must be DB2/6000.</p> <p>SUN Solaris</p> <p> The value is 6.</p> <p> The value in the Type field on the Database page of the Properties notebook for the warehouse on which you are installing the transformers must be DB2 SUN.</p> <p>If you are installing the transformers on DB2 UDB EEE, you must use these values.</p>
-tq	IWH	<p>Specifies the name of the schema in which to register the transformers.</p> <p>This value must be the same as the table qualifier that was specified when Visual Warehouse was installed. The table qualifier is shown in the title bar of the Visual Warehouse desktop. For example, in VWCNTRL.IWH, the table qualifier is IWH.</p>
-f	fenced	<p>Specifies whether to register the transformers as fenced or not-fenced stored procedures. Valid entries are fenced or not fenced. If you do not specify this parameter, the transformers are registered as fenced.</p> <p>After you test the transformers, you can run them in the same address space as the database manager by registering them as not fenced. The transformers use less system resources if they are registered as not fenced.</p> <p>To register the transformers as not fenced, you must have SYSADM or DBADM authority, or CREATE_NOT_FENCED authority on the database.</p>
-cd	VWCNTRL	Specifies the alias of the Visual Warehouse control database.
-u	VWADMIN	Specifies the user ID that has administration authority for the Visual Warehouse control database.

Installing transformers on AIX and SUN Solaris

Table 4. Parameters for installing the Visual Warehouse transformers (continued)

Parameter	Example	Description
-p	VWADMIN	Specifies the password for the user ID for the Visual Warehouse control database. This value is case sensitive.
-t		Displays installation trace information.

Installing Visual Warehouse transformers on OS/2 Warp

You must install the transformers on each database and each target warehouse on which you want to use the transformers.

Before you begin to install the transformers on OS/2 Warp:

- Complete the steps in “Preparing to install the Visual Warehouse transformers” on page 63.
- Ensure that you have either DBADMIN or SYSADM authority.

To install the transformers on OS/2 Warp:

1. From an OS/2 window command prompt, navigate to the VWXFOS2 directory on the Visual Warehouse CD-ROM.
2. Run the install program. Use the information in Table 4 on page 67 to determine which parameters you should use. For OS/2 Warp, the -dt and -t parameters are not applicable.

For example, to install the transformers on a workstation with a host name of VWRSF50, a warehouse database named VWTGTWHS, and a control database named VWCNTRL, enter the following command on one line:

```
xfinst -s VWRSF50 -td VWTGTWHS -tq iwh -f fenced -cd VWCNTRL -u VWADMIN -p VWADMIN
```

3. Use the DB2 Command Line Processor to set the default application heap parameter (APPLHEAPSZ) for this database to 1024:

```
UPDATE DATABASE CONFIGURATION FOR warehouse_database_name USING APPLHEAPSZ 1024
```

Installing transformers on AIX and SUN Solaris

Chapter 7. Installing Visual Warehouse Web components

Visual Warehouse includes two components that you use from a Web browser. With Visual Warehouse for the Web, you can monitor your datamart or data warehouse from the Web. You can access metadata in your information catalogs with DataGuide for the Web. Installing these components involves copying files from the Visual Warehouse CD-ROM to your Web server.

Installing Visual Warehouse for the Web

You can install Visual Warehouse for the Web on any operating system that supports DB2 UDB and Net.Data, including Windows NT, OS/2, AIX, and Sun operating systems.

You can install Visual Warehouse for the Web on Windows NT with Lotus Domino Go Webserver or Microsoft Internet Information Server (IIS), and on AIX with Apache Web server. This section describes how to install Visual Warehouse for the Web for those operating systems and Web servers, and for other operating systems or Web servers.

The tasks described in the following sections show steps for Net.Data Version 1.0.12. For information about completing these steps using Net.Data Version 2, see the *Net.Data Administration and Programming Guide*.

Installing Visual Warehouse for the Web on Windows NT with Lotus Domino Go Webserver

Before you begin to install Visual Warehouse for the Web:

- Make sure that Lotus Domino Go Webserver is installed on your Web server. For information about installing Lotus Domino Go Webserver, see the following Web site:
<http://www.software.ibm.com/webserver/dgw/doc461.htm>
- Check the Web server port number. If the Web server has a port other than 80 (the usual default), append the port number to the host name in the Web address. For example: <http://hostname:portnumber/>
- Ensure that the Perl interpreter is located in the directory specified in the PATH environment variable. This directory is usually PERL\BIN.

To install Visual Warehouse for the Web:

1. Insert the Visual Warehouse CD-ROM into the CD-ROM drive on the Web server workstation.
2. Change to the `x:\VWWEB\language` directory on the CD-ROM.

Installing Visual Warehouse for the Web

3. Copy all the *.mac and *.hti files from the x:\VWWEB\language\MACRO directory on the CD-ROM to the Net.Data macro directory (\DB2WWW\MACRO) on the Web server.
4. Copy all the *.htm* files from the x:\VWWEB\language\HTML directory on the CD-ROM to the HTML directory on the Web server.

For Lotus Domino Go Webserver, the default directory is \WEBSERVE\HTML. Because this is the default directory for all HTML files on the Web server, only the Web server host name is needed for the help_path in the vw_config.hti file.

5. Copy all the vw_*.gif files from the x:\VWWEB\language\ICONS directory on the CD-ROM to the Web server image directory. For Lotus Domino Go Webserver, the default directory is \WEBSERVE\ICONS. This directory will be the image_path in the vw_config.hti file.
6. Edit the vw_config.hti file to include the directories to which you copied files, the server name, and the database user ID (LOGIN) and password. The vw_config.hti file will look like this:

```
%DEFINE {
    server_name="http://ntserver.ibm.com/"
    image_path="$(server_name)icons/"
    macro_path="$(server_name)cgi-bin/db2www/"
    help_path="$(server_name)"
    LOGIN="vwadmin"
    PASSWORD="password"
    VW_CONFIG_FILE="vw_config.hti"
    VW_STRING_FILE="vw_strings.hti"
    VW_HELP_IMAGE="vw_help.gif"
%}
```

7. Add a link to an existing Web page, or create a Web page with a link to the Visual Warehouse for the Web home page.

To create a Web page, edit the file \WEBSERVE\HTML\vw_home.html and add your Web server and database names, like this:

```
<a href="http://dgntserv2.st1.ibm.com/cgi-bin/db2www/vw_operations.mac/WIP_Filter?DATABASE=R31DR1">VW Operations</a>
```

Ensure that the entry is on a single line.

This entry is case sensitive.

8. Using the DB2 CAE services, catalog the server node and the DB2 databases (see the DB2 CAE documentation for more information).
9. Ensure that the database manager is running on the necessary database servers.

After you set up Visual Warehouse for the Web, notify your users of the address for the Visual Warehouse for the Web home page, or add an HTML link to it from another of your intranet Web pages. See the vw_home.html file

in the HTML directory on the Web server for an example of how to create the necessary links to Visual Warehouse for the Web.

Installing Visual Warehouse for the Web on Windows NT with Microsoft Internet Information Server

Before you begin to install Visual Warehouse for the Web:

- Make sure that Microsoft Internet Information Server (IIS) is installed on your Web server. For information about installing Microsoft IIS, see the Microsoft IIS product documentation.
- When you install Net.Data, you are prompted for the Web server's CGI-BIN and HTML directories. For Microsoft IIS, the default CGI-BIN directory is C:\INETPUB\SCRIPTS, and the default HTML directory is C:\INETPUB\WWWROOT.
- Check the Web server port number. If the Web server has a port other than 80 (the usual default), append the port number to the host name in the Web address. For example: `http://hostname:portnumber/`
During the install process, you can select a port number other than 80. Make sure that the port you select does not conflict with other products. Usually, a high number like 8000 is available.
- Ensure that the directory PERL\BIN is in the PATH environment variable.

To install Visual Warehouse for the Web:

1. Insert the Visual Warehouse CD-ROM into the CD-ROM drive on the Web server workstation.
2. Change to the `x:\VWWEB\language` directory on the CD-ROM.
3. Copy all the *.mac and *.hti files from the `x:\VWWEB\language\MACRO` directory on the CD-ROM to the Net.Data macro directory (\DB2WWW\MACRO) on the Web server.
4. Copy all the *.htm* files, dgexpand.gif, and dgmore.gif from the `x:\VWWEB\language\HTML` directory on the CD-ROM to the HTML directory on the Web server.

For Microsoft IIS, this directory is C:\INETPUB\WWWROOT. Because this is the default directory for all HTML files on the Web server, only the Web server host name is needed for the `help_path` in the `vw_config.hti` file.

5. Create a directory for the icons under the Web root directory. For example, C:\INETPUB\WWWROOT\ICONS. Copy all the `vw_*.gif` files from the `x:\VWWEB\language\ICONS` directory on the CD-ROM to this directory.
6. Edit the `vw_config.hti` file to include the directories where you copied the files, the server name, and the database user ID (LOGIN) and password. The `vw_config.hti` file will look like this:

Installing Visual Warehouse for the Web

```
%DEFINE {  
    server_name="http://ntserver.ibm.com/"  
    image_path="$(server_name)icons/"  
    macro_path="$(server_name)cgi-bin/db2www.exe/"  
    help_path="$(server_name)"  
    LOGIN="vwadmin"  
    PASSWORD="password"  
    VW_CONFIG_FILE="vw_config.hti"  
    VW_STRING_FILE="vw_strings.hti"  
    VW_HELP_IMAGE="vw_help.gif"  
%}
```

7. Add a link to an existing Web page, or create a Web page with a link to the Visual Warehouse for the Web home page.

To create a Web page, edit the file `\WEBSERVE\HTML\vw_home.html` and add your Web server and database names, like this:

```
<a href="http://dgntserv2.st1.ibm.com/cgi-bin/db2www.exe/vw_operations.mac  
/WIP_Filter?DATABASE=R31DR1">VW Operations</a>
```

Ensure that the entry is on a single line.

This entry is case sensitive.

8. Using the DB2 CAE services, catalog the server node and the DB2 databases (see the DB2 CAE documentation for more information).
9. Ensure that the database manager is running on the necessary database servers.

After you set up Visual Warehouse for the Web, notify your users of the address for the Visual Warehouse for the Web home page, or add an HTML link to it from another of your intranet Web pages. See the `vw_home.html` in the HTML directory on the Web server for an example of how to create the necessary links to Visual Warehouse for the Web.

Installing Visual Warehouse for the Web on AIX with the Apache Web server

Before you begin to install Visual Warehouse for the Web:

- Make sure that Apache Version 1.3.1 or later is installed on your Web server. See <http://www.apache.org/> for information on downloading and installing Apache.
- After you install Net.Data, copy the executable file `db2www` to the Web server's CGI-BIN directory (usually `/usr/local/apache/cgi-bin`). Copy the `db2www.ini` file to the Web server's document root directory (usually `/usr/local/apache/htdocs`). Ensure that the `db2www.ini` file has the correct HTML_PATH (usually `/usr/local/apache/htdocs`). See the *Net.Data Administration and Programming Guide* for more information.

Installing Visual Warehouse for the Web

- Check the Web server port number. If the Web server has a port other than 80 (the usual default), append the port number to the host name in the Web address. For example: `http://hostname:portnumber/`

To install Visual Warehouse for the Web:

1. Insert the Visual Warehouse CD-ROM into the CD-ROM drive on the Web server workstation.
2. Change to the `x:\VWWEB\language` directory on the CD-ROM.
3. Copy all the `*.mac` and `*.hti` files from the `x:\VWWEB\language\MACRO` directory on the CD-ROM to the Net.Data macro directory (usually `/usr/lpp/internet/db2www/macro`).
4. Copy all the `*.htm*` files, `dgexpand.gif`, and `dgmore.gif` from the `x:\VWWEB\language\HTML` directory on the CD-ROM to the HTML directory on the Web server (usually `/usr/local/apache/htdocs`).
5. Copy all the `vw_*.gif` files from the `x:\VWWEB\language\ICONS` directory on the CD-ROM to the image directory on the Web server (usually `/usr/local/apache/icons`).
6. Edit the `vw_config.hti` file to include the directories where you copied the files, the server name, and the database user ID (LOGIN) and password. The `vw_config.hti` file will look like this:

```
%DEFINE {
    server_name="http://ntserver.ibm.com/"
    image_path="$(server_name)icons/"
    macro_path="$(server_name)cgi-bin/db2www/"
    help_path="$(server_name)"
    LOGIN="vwadmin"
    PASSWORD="password"
    VW_CONFIG_FILE="vw_config.hti"
    VW_STRING_FILE="vw_strings.hti"
    VW_HELP_IMAGE="vw_help.gif"
%}
```

7. Add a link to an existing Web page, or create a Web page with a link to the Visual Warehouse for the Web home page.

To create a Web page, edit the file `\WEBSERVE\HTML\vw_home.html` and add your Web server and database names, like this:

```
<a href="http://dgntserv2.st1.ibm.com/cgi-bin/db2www/vw_operations.mac/WIP_Filter?DATABASE=R31DR1">VW Operations</a>
```

Ensure that the entry is on a single line.

This entry is case sensitive.

8. Using the DB2 CAE services, catalog the server node and the DB2 databases (see the DB2 CAE documentation for more information).
9. Ensure that the database manager is running on the necessary database servers.

Installing Visual Warehouse for the Web

After you set up Visual Warehouse for the Web, notify your users of the address for the Visual Warehouse for the Web home page, or add an HTML link to it from another of your intranet Web pages. See the `vw_home.html` file in the HTML directory on the Web server for an example of how to create the necessary links to Visual Warehouse for the Web.

Installing Visual Warehouse for the Web on any Web server

Before you begin to install Visual Warehouse for the Web:

- Make sure that Web server software is installed on your Web server.
- When you install Net.Data, you are prompted for the Web server's CGI-BIN and HTML directories. Make sure that the Web server directories point to where the CGI programs are run and where the HTML files are located. Net.Data's CGI program `db2www.exe` is placed in the CGI-BIN directory that you specify.
- Check the Web server port number. If the Web server has a port other than 80 (the usual default), append the port number to the host name in the Web address. For example: `http://hostname:portnumber/`

To install Visual Warehouse for the Web:

1. Insert the Visual Warehouse CD-ROM into the CD-ROM drive on the Web server workstation.
2. Change to the `x:\VWWEB\language` directory on the CD-ROM.
3. Copy all the `*.mac` and `*.hti` files from the `x:\VWWEB\language\MACRO` directory on the CD-ROM to the Net.Data macro directory.
4. Copy all the `*.htm*` files, `dgexpand.gif`, and `dgmores.gif` from the `x:\VWWEB\language\HTML` directory on the CD-ROM to the HTML directory on the Web server.
5. Copy all the `vw_*.gif` files from the `x:\VWWEB\language\ICONS` directory on the CD-ROM to the image directory on the Web server. This directory will be the `image_path` in the `vw_config.hti` file.
6. Edit the `vw_config.hti` file to include the directories where you copied the files, the server name, and the database user ID (LOGIN) and password.
 - Use the `server_name` keyword to identify your Web server.
 - Map the `image_path` to the icons directory that is defined in the Web server configuration file.
 - Map the `macro_path` to the CGI directory that is defined in the Web server configuration file; this CGI directory is where Net.Data is installed.
 - Map the `help_path` to the HTML directory that is defined in the Web server configuration file.
 - Use the `LOGIN` variable to identify the DB2 user ID with access to the Visual Warehouse control database.

- Use the `PASSWORD` variable to specify the password that is associated with the user ID that you identified on the `LOGIN` variable.

The `vw_config.hti` file will look like this:

```
%DEFINE {
    server_name="http://ntserver.ibm.com/"
    image_path="$(server_name)icons/"
    macro_path="$(server_name)cgi-bin/db2www/"
    help_path="$(server_name)"
    LOGIN="vwadmin"
    PASSWORD="password"
    VW_CONFIG_FILE="vw_config.hti"
    VW_STRING_FILE="vw_strings.hti"
    VW_HELP_IMAGE="vw_help.gif"
%}
```

7. Add a link to an existing Web page, or create a Web page with a link to the Visual Warehouse for the Web home page.

To create a Web page, edit the file `\WEBSERVE\HTML\vw_home.html` and add your Web server and database names, like this:

```
<a href="http://dgntserv2.stl.ibm.com/cgi-bin/db2www/vw_operations.mac/WIP_Filter?DATABASE=R31DR1">VW Operations</a>
```

Ensure that the entry is on a single line.

This entry is case sensitive.

8. Using the DB2 CAE services, catalog the server node and the DB2 databases (see the DB2 CAE documentation for more information).
9. Ensure that the database manager is running on the necessary database servers.

After you set up Visual Warehouse for the Web, notify your users of the address for the Visual Warehouse for the Web home page, or add an HTML link to it from another of your intranet Web pages. See the `vw_home.html` file in the HTML directory on the Web server for an example of how to create the necessary links to Visual Warehouse for the Web.

Installing DataGuide for the Web

You can install DataGuide for the Web on any operating system that supports DB2 UDB and Net.Data. The operating system must also support Net.Data Live Connection Manager and Perl LE. These operating systems include Windows NT, OS/2, AIX, and Sun operating systems.

The tasks described in this section show steps for Net.Data Version 1.0.12. For information on completing these steps using Net.Data Version 2, see the *Net.Data Administration and Programming Guide*.

Installing DataGuide for the Web

Security considerations

For DataGuide for the Web, you must enable authentication on the Web server. After you enable authentication, each user must enter a user ID and password to access DataGuide for the Web. Because Net.Data's Live Connection Manager manages the database connections, users do not need to know the database user ID and password.

Depending on the sensitivity of the information in the information catalog, you need to implement the appropriate level of security for your Web server. For additional security beyond the authentication function in the Web server, you can install security packages with encryption and keys.

Installing DataGuide for the Web on Windows NT with Lotus Domino Go Webserver

Before you begin to install DataGuide for the Web:

- Make sure that Lotus Domino Go Webserver is installed on your Web server. For information about installing Lotus Domino Go Webserver, see the Lotus Domino Go Webserver product documentation.
- When you install Net.Data, you are prompted for the Web server's CGI-BIN and HTML directories. Make sure that you use the Lotus Domino Go Webserver directories. For Lotus Domino Go Webserver, the CGI-BIN directory is \WEBSERVE\CGI-BIN, and the HTML directory is \WEBSERVE\HTML.
- Check the Web server port number. If the Web server has a port other than 80 (the usual default), append the port number to the host name in the Web address. For example: `http://hostname:portnumber/`
- Ensure that the Perl interpreter is located in the directory specified in the PATH environment variable. This directory is usually PERL\BIN.

To install DataGuide for the Web:

1. Insert the Visual Warehouse CD-ROM into the CD-ROM drive on the Web server workstation.
2. Change to the `x:\DGWEB\language` directory on the CD-ROM.
3. Copy all the *.mac and *.hti files from the `x:\DGWEB\language\MACRO` directory on the CD-ROM to the Net.Data macro directory on the Web server (`\DB2WWW\MACRO`).
4. Copy all the *.htm* files, `dgexpand.gif`, and `dgmore.gif` from the `x:\DGWEB\language\HTML` directory on the CD-ROM to the HTML directory on the Web server.

For Lotus Domino Go Webserver, this directory is \WEBSERVE\HTML. Because this is the default directory for all HTML files on the Web server, only the web server host name is needed for the help_path in the dg_config.hti file.

5. Copy all the dg_*.gif files from the x:\DGWEB\language\ICONS directory on the CD-ROM to the image directory on the Web server. This directory will be the image_path in the dg_config.hti file. For Lotus Domino Go Webserver, this directory is \WEBSERVER\ICONS.
6. Edit the dg_config.hti file to include the directories where you copied the files and the server name. The macro_path uses the alias that is set up on your Web server to control user access. The dg_config.hti file should look like this:

```
%DEFINE {
    server_name="http://ntserver.ibm.com/"
    image_path="$(server_name)icons/"
    macro_path="$(server_name)dataguide/db2www/"
    help_path="$(server_name)"
%}
```

7. Create a password file that will contain the authorized user IDs and passwords for each DataGuide for the Web user. Use the HTADM command to create and edit the password file.

For example, to create the password file

e:\webserve\protect\dataguid.pwd, enter the following command:

```
htadm -create e:\webserve\protect\dataguid.pwd
```

To add the user ID VWADMIN and password VWADMIN for the Visual Warehouse administrator, enter the following command:

```
htadm -adduser e:\webserve\protect\dataguid.pwd VWADMIN VWADMIN
```

The user ID must be 8 characters or less in length, because it is stored in the information catalog tables when a comment is created.

When you are prompted for the user's actual name, enter:

```
VW administrator
```

8. Add a link to an existing Web page, or create a Web page with a link to the DataGuide for the Web home page.

To create a Web page, edit the file \WEBSERVE\HTML\dataguid.html and add the following text:

```
<html><head>
<title>DataGuide for the Web</title>
</head>
<body bgcolor=white>
<p><a href=/dataguide/db2www/dg_home.mac/Logon>DataGuide for the Web</a>
</body>
</html>
```

Installing DataGuide for the Web

9. Enable basic user authentication on your Web server for each DataGuide for the Web user.

When users access the DataGuide for the Web home page, they are prompted for their user ID and password. When they enter these values, the HTTP environment variable `REMOTE_USER` is set. This variable is used to prompt users for their user ID and password and to create, update, and delete comments.

For Lotus Domino Go Webserver, you enable authentication by creating an alias “dataguide”. To create the alias, edit the `httpd.cnf` file. This file is located in the `C:\WINNT` directory. Make the following changes:

- Find the section where the `PROTECTION` directives are defined and add your password path and file name to this block:

```
Protection DATAGUID {
PasswdFile E:\webserve\protect\dataguid.pwd
Mask All@(*)
PostMask All@(*)
PutMask All@(*)
GetMask All@(*)
AuthType Basic
ServerID DataGuide_Authorization
}
Protect /dataguide/* DATAGUID
```

- Add an `Exec` statement to specify which directory contains files that can be run with the alias `dataguide`. Find the section where the mapping rules are defined and add your Web server’s CGI-BIN path to this rule:

```
Exec /dataguide/* e:\webserve\CGI-Bin\*
```

These changes will not take effect until you stop and restart the Web server.

10. Set up `Net.Data` to run Live Connection Manager for the databases that are used by DataGuide for the Web.

- Edit the `Net.Data` file `DB2WWW\Connect\dtwcm.cnf` and add a `CLIETTE DTW_SQL` block for each database that DataGuide for the Web will use.

For example, to add the database `DGSAMPLE` with a minimum of one process, a maximum of three processes, starting with private port number 7100, and starting with public port number 7110, add the following block:

```
CLIETTE DTW_SQL:DGSAMPLE{
MIN_PROCESS=1
MAX_PROCESS=3
START_PRIVATE_PORT=7100
START_PUBLIC_PORT=7110
EXEC_NAME=c1tdb2.exe
DATABASE=DGSAMPLE
```

```
BINDFILE=e:\webserver\cgi-bin\d2wsq1.bnd
LOGIN=*USE_DEFAULT
PASSWORD=*USE_DEFAULT
}
```

Six ports (7100, 7101, 7102, 7110, 7111, 7112) are allocated to the DGSAMPLE database. Make sure that these ports are free and not in use by another application. You must use different port number ranges for each CLIETTE DTW_SQL block. See the *Net.Data Administration and Programming Guide* for more information.

- Set the LOGIN value to the user ID and PASSWORD value to the password for the database. If the database is local, you can use *USE_DEFAULT.
- Set up the Net.Data initialization file to use Live Connection Manager for the SQL calls. Edit the DB2WWW.INI file in the HTML directory on the Web server. Make sure that the ENVIRONMENT DTW_SQL statement ends with CLIETTE "DTW_SQL:\$(DATABASE)". For example:

```
ENVIRONMENT (DTW_SQL) DTWSQL(IN DATABASE,LOGIN,PASSWORD,TRANSACTION_SCOPE,
    SHOWSQL,ALIGN,START_ROW_NUM) CLIETTE "DTW_SQL:$(DATABASE)"
```
- Start Live Connection Manager by clicking **Start** → **Programs** → **Net.Data**. Live Connection Manager must be running for DataGuide for the Web to access data from the databases. After Live Connection Manager is running, you can minimize the Live Connection Manager window on the Web server. See the *Net.Data Administration and Programming Guide* for more information.

Follow the steps in “Post-installation customization” on page 91 before using DataGuide for the Web.

Installing DataGuide for the Web on Windows NT with Microsoft IIS

Before you begin to install DataGuide for the Web:

- Make sure that Microsoft IIS is installed on your Web server.
- Check the Web server port number. If the Web server has a port other than 80 (the usual default), append the port number to the host name in the Web address. For example: `http://hostname:portnumber/`
- Ensure that the Perl interpreter is located in the directory specified in the PATH environment variable. This directory is usually PERL\BIN.

To install DataGuide for the Web:

1. Insert the Visual Warehouse CD-ROM into the CD-ROM drive on the Web server workstation.

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2. Create a directory for the icons (such as C:\INETPUB\WWWROOT\ICONS) under the Web root directory. Copy all the dg_*.gif files from the x:\DGWEB\language\ICONS directory on the CD-ROM to this directory.
3. Open the Internet Service Manager for IIS.
4. Open the Properties notebook for the WWW service. On the **Directories** tab, click **Add** to add an alias, "dataguide", for the C:\INETPUB\SCRIPTS directory. This is the directory where db2www.exe resides.
5. Copy all the *.mac and *.hti files from the x:\DGWEB\language\MACRO directory on the CD-ROM to the Net.Data macro directory \DB2WWW\MACRO on the Web server.
6. Copy all the *.htm* files, dgexpand.gif, and dgmore.gif from the x:\DGWEB\language\HTML directory on the CD-ROM to the HTML directory on the Web server.

For Microsoft IIS, the directory is C:\INETPUB\WWWROOT. Because this is the default directory for all HTML files on the Web server, you only need the Web server host name for the help_path in the dg_config.hti file.

7. Edit the dg_config.hti file. Add the directories where you copied the files and the server name. The macro_path can be an alias that is set up on your Web server to control user access. The dg_config.hti file will look like this:

```
%DEFINE {
    server_name="http://ntserver.ibm.com/"
    image_path="$(server_name)icons/"
    macro_path="$(server_name)dataguide/db2www.exe/"
    help_path="$(server_name)"
%}
```

8. Add a link to an existing Web page, or create a Web page with a link to the DataGuide for the Web home page.

To create a Web page, edit the file \WEBSERVE\HTML\dataguid.html and add this text:

```
<html><head>
<title>DataGuide for the Web</title>
</head>
<body bgcolor=white>
<p><a href=/dataguide/db2www.exe/dg_home.mac/Logon>DataGuide for the Web</a>
</body>
</html>
```

When you access <http://ntserver.ibm.com/dataguid.html> from a Web browser, this Web page is displayed.

9. Enable user authentication on your Web server for each DataGuide for the Web user. When users access the DataGuide home page, they are

prompted for their user ID and password. This will set the `REMOTE_USER` variable, which is used for creating, updating, and deleting comments, and for prompting users to enter their user ID and password. The user ID must be 8 characters or less in length, because it is stored in the information catalog tables when a comment is created.

To enable authentication:

- a. Open the Microsoft Internet Service Manager window and click **WWW service**.
- b. Open the Properties notebook for the WWW service. On the Service page, select the **Allow Anonymous** and **Basic** check boxes.
Do not use Windows NT Challenge/Response; it sets the `REMOTE_USER` variable incorrectly, and works only with Microsoft Internet Explorer.
- c. Type the anonymous user ID and password.
The user ID and password provided for anonymous logon must be a valid Windows NT user in the Guests group for this workstation with policy user rights set to allow Log on Locally. You can set the policy user rights through the Windows NT User Manager.
The anonymous logon user should have very limited directory permissions. The Web server HTML directory, `C:\INETPUB\WWWROOT`, should have permissions set to allow the anonymous user to read the files. These permissions allow access to the Web page `dataguid.html` before authentication is completed.
You should require authentication when the Net.Data CGI program `db2www.exe` is run in the `C:\INETPUB\SCRIPTS` directory. This will ensure that user IDs are authenticated when users try to access the DataGuide home page.
- d. Close the Properties notebook.
- e. Close the Microsoft Internet Service Manager window.
- f. Open the Property notebook for the `C:\INETPUB\SCRIPTS` directory from the File Explorer directory tree.
- g. On the Internet page, click **service WWW** and add the alias `/dataguide`. Click **Properties** to open the Properties notebook.
- h. Make sure that only the **Execute** check box is selected, then click **OK**.
- i. On the Security page, set the permissions to allow all the users who will be accessing DataGuide for the Web to have full permissions for this directory. Exclude from the permissions the anonymous logon user and any users that are not authorized to access DataGuide for the Web. Also, set the policy user rights to **Log on Locally** using the Windows NT User Manager.
- j. Close the Properties notebook.

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This is one way that you can enable authentication with Microsoft IIS. You can set up more complex directory structures, user groups, and permissions if necessary. More information about setting up authentication and anonymous logon is available in the Microsoft IIS documentation.

10. Set up Net.Data to run Live Connection Manager for the databases that are used by DataGuide for the Web.

- a. Edit the Net.Data file DB2WWW\Connect\dtwcm.cnf and add a CLIETTE DTW_SQL block for each database that will be used by DataGuide for the Web.

To add the database DGSAMPLE with a minimum of one process, a maximum of three processes, starting with private port number 7100 and starting with public port number 7110, add the following block:

```
CLIETTE DTW_SQL:DGSAMPLE{
MIN_PROCESS=1
MAX_PROCESS=3
START_PRIVATE_PORT=7100
START_PUBLIC_PORT=7110
EXEC_NAME=c:\tdb2.exe
DATABASE=DGSAMPLE
BINDFILE=c:\inetpub\scripts\d2wsq1.bnd
LOGIN=*USE_DEFAULT
PASSWORD=*USE_DEFAULT
}
```

This block allocates six ports (7100, 7101, 7102, 7110, 7111, 7112) to the database DGSAMPLE. Make sure that these ports are free and not in use by another application. You must use different port number ranges for each CLIETTE DTW_SQL block. See the *Net.Data Administration and Programming Guide* for more information.

- b. Set the LOGIN value to the user ID and PASSWORD value to the password for the database. If you are using a local database, then you can use the *USE_DEFAULT value.
- c. Set the Net.Data initialization file to use Live Connection Manager for the SQL calls. Edit the DB2WWW.INI file in the Web server's HTML directory. Make sure that the environment DTW_SQL statement has CLIETTE "DTW_SQL:\$(DATABASE)" at the end:

```
ENVIRONMENT (DTW_SQL) DTWSQL(IN DATABASE,LOGIN,PASSWORD,TRANSACTION_SCOPE,
SHOWSQL,ALIGN,START_ROW_NUM) CLIETTE "DTW_SQL:$(DATABASE)"
```

- d. Start Live Connection Manager by clicking **Start** → **Programs** → **Net.Data**. Live Connection Manager must be running for DataGuide for the Web to access data in the databases. After Live Connection Manager is running, you can minimize the Live Connection Manager window on the Web server. See the *Net.Data Administration and Programming Guide* for more information.

Follow the steps in “Post-installation customization” on page 91 before using DataGuide for the Web.

Installing DataGuide for the Web on AIX with Apache Web server

Before you begin to install DataGuide for the Web:

- Make sure that Apache 1.3.1 or later is installed on your Web server.
- If the Web server has a port other than 80 (the usual default), append the port number to the host name in the Web address:
`http://hostname:portnumber/`
- After you install Net.Data, copy the executable file `db2www` to the Web server's CGI-BIN directory (usually `/usr/local/apache/cgi-bin`). Also, copy the `db2www.ini` file to the Web server's document root directory (usually `/usr/local/apache/htdocs`). Update the `db2www.ini` file to include the correct `HTML_PATH` (usually `/usr/local/apache/htdocs`). See the *Net.Data Administration and Programming Guide* for more information.

To install DataGuide for the Web:

1. Insert the Visual Warehouse CD-ROM into the CD-ROM drive on the Web server workstation.
2. Copy all the `*.mac` and `*.hti` files from the `x:\DGWEB\language\MACRO` directory on the CD-ROM to the Net.Data macro directory (usually `/usr/lpp/internet/db2www/macro`).
3. Copy all the `*.htm*` files, `dgexpand.gif`, and `dgmore.gif` from the `x:\DGWEB\language\HTML` directory on the CD-ROM to the HTML document root directory on the Web server (usually `/usr/local/apache/htdocs`).
4. Copy all the `dg_*.gif` files from the `x:\DGWEB\language\ICONS` directory on the CD-ROM to the image directory on the Web server. This directory will be the `image_path` in the `dg_config.hti` file (usually `/usr/local/apache/icons`).
5. Edit the `dg_config.hti` file. Add the names of the directories where you copied the files and the server name. The `macro_path` can be an alias that is set up on your Web server to control user access. The `dg_config.hti` file will look like this:

```
%DEFINE {
    server_name="http://aixserver.ibm.com/"
    image_path="$(server_name)icons/"
    macro_path="$(server_name)dataguide/db2www/"
    help_path="$(server_name)"
%}
```

6. Add a link to an existing Web page, or create a Web page with a link to the DataGuide for the Web home page.

To create a Web page, edit the file `dataguid.html` and add this text:

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```
<html><head>
<title>DataGuide for the Web</title>
</head>
<body bgcolor=white>
<p><a href=/dataguide/db2www/dg_home.mac/Logon>DataGuide for the Web</a>
</body>
</html>
```

Place the file in the HTML default directory (usually /usr/local/apache/htdocs).

7. Enable basic user authentication on your Web server for each DataGuide for the Web user. When users access the DataGuide home page, they will be prompted for their user ID and password. This will set the REMOTE_USER variable, which is used for creating, updating, and deleting comments, and for prompting users to enter their user IDs and passwords.

- a. Set up an alias.

As part of setting up authentication, create an alias, “dataguide”, for the directory where the Net.Data CGI program DB2WWW is located. The macro_path that is defined in the dg_config.hti file uses this alias.

```
macro_path="$(server_name)dataguide/db2www/"
```

The alias directory “dataguide” should have the user ID and password authentication enabled. To enable authentication, edit the srm.cnf file. This file is usually located in /usr/local/apache/conf directory. Add a ScriptAlias directive, like this:

```
ScriptAlias /dataguide/ /usr/local/apache/cgi-bin/
```

Also make sure that the srm.cnf file contains a directive which defines the access file name, like this:

```
AccessFileName .htaccess
```

- b. Create a password file.

To set up authentication for the CGI-BIN directory, you need to create a password file. Use the htpasswd tool to create the password file with an encrypted password. The htpasswd tool is usually located in the /usr/local/apache/src/support directory. To create a password file that is named “userlist” with a user ID, enter:

```
./htpasswd -c /usr/local/etc/userlist vwadmin
```

You are prompted to enter the password twice.

To add more user IDs and passwords to an existing file, enter:

```
./htpasswd /usr/local/etc/userlist vwuser
```

You are prompted to enter the password twice.

The user ID must be 8 characters or less, because it is stored in the information catalog tables when a comment is created.

- c. Restrict access to the CGI-BIN directory.

To require authentication when accessing the CGI-BIN directory, edit the access.conf file. This file is usually located in the /usr/local/apache/conf directory. Add a directory directive for the /usr/local/apache/cgi-bin directory with AllowOverride AuthConfig set, like this:

```
<Directory /usr/local/apache/cgi-bin>
AllowOverride AuthConfig
Options None
</Directory>
```

Create a file that is named .htaccess in the /usr/local/apache/cgi-bin directory with the AuthName, AuthType, AuthUserFile, and require directives that are set like this:

```
AuthName DGWeb
AuthType Basic
AuthUserFile /usr/local/etc/userlist
require valid-user
```

These changes will not take effect until you stop and restart the Web server.

This is one way that you can enable authentication on an Apache server. You can set up more complex directory structures, user groups, and permissions, if necessary, along with additional security packages. More information about setting up basic authentication is available in the Apache documentation.

8. Set up Net.Data to run Live Connection Manager for the databases that are used by DataGuide for the Web.

- a. Edit the Net.Data file /usr/lpp/internet/db2www that DataGuide for the Web will use and add a CLIETTE DTW_SQL block for each database that will be used by DataGuide for the Web.

To add the database DGSAMPLE with a minimum of one process, a maximum of three processes, starting with private port number 7100 and starting with public port number 7110, add the following block:

```
CLIETTE DTW_SQL:DGSAMPLE{
MIN_PROCESS=1
MAX_PROCESS=3
START_PRIVATE_PORT=7100
START_PUBLIC_PORT=7110
EXEC_NAME=c1tdb2.exe
DATABASE=DGSAMPLE
```

Installing DataGuide for the Web

```
BINDFILE=c:\inetpub\scripts\d2wsq1.bnd
LOGIN=*USE_DEFAULT
PASSWORD=*USE_DEFAULT
}
```

This block allocates six ports (7100, 7101, 7102, 7110, 7111, 7112) to the database DGSAMPLE. Make sure that these ports are free and not in use by another application. You must use different port number ranges for each CLIETTE DTW_SQL block. See the *Net.Data Administration and Programming Guide* for more information.

- b. Set the LOGIN value to the user ID and PASSWORD value to the password for the database. If you are using a local database, then you can use the *USE_DEFAULT value.
- c. Set the Net.Data initialization file to use Live Connection Manager for the SQL calls. Edit the DB2WWW.INI file in the Web server's HTML directory. Make sure that the environment DTW_SQL statement has CLIETTE "DTW_SQL:\$(DATABASE)" at the end:

```
ENVIRONMENT (DTW_SQL) DTWSQL(IN DATABASE,LOGIN,PASSWORD,TRANSACTION_SCOPE,
SHOWSQL,ALIGN,START_ROW_NUM) CLIETTE "DTW_SQL:$(DATABASE)"
```
- d. Start Live Connection Manager by using the executable file /usr/lpp/internet/db2www/db2.v2/dtwcm. Live Connection Manager must be running for DataGuide for the Web to access data in the databases. See the *Net.Data Administration and Programming Guide* for more information.

Follow the steps in "Post-installation customization" on page 91 before using DataGuide for the Web.

Installing DataGuide for the Web on any Web server

Before you begin to install DataGuide for the Web:

- Make sure that the Web server software is installed on the Web server.
- If the Web server has a port number other than 80 (the usual default), append the port number to the host name in the Web address:
http://hostname:portnumber/
- When you install Net.Data, you are prompted for the Web server's CGI-BIN and HTML directories. Make sure that the Web server directories are used where the CGI programs are run and where the HTML files are located. The Net.Data CGI program db2www.exe is placed in this CGI-BIN directory.

To install DataGuide for the Web:

1. Insert the Visual Warehouse CD-ROM into the CD-ROM drive on the Web server workstation.

2. Copy all the *.mac and *.hti files from the x:\DGWEB\language\MACRO directory on the CD-ROM to the Net.Data macro directory.
3. Copy all the *.htm* files, dgexpand.gif, and dgmore.gif from the x:\DGWEB\language\HTML directory on the CD-ROM to the HTML directory on the Web server.
4. Copy all the dg_*.gif files from the x:\DGWEB\language\ICONS directory on the CD-ROM to the image directory on the Web server. This directory will be the image_path in the dg_config.hti file.
5. Edit the dg_config.hti file. Add the names of the directories where you copied the files and the server name. The macro_path can be an alias that is set up on your Web server to control user access.
 - Use server_name to identify your Web server.
 - Map the value for the image_path variable to the ICONS directory that is defined in the Web server configuration file. (On the IBM Internet Connection Server for Windows NT, the configuration file is located in the root Windows directory and is called httpd.cnf.)
 - Use the value of the macro_path variable to specify the path dataguide/db2www. The sample information catalog (DGV5SAMP) requires this path for users to launch desktop applications from DataGuide for the Web.
 - Map the value of the help_path variable to the HTML directory that is defined in the Web server configuration file.

The dg_config.hti file will look like this:

```
%DEFINE {
    server_name="http://server.ibm.com/"
    image_path="$(server_name)icons/"
    macro_path="$(server_name)dataguide/db2www/"
    help_path="$(server_name)"
%}
```

6. Add a link to an existing Web page, or create a Web page with a link to the DataGuide for the Web home page.

To create a Web page, edit the file \WEBSERVE\HTML\dataguid.html and add this text:

```
<html><head>
<title>DataGuide for the Web</title>
</head>
<body bgcolor=white>
<p><a href=/dataguide/db2www/dg_home.mac/Logon>DataGuide for the Web</a>
</body>
</html>
```

7. Enable basic user authentication on your Web server for each DataGuide for the Web user. When users access the DataGuide home page, they are prompted for their user ID and password. This will set the REMOTE_USER variable, which is used for creating, updating, and

Installing DataGuide for the Web

deleting comments, and to prompt users to enter their user IDs and passwords. The user ID must be 8 characters or less, because it is stored in the information catalog tables when a comment is created.

Create an alias, "dataguide", for the directory where the Net.Data CGI program DB2WWW.EXE is located. The macro_path variable that is defined in the dg_config.hti file uses this alias:

```
macro_path="$(server_name)dataguide/db2www/"
```

Enable user ID and password authentication for the alias directory, "dataguide", and set the proper permissions.

See the Web server documentation for more information about enabling authentication.

8. Set up Net.Data to run Live Connection Manager for the databases that are used by DataGuide for the Web.

- a. Edit the Net.Data file dtwcm.cnf and add a CLIETTE DTW_SQL block for each database that will be used by DataGuide for the Web.

To add the database DGSAMPLE with a minimum of one process, a maximum of three processes, starting with private port number 7100 and starting with public port number 7110, add the following block:

```
CLIETTE DTW_SQL:DGSAMPLE{  
  MIN_PROCESS=1  
  MAX_PROCESS=3  
  START_PRIVATE_PORT=7100  
  START_PUBLIC_PORT=7110  
  EXEC_NAME=c:\tdb2.exe  
  DATABASE=DGSAMPLE  
  BINDFILE=c:\inetpub\scripts\d2wsq1.bnd  
  LOGIN=*USE_DEFAULT  
  PASSWORD=*USE_DEFAULT  
}
```

This block allocates six ports (7100, 7101, 7102, 7110, 7111, 7112) to the database DGSAMPLE. Make sure that these ports are free and not in use by another application. You must use different port number ranges for each CLIETTE DTW_SQL block. See the *Net.Data Administration and Programming Guide* for more information.

- b. Set the LOGIN value to the user ID and PASSWORD value to the password for the database. If you are using a local database, then you can use the *USE_DEFAULT value.
- c. Set the Net.Data initialization file to use Live Connection Manager for the SQL calls. Edit the DB2WWW.INI file in the Web server's HTML directory. Make sure that the environment DTW_SQL statement has CLIETTE "DTW_SQL:\$(DATABASE)" at the end:

```
ENVIRONMENT (DTW_SQL) DTWSQL(IN DATABASE,LOGIN,PASSWORD,TRANSACTION_SCOPE,  
  SHOWSQL,ALIGN,START_ROW_NUM) CLIETTE "DTW_SQL:$(DATABASE)"
```

- d. Start Live Connection Manager by using the executable file `dtcmf` in the `Net.Data` directory. Live Connection Manager must be running for DataGuide for the Web to access data in the databases. After Live Connection Manager is running, you can minimize the Live Connection Manager window on the Web server. See the *Net.Data Administration and Programming Guide* for more information.

Follow the steps in “Post-installation customization” before using DataGuide for the Web.

For information about authorizing users for DataGuide for the Web and ensuring that users can access the information catalog from the Web, see *Managing DataGuide*.

Post-installation customization

After you install DataGuide for the Web, complete the following steps to customize DataGuide for the Web for your users:

1. Edit the file `dg_home.hti`. Add a link for each information catalog that you want to access from DataGuide for the Web. The links should have the following format:

```
<LI><A HREF=$(macro_path)dg_frame.mac/frame?DATABASE=xxxx> zzzz </A>
```

`xxxx` The information catalog database name (for example, `DGSAMPLE`)

`zzzz` A descriptive comment that will be displayed on the Web page (for example, `CelDial sample catalog`)

You can add HTML tags to the `dg_home.hti` file either before or after the information catalog list. These tags can include links, images, text, or other valid HTML 3.2 tags that you want to add.

2. Catalog the server node and databases by using the DB2 CAE services. See the DB2 CAE documentation for more information. From the DB2 Command Line Processor, verify that the Web server can connect successfully to the databases.

Before you access information catalogs through DataGuide for the Web, make sure that the database manager is started on the database servers, Live Connection Manager is started on the Web server, and the Web server is started.

Chapter 8. Upgrading or migrating to Visual Warehouse Version 5.2

You can upgrade Visual Warehouse Version 3.1 to Visual Warehouse Version 5.2. If you plan to export metadata from Visual Warehouse to DataGuide, you must either create a new information catalog (see *Managing DataGuide*) or upgrade your existing information catalogs.

If you plan to use the metadata interchange features of Visual Warehouse, you must upgrade your Version 3.1 information catalogs to Version 5.2. If you plan to use DataGuide's MDIS import capabilities, you will also need to upgrade your MDIS tool configuration files. See "Upgrading from Version 3" for details and instructions.

If you are using Visual Warehouse Version 1 (on OS/2) or Visual Warehouse Version 2 (on Windows NT), you can migrate your control databases to Visual Warehouse Version 5.2.

Because Visual Warehouse Version 5.2 is Year 2000 compliant, you can use this migration path for Year 2000 support.

Upgrading from Version 3

Before you begin to upgrade Visual Warehouse:

- Upgrade all of your Visual Warehouse workstations to Windows NT Version 4.0.
- Visual Warehouse Version 5.2 installs Version 3.10 of the ODBC drivers. If you install other products that use ODBC drivers, that ODBC driver manager might be at a lower level than the 3.10 driver manager. Be careful not to overwrite the 3.10 driver manager with a lower level driver manager. If you still need the previous release of ODBC, do not remove Visual Warehouse Version 3.1. Instead, install Visual Warehouse Version 5.2 without removing Version 3.1. Alternatively, you can use the Visual Warehouse Version 5.2 custom installation to install only the ODBC drivers.
- You do not need to remove the previous version of Visual Warehouse to upgrade. When you begin installing Visual Warehouse Version 5.2, a confirmation window displays a message that Visual Warehouse is already installed. Click **Yes** to overwrite the previous version of Visual Warehouse.

Upgrading from Version 3

If you choose to remove Visual Warehouse before you upgrade, be sure to restart your workstation before you reinstall Visual Warehouse. If you reinstall Visual Warehouse without restarting your workstation, Visual Warehouse will not install properly.

See “Removing Visual Warehouse” on page 121 for more information.

- Make sure that you have both the TEMP and TMP environment variables defined as system variables. The values of these variables should refer to a directory that Visual Warehouse programs can use. You define and update system variables on the Environment page of the System properties window (in the Windows NT Control Panel).
- When you upgrade from Visual Warehouse Version 3.1, the control database is upgraded (new tables and columns are added) when the initialization program runs. You should use the DB2 backup utility to back up your control database before upgrading Visual Warehouse.
- If your Visual Warehouse installation consists of more than one workstation (server, clients, and agent sites), you must upgrade Visual Warehouse on all the workstations at the same time. The clients, agents, and server cannot communicate with each other if they are at different product levels.
- Host Adapter users must have the Host Adapter Windows NT Client available. You will need to reinstall the Host Adapter Windows NT Client after you upgrade to Visual Warehouse Version 5.2.

To upgrade Visual Warehouse:

1. Log on to the Visual Warehouse server workstation with the same user ID you used for the initial installation. This is usually the user ID used by the server to access the Visual Warehouse control database.
2. Ensure that no Visual Warehouse administrative client workstations are accessing this control database.
3. Stop the Visual Warehouse server and logger services by using the Services icon in the Control Panel window.
4. Back up your control database by using the DB2 Command Line Processor or the DB2 Control Center.
5. If you want to remove Visual Warehouse Version 3.1, do so now. Then restart your workstation. If you do not restart the system, Visual Warehouse Version 5.2 will not install properly.
6. Insert the Visual Warehouse Version 5.2 CD in your CD-ROM drive. If your workstation does not have a CD-ROM drive and you use the Windows NT disk-sharing capabilities, make sure that the shared device name is less than eight alphanumeric characters long.
7. Click **Start** → **Run** and type $X:\backslash\text{vwswin}\backslash\text{setup.exe}$ where X is the drive letter for your CD-ROM or shared drive. Click **OK** and follow the instructions that are displayed.
8. Restart the workstation.

9. Upgrade any Version 3.1 information catalogs to Version 5.2 by running the following command from a DB2 Command Window:

```
DG_UPGRD.BAT catalog_name userid password
```

where:

- *catalog_name* is the name of the information catalog you are upgrading
- *userid* is the user ID of the DataGuide administrator or the database administrator
- *password* is the password for the user ID

Run this command on each information catalog that you want to upgrade.

When you run this command, a new column is added to the table FLG.EXCHANGE. This column indicates the type of metadata that is being exchanged with Visual Warehouse. This command also updates the version and release information in the table FLG.PARMS.

10. Merge the MDIS configuration and tool profiles:
 - a. Find the directory specified by the MDIS_PROFILE environment variable.
 - b. Find the MDISTOOL.PRO and MDISTOOL.CFG files in this directory.
 - c. Merge the information in these files with the information in the MDISTOOL.PRO and MDISTOOL.CFG files that are located in the x:\VWSLIB\METADATA\PROFILES directory.

You should complete this step if you plan to use MDIS to interchange metadata with other tools, such as ETI•Extract.

11. If the Host Adapter Windows NT client was installed, reinstall it.
12. Repeat these steps on all client workstations and agent sites that are connected to this server.

Migrating from Version 2

To run Visual Warehouse Version 5.2, you must use Windows NT 4.0. Visual Warehouse automatically migrates your control database from the format that is used by Visual Warehouse Version 2.1 when you install Visual Warehouse Version 5.2.

Use the following procedure to migrate your system to Windows NT 4.0 and Visual Warehouse Version 5.2:

Migrating from Version 2

To complete this task:	See:
Back up your control database.	<i>IBM DB2 Universal Database: Quick Beginnings for Windows NT</i>
Remove Visual Warehouse Version 2.1.	“Removing Visual Warehouse” on page 121
Upgrade Windows NT to Version 4.0.	Windows NT documentation
Install Visual Warehouse Version 5.2.	“Chapter 4. Hardware and software requirements” on page 29

In Visual Warehouse Version 2.1, Visual Warehouse automatically created the BVBESTATUS table in the warehouse database. The BVBESTATUS table contains timestamps for business view editions. If you want to use this table with Visual Warehouse Version 5.2, you must delete the table and manually recreate it by following the instructions in *Managing Visual Warehouse*.

Migrating from Version 1

To move objects from a Visual Warehouse Version 1 datamart to Visual Warehouse Version 5.2, you must export your Version 1 datamart and import it into Version 5.2. This section describes how to migrate your metadata from Version 1 to Version 5.2, and how to migrate your historical target data from Visual Warehouse Version 1. This section does not cover migrating the warehouse database data or edition information.

Before you migrate to Visual Warehouse Version 5.2, you need to decide how you want to migrate your Version 1 target warehouses. See “Choosing to keep your Version 1 target warehouse” for more information.

Choosing to keep your Version 1 target warehouse

Before you migrate from Visual Warehouse Version 1 to Visual Warehouse Version 5.2, you need to decide what to do with the databases that contain your Version 1 target warehouses. The decision you make determines the steps that you need to follow during the migration. You need to consider each Version 1 database independently.

You can choose from the following options:

You do not plan to use your Visual Warehouse Version 1 target warehouse with Visual Warehouse Version 5.2

You will not use the Version 1 target warehouse in the Visual Warehouse Version 5.2 environment, and you will not move historical data to Windows NT. Instead, the business views that you import into

Visual Warehouse Version 5.2 will populate a new target warehouse with fresh target data. You will not move target data from the Visual Warehouse Version 1 target warehouse.

If you select this option, complete the following tasks:

Task:	See:
Install Visual Warehouse Version 5.2	“Chapter 4. Hardware and software requirements” on page 29
Export metadata from Visual Warehouse Version 1	“Exporting metadata from Visual Warehouse Version 1” on page 99
Import metadata into Visual Warehouse Version 5.2	“Importing Version 1 metadata into Version 5.2” on page 101
Modify the imported database objects	“Changing imported objects” on page 105
Promote business views to the new target warehouse without saving historical data (optional)	“Promoting business views to a new target warehouse without saving historical data (optional)” on page 106

You do not plan to use your Visual Warehouse Version 1 target warehouse, but you want to save the historical data

You will not use the Version 1 target warehouse in the Visual Warehouse Version 5.2 environment, but you will move the historical data to Windows NT. In this case, you will move the Visual Warehouse Version 1 target warehouse contents to another physical database, keeping the old target data. When you migrate the database, the historical target data information from Visual Warehouse Version 1 is retained. After you import that information into Visual Warehouse Version 5.2, it is available for use in Visual Warehouse Version 5.2. Visual Warehouse users will be able to see the old Visual Warehouse edition entries in the Work In Progress window in Visual Warehouse Version 5.2.

If you select this option, complete the following tasks:

Task:	See:
Install Visual Warehouse Version 5.2	“Chapter 4. Hardware and software requirements” on page 29
Export metadata from Visual Warehouse Version 1	“Exporting metadata from Visual Warehouse Version 1” on page 99
Export historical data from Visual Warehouse Version 1 (optional)	“Exporting historical data from Visual Warehouse Version 1” on page 101
Import metadata into Visual Warehouse Version 5.2	“Importing Version 1 metadata into Version 5.2” on page 101
Modify the imported database objects	“Changing imported objects” on page 105

Migrating from Version 1

Task:	See:
Promote business views to the new target warehouse and save historical data (optional)	“Promoting business views to a new target warehouse while saving the historical data (optional)” on page 107

You plan to use the Visual Warehouse Version 1 target warehouse, but do not want to save the historical data

You will use the Visual Warehouse Version 1 target warehouse as the target warehouse in Visual Warehouse Version 5.2, but you will not save the historical data. After you import the Version 1 business views to Visual Warehouse Version 5.2, they will populate the target warehouse with fresh target data.

If you select this option, complete the following tasks:

Task:	See:
Install Visual Warehouse Version 5.2	“Chapter 4. Hardware and software requirements” on page 29
Export metadata from Visual Warehouse Version 1	“Exporting metadata from Visual Warehouse Version 1” on page 99
Import metadata into Visual Warehouse Version 5.2	“Importing Version 1 metadata into Version 5.2” on page 101
Modify the imported database objects	“Changing imported objects” on page 105
Promote business views to the migrated target warehouse without saving historical data (optional)	“Promoting business views to a migrated target warehouse without saving historical data (optional)” on page 109

You plan to use the Visual Warehouse Version 1 target warehouse and the historical data in that warehouse

You will use the Visual Warehouse Version 1 target warehouse as the target warehouse in Visual Warehouse Version 5.2, and you will keep the historical data. You can import the information about the historical target data from Visual Warehouse Version 1 into Visual Warehouse Version 5.2 so that it is available to Visual Warehouse Version 5.2 users. Visual Warehouse users will be able to see the old Visual Warehouse edition entries in the Work In Progress window in Visual Warehouse Version 5.2.

If you select this option, complete the following tasks:

Task:	See:
Install Visual Warehouse Version 5.2	“Chapter 4. Hardware and software requirements” on page 29
Export metadata from Visual Warehouse Version 1	“Exporting metadata from Visual Warehouse Version 1” on page 99

Task:	See:
Export historical data from Visual Warehouse Version 1 (optional)	“Exporting historical data from Visual Warehouse Version 1” on page 101
Import metadata into Visual Warehouse Version 5.2	“Importing Version 1 metadata into Version 5.2” on page 101
Modify the imported database objects	“Changing imported objects” on page 105
Promote business views to the migrated target warehouse and save historical data (optional)	“Promoting business views to a migrated target warehouse while saving historical data (optional)” on page 109

For information about using the export and import utilities in Visual Warehouse Version 5.2, see *Managing Visual Warehouse*.

Exporting metadata from Visual Warehouse Version 1

The export process uses a utility that is named `ddlexprt`. This utility is similar to the `DDLutil` in the Visual Warehouse Version 1.3 desktop, but the utility now exports Version 1 metadata to Version 5.2. Use only the functions that are described in this section. Other functions in `ddlexprt` might differ from their counterparts in `DDLutil`.

The `ddlexprt` utility exports only business views in production status or suspend mode. Be sure to promote all the business views that you want to export to production status, and demote the files that you don't want to export.

If your source system is large, there will be many objects to export. The tag language file will be large—estimate 50 MB of data for each business view. Exporting and importing the objects will take a significant amount of time.

To represent the various relationships between objects, the utility defines relationship objects in addition to the metadata objects that are found in the system. The utility exports the relationship objects as though they are part of the system.

The utility exports the name of the subsystem object as the name of the database object (or `ConnectResource` object) so that the name is compatible with the import utility in Version 5.2. The utility exports the `hostDbName` of the `DataGuide` object as the property `dbname`.

Because all attributes of a schedule object are exported, but a given schedule type might use only a subset of the attributes, undefined attributes contain a value of 99.

Migrating from Version 1

The tag language file contains all the objects that are used by Visual Warehouse Version 5.2, which might be more objects than you want to see in a DataGuide display. For this reason, you should not import the objects into DataGuide.

To export metadata from Visual Warehouse Version 1:

1. Change to the VWOS2MIG directory, which is a subdirectory of the directory in which Visual Warehouse Version 5.2 is installed.
2. Locate the ddlexprt utility on the workstation where Visual Warehouse Version 1 is installed. Start the utility from an OS/2 command prompt by entering:

```
X:\> ddlexprt
```

where X is the drive where the ddlexprt utility is located.

3. Export all the objects that are related to information resources, such as databases, tables, and columns:
 - a. In the main window, click **File** → **Export** → **DataGuide/2 Tag** → **Information Resources**.
 - b. Type your password and tag language file name.
 - c. Click **OK**.
The ddlexprt utility exports the information resources to a tag language file.
The ddlexprt utility exports users and user groups that are associated with the information resources.
4. Export business views and related objects, such as business view aliases, schedules, and maps:
 - a. In the main window, click **File** → **Export** → **DataGuide/2 Tag** → **Business View Information**.
 - b. Type your password and tag language file name.
 - c. Select all the listed security groups (because you are exporting all your metadata).
 - d. Click **OK**.

Your metadata is exported into tag language files.

If you plan to use the Version 1 target warehouse and the historical data in that warehouse, go to “Exporting historical data from Visual Warehouse Version 1” on page 101. Otherwise, go to “Importing Version 1 metadata into Version 5.2” on page 101.

Exporting historical data from Visual Warehouse Version 1

When you export Visual Warehouse Version 1 metadata, you also need to export the *.edition table contents to an IXF file and save the file for use later in the migration process. The default target warehouse that was created by Visual Warehouse contains the OS/2 Visual Warehouse edition table. The name of this warehouse is usually IWHDB01.

You should perform this step if there are target warehouses in Visual Warehouse Version 1 for which you want to save historical target data.

Using the DB2 Command Line Processor, enter the following command to export the edition table entries:

```
EXPORT TO filename OF IXF MESSAGE messagefilename SELECT * FROM IWH.EDITION
```

filename

The fully qualified name of the file that will contain the export edition table entries in IXF format

messagefilename

The fully qualified name of the file that will contain any DB2 messages from the EXPORT command

Importing Version 1 metadata into Version 5.2

After you export the Version 1 metadata into a tag language file, import the tag language files into Visual Warehouse Version 5.2:

1. Find the following files in the VWOS2MIG directory:
 - initdbGA.exe
 - iwh2impt.exe
 - dobvmap.exe
 - initdb21.exe

You will use these files in the following steps.

2. Prepare an empty database for use as the Version 5.2 control database:
 - a. Create Visual Warehouse metadata tables by running the initdbGA command and specifying option 6:

```
initdbGA 6 dbname prefix userid password log_directory
```

where:

dbname

The name of the empty database to use as the Version 5.2 control database

prefix

The qualifier for the Version 5.2 control tables (usually IWH)

Migrating from Version 1

userid The user ID for the database specified in dbname

password

The password for the database specified in dbname

log_directory

The fully qualified path name where the log file
IWH2INRG.LOG will be saved

If the following message is displayed in the command prompt window after the `initdbGA` command completes, the command ran successfully:

```
init complete - calling store
```

Change to the `log_directory` and enter the following command:

```
TYPE IWH2INRG.LOG
```

Verify that the IWH2INRG.LOG file contains the following text:

```
Install Registration successful  
Function : 6
```

- b. Create other Visual Warehouse metadata tables by running the `initdbGA` command again, specifying option 7:

```
initdbGA 7 dbname <prefix userid password
```

where:

dbname

The name of the empty database to use as the Version 5.2 control database

prefix The qualifier for the Version 5.2 control tables (usually IWH)

userid The user ID for the database specified in dbname

password

The password for the database specified in dbname

To verify that the command ran successfully, change to the `log_directory` and enter the following command:

```
TYPE IWH2INRG.LOG
```

Verify that the IWH2INRG.LOG file contains the following text:

```
Install Registration successful  
Function : 7
```

- c. Import the Version 1 tag language files into the control database, using the `iwh2impt` command:

```
iwh2impt filename.TAG dbname userid password
```

where:

filename.TAG

The fully qualified name of the tag language file that contains the exported Version 1 metadata.

Important: You will have at least two tag language files to import. You must import each tag language file separately. Import the tag language file that contains the information resource definitions first, and then the business view definitions. You must import the business view definitions after you import the information resources, because the business view definitions refer to the information resource definitions.

dbname

The name of the empty database to use as the Version 5.2 control database

userid The user ID for the database specified in *dbname*

password

The password for the database specified in *dbname*

It might take a long time to import the tag language files, depending on the number of business views and resources that you import from Visual Warehouse Version 1.

For each tag language file that you import, the utility creates a log file in the same directory as the tag language file. The log file has the same file name as the tag language file and a file extension of `log`. The return code and the last processed checkpoint are recorded at the end of the file, although metadata might have been written to the database after the checkpoint. If the utility fails to import the entire tag language file, you can determine the cause of failure from the error code and message in the epilog. You can then restart the import process from the last recorded checkpoint. Because the import process appends information to the same log file, all information for the specified tag language file is written to the same file.

To use business views and information resources in Version 5.2, you must have an agent site. Version 1 did not require an agent site. Version 5.2 includes a default agent site with the case-sensitive name, `Default VW AgentSite`. Any business views or information resources imported from Version 1 will initially refer to this agent site. You can change this reference to other agent sites after the Version 5.2 is running.

A user ID is a required attribute of the information resource object in Version 5.2. Some warehouse information resources exported from Version 1 might not have a user ID specified. For these information

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resources, the initial user ID and password are set to XXXXXXXX. You can use a Version 5.2 administrative client to change the user ID and password.

The data type mapping for subDbType of FFLanLocalCmd or FFLanFTPCopy is extended to include the following mappings:

- If the value of the nativeDataType parameter is CHAR or LONG VARCHAR or FLOAT, the value is mapped to VARCHAR;
- If the value of the nativeDataType parameter is INTEGER or DECIMAL or SMALLINT, the value is mapped to NUMERIC.

As the tag file is imported, you will see the following messages in the command window:

```
*** *****  
***      Visual Warehouse Version 2.1  
***      Import from TAG file:  
***           into database:  
***      Start time: .....  
*** *****
```

After the file is imported, the following message is displayed in the command window:

```
*** *****  
***      Import ended for tag file:  
***      Return Code/subCode = 0/0  
***      Chkpid completed = 227  
***      Stop time: .....  
*** *****  
***
```

If the file was imported successfully, the return code is 0.

- d. Prepare the Visual Warehouse metadata tables for migration by running the `dobvmap` command:

```
dobvmap dbname userid password
```

where:

dbname

The name of the empty database to use as the Version 5.2 control database

userid The user ID for the database specified in dbname

password

The password for the database specified in dbname

When the command completes, the following message is displayed:

```
>>>>>>>>>>>>>> dobvmap completed successfully <<<<<<<<<<<<<<
```

- e. Migrate the Visual Warehouse metadata tables by running the `initdb21` command on the control database, specifying option 8:

```
initdb21 8 dbname prefix userid password
```

where:

dbname

The name of the empty database to use as the Version 5.2 control database

prefix The qualifier for the Version 5.2 control tables (usually IWH)

userid The user ID for the database specified in *dbname*

password

The password for the database specified in *dbname*

To verify that the command ran successfully, change to the directory from which you ran the `initdb21` command and enter the following command:

```
'TYPE IWH2INRG.LOG'
```

Verify that the `IWH2INRG.LOG` file contains the following text:

```
Install Registration successful  
Function : 8
```

- f. Run the Version 5.2 initialization program by clicking **Start** → **Visual Warehouse** → **Visual Warehouse** → **Initialization**. Select **Server** as the Initialization Type.

You can now use the control database with Visual Warehouse Version 5.2. Go to “Changing imported objects” to change the imported objects for Version 5.2.

Changing imported objects

Start the Visual Warehouse Version 5.2 desktop, then perform the following tasks:

1. Change user IDs and passwords.
From the list of information resources on the desktop:
 - a. Open each Information Resource notebook.
 - b. Click the **Database** tab.
 - c. Change the user ID and password to an authorized user ID and password that is defined for the destination environment.
2. Change the `SELECT` statement for each composite business view:
 - a. Open the Business View notebook.

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- b. Click the **SQL** tab.
- c. Click **Modify SQL**.
- d. Find the **SELECT** statement in the top half of the SQL page and insert the following string in front of the list of column specifications for each **SELECT** statement:
`&cur_edtn,`

Business views that are imported from OS/2 typically do not include a **SELECT** string and a business view edition. This means that the imported tag language file will not contain the required **SELECT** string. You must insert this string so that you can promote the business views from development status to test status.

If some business view definitions include **SQL UNION** statements, you need to insert the string after every **SELECT** statement in the unit of work. However, if you are using subqueries, you need to insert the string only after the first **SELECT** statement.

3. Promote business views.

Version 1 business views are imported in development status. This way, you can verify that they are complete and accurate before you promote them to test or production status. You must promote them to the appropriate status before running them.

Promoting business views to a new target warehouse without saving historical data (optional)

Perform this step after you import the Visual Warehouse Version 1 metadata (described in “Importing Version 1 metadata into Version 5.2” on page 101), and after you change the imported objects (described in “Changing imported objects” on page 105). Perform this step if you plan to use a different target warehouse with Visual Warehouse Version 5.2 than you did with Version 1, and you don’t want to save the historical edition data from your Version 1 target warehouse. The new target warehouse is populated with data from the business views in the Version 1 target warehouse.

1. Verify that the connection exists for the database where the target warehouse is located, and that you registered the database as a system DSN for ODBC.
2. Change the name of the database for the Version 5.2 warehouse that contains the business views that you exported to the new warehouse database. To change the warehouse database name:
 - a. Click the **Warehouse** tab and select the appropriate warehouse entry.
 - b. Click **File** → **Properties**.
 - c. Click the **Database** tab in the Warehouse notebook.

- d. On the Database page, change the entry in the **Database** field to the name of the warehouse database. Change the type, user ID, and password, if necessary.
 - e. Click **Close** to save the changes.
3. Open the warehouse to display the business views in that warehouse.
 4. Promote the business views to production status, beginning with the source business views. Use the tree view to see which business views you should promote first.
 5. Repeat the previous steps for each warehouse you defined.

The migration from Visual Warehouse Version 1 to Visual Warehouse Version 5.2 is now complete.

Promoting business views to a new target warehouse while saving the historical data (optional)

Complete this step after you import the Visual Warehouse metadata from Version 1 (described in “Importing Version 1 metadata into Version 5.2” on page 101) and after you change the imported objects (described in “Changing imported objects” on page 105). The new database initially contains target data that you move from the Version 1 target warehouse. The Visual Warehouse Version 5.2 edition table is migrated to contain the historical information about editions from Version 1.

1. Verify that the connection exists for the database where the target warehouse is located, and that you registered the database as a system DSN for ODBC.
2. Move the target data from the Version 1 target warehouse into the Version 5.2 target warehouse.
3. Create a temporary DB2 database of the same type as the Version 1 database. Register it as a system DSN for ODBC. You will use this database to move the business views into the correct state before you migrate the Version 1 edition entries.
4. Change the name of the database for the Version 5.2 warehouse that contains the exported business views to the name of the database that you just created.

To change the database name:

- a. Click the **Warehouse** tab and select the appropriate warehouse entry.
- b. Click **File** → **Properties**.
- c. Click the **Database** tab in the Warehouse notebook.
- d. On the Database page, change the entry in the **Database** field to the name of the temporary database. Change the type, user ID, and password, if necessary.
- e. Click **Close** to save the changes.

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5. Open the warehouse to display the business views in that warehouse.
6. Promote the business views in the warehouse to test status. The automatic schedules will not be scheduled in the Work In Progress window.
7. Go back to the Warehouse notebook (**File** → **Properties**) and change the database name to the correct warehouse database name. Verify that the user ID and password are correct for that database.
8. Repeat the previous steps for each warehouse that you migrated.
9. Close the Visual Warehouse desktop.
10. Shut down the Visual Warehouse server and Visual Warehouse logger:
 - a. Click **Start** → **Settings** → **Control Panel** → **Services**.
 - b. Click **Visual Warehouse Logger**.
 - c. Click **Stop**. A message is displayed stating that the Visual Warehouse server will also be stopped.
 - d. Click **OK**.

11. Import the definition and contents of the Version 1 edition table into the table IWH.OS2EDITION in the Version 5.2 control database. Enter the following command in the DB2 Command Line Processor:

```
connect to control_database user userid using password
```

control_database

The name of the Visual Warehouse control database

userid The user ID used to install Visual Warehouse

password

The password used to install Visual Warehouse

12. From the DB2 Command Line Processor, enter:

```
IMPORT FROM os2_edition_file OF IXF CREATE INTO IWH.OS2EDITION
```

where *os2_edition_file* is the fully qualified name of the IXF file that contains the OS/2 Visual Warehouse *.edition contents.

13. Run IWHOS2MG with the following parameters:

```
IWHOS2MG dbname prefix userid password os2_edition_file
```

dbname

The name of the Visual Warehouse Version 5.2 control database

prefix The qualifier for the Version 5.2 control tables (as specified in the Visual Warehouse initialization window, usually IWH)

userid The user ID for the database specified in dbname

password

The password for the database specified in dbname

os2_edition_file

The fully qualified name of the IXF file that contains the OS/2 Visual Warehouse *.edition contents

This utility migrates the Version 1 edition data into the Version 5.2 edition format. The utility also removes any scheduled business view entries, so that when you promote the business views to production status, up-to-date schedules are created.

This utility also changes the BVTARGETDBNAME entry in the Visual Warehouse Version 5.2 *.statistics table from the temporary database name to the correct database name. This entry is created when you promote the business view to test status.

14. Start the Visual Warehouse server and Visual Warehouse logger from the Services window. Log on to the Visual Warehouse desktop and promote the business views to production status.

Your warehouse database is now migrated to Visual Warehouse Version 5.2. The Work in Progress window should now display past editions and future editions of your business views.

Promoting business views to a migrated target warehouse without saving historical data (optional)

Perform this step after you import the Visual Warehouse metadata from Version 1 (described in “Importing Version 1 metadata into Version 5.2” on page 101) and after you change the imported objects (described in “Changing imported objects” on page 105). The business views that you promote will populate the target warehouse with new data.

1. Verify that the connection exists for the database where the target warehouse is located, and that you registered the database as a system DSN for ODBC.
2. Open the warehouse to display the business views in that warehouse.
3. Promote the business views to production status, beginning with the source business views. You can use the tree view to see which business views to promote first.
4. Repeat the previous steps for each warehouse that you defined.

The migration from Version 1 to Version 5.2 is now complete.

Promoting business views to a migrated target warehouse while saving historical data (optional)

Perform this step after you import the Visual Warehouse metadata from Version 1 (described in “Importing Version 1 metadata into Version 5.2” on page 101)

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page 101) and after you change the imported objects (described in “Changing imported objects” on page 105). The Version 5.2 edition table will be migrated to contain the historical information about old editions from Version 1.

1. Verify that the connection exists for the database where the target warehouse is located, and that you registered the database as a system DSN for ODBC.
2. Create a temporary DB2 database of the same type as the Version 1 database. Register it as a system DSN for ODBC. You will use this database to move the business views into the correct state before you migrate the Version 1 edition entries.
3. Change the name of the database for the Version 5.2 warehouse that contains the exported business views to the name of the database that you just created:
 - a. Click the **Warehouse** tab and select the appropriate warehouse entry.
 - b. Click **File** → **Properties**.
 - c. Click the **Database** tab in the Warehouse notebook.
 - d. On the Database page, change the entry in the **Database** field to the name of the temporary database. Change the type, user ID, and password, if necessary.
 - e. Click **Close** to save the changes.
4. Open the warehouse to display the business views in that warehouse.
5. Promote the business views in the warehouse to test status. The automatic schedules will not be scheduled in the Work in Progress window.
6. Go back to the Warehouse notebook (**File** → **Properties**) and change the database name to the correct warehouse database name. Verify that the user ID and password are correct for that database.
7. Repeat the previous steps for each warehouse of this type.
8. Close the Visual Warehouse desktop.
9. Shut down the Visual Warehouse server and Visual Warehouse logger:
 - a. Click **Start** → **Settings** → **Control Panel** → **Services**.
 - b. Click **Visual Warehouse Logger**.
 - c. Click **Stop**. A message is displayed stating that the Visual Warehouse server will also be stopped.
 - d. Click **OK**.
10. Import the definition and contents of the Version 1 edition table into the table IWH.OS2EDITION in the Version 5.2 control database. Enter the following command in the DB2 Command Line Processor:

```
connect to control_database user userid using password
```

```
control_database
```

The name of the Visual Warehouse control database

userid The user ID used to install Visual Warehouse

password

The password used to install Visual Warehouse

11. From the DB2 Command Line Processor, enter:

```
IMPORT FROM os2_edition_file OF IXF CREATE INTO IWH.OS2EDITION
```

where *os2_edition_file* is the fully qualified name of the IXF file that contains the OS/2 Visual Warehouse *.edition contents.

12. Run IWHOS2MG with the following parameters:

```
IWHOS2MG control_database prefix userid password os2_edition_file
```

control_database

The name of the Visual Warehouse Version 5.2 control database

prefix The qualifier for the Version 5.2 control tables (as specified in the Visual Warehouse initialization window, generally IWH)

userid The user ID for the database specified in dbname

password

The password for the database specified in dbname

os2_edition_file

The fully qualified name of the IXF file that contains the OS/2 Visual Warehouse *.edition contents

This utility migrates the Version 1 edition data into the Version 5.2 edition format. The utility also removes any scheduled business view entries, so that when you promote the business views to production status, up-to-date schedules are created.

This utility also changes the BVTARGETDBNAME entry in the Visual Warehouse Version 5.2 *.statistics table from the temporary database name to the correct database name. This entry is created when you promote the business view to test status.

13. Start the Visual Warehouse server and Visual Warehouse logger from the Services window.
14. Log on to the Visual Warehouse desktop and promote the business views to production status.

Your target warehouse is now migrated to Visual Warehouse Version 5.2. The Work in Progress window should display past editions and future editions of your business views.

Chapter 9. Verifying installation

After you install Visual Warehouse, verify that you can successfully create and populate an information catalog and perform basic Visual Warehouse functions.

Creating the sample information catalog

DataGuide provides a sample program to help you verify that the installation was successful. The program installs the sample data that is included with DataGuide. This sample data is used in the scenarios in the *Using DataGuide* online book.

After you create the DB2 database, use the Create Information Catalog utility to create the sample information catalog. The sample information catalog utility populates the information catalog with sample data.

If you performed a stand-alone installation, you do not need to complete this step because the installation process created a default information catalog.

To create the sample information catalog:

1. Define a new information catalog by following the steps for your database operating system in the online help or in *Managing DataGuide*. Name the information catalog DGV5SAMP.

If you already have an information catalog named DGV5SAMP, you can use a different name, but be sure to notify your users of the new name.

2. At an MS-DOS command prompt, enter:

```
X:\VWSLIB\SAMPLES\SAMPDATA\DGWDEMO
```

where *X* is the drive where you installed DataGuide.

3. Change any or all of the following default options.
 - 1 The fully qualified path for the Web server on which you installed DataGuide for the Web (for example, dgntserv2.stl.ibm.com).
 - 2 The administrator user ID for the information catalog.
 - 3 The password for the user ID. Passwords are case sensitive; you must type them exactly as specified.
 - 4 The name of the information catalog that you created for the sample data. This is DGV5SAMP, unless you gave it a different name.

Creating the sample information catalog

After you enter the required information, the utility loads the sample data. A message is displayed when the utility completes. You can now use the sample information catalog.

To open the sample information catalog:

1. Click **Start** → **Programs** → **Visual Warehouse** → **DataGuide**.
2. Click **VWCNTRL Administrator** (if the installation process created the information catalog) or **DGV5SAMP Administrator** (if you created the sample information catalog by using the steps above).
3. In the Open DataGuide Catalog window, enter the user ID and the password of the primary or backup administrator that you specified when you defined the information catalog.

Passwords for DB2 UDB are case sensitive; you must type them exactly as they are defined.

See *Managing DataGuide* for additional information about DataGuide administrator tasks.

Testing Visual Warehouse functions

Complete the tasks described in this section to test basic Visual Warehouse functions. Begin by starting Visual Warehouse:

1. Click **Start** → **Programs** → **Visual Warehouse** → **Visual Warehouse** → **Visual Warehouse Desktop**.
2. Log on to Visual Warehouse using the default control database, VWCNTRL, and your Visual Warehouse user ID and password.

Create a source

To create a source:

1. Click on the **Sources** tab.
2. Click **File** → **New**.
The Resource Type window opens.
3. In the Resource Type window, click **DB2 Family**, then click **OK**.
The DB2 Family notebook opens.
4. On the General page, type a name for the source in the **Source Name** field.
5. On the Agent Sites page, check that **Default VW AgentSite** is shown in the **Selected Agent Sites** list. If it is not, add it from the **Available Agent Sites** list.
6. On the Database page, enter the following values:

Database

VWTGTWHS

User ID

Your Visual Warehouse user ID

Password

Your Visual Warehouse password

Verify password

Your Visual Warehouse password

System Name

The host name of the workstation

Import tables

To import tables:

1. On the Tables page, click **Import Tables**.
The Catalog Import window opens.
2. In the Catalog Import window, click **OK**.
The Import Table List window opens.
3. In the Import Table List window, select four tables, then click **Tables**.
The Import from VWTGTWHS window opens.
4. In the Import from VWTGTWHS window, click **OK**.
Visual Warehouse starts importing the tables.
5. After the tables are imported, click **Close** to close the Import from VWTGTWHS window.
6. Click **Close** to close the Import Table List window.
7. Click **Close** to close the DB2 Family window.

Create a target warehouse

To create a target warehouse:

1. In the Visual Warehouse desktop, click the **Warehouses** tab.
2. Click **File** → **New**.
The Target Warehouse notebook opens.
3. On the General page, type a name for the warehouse in the **Target Warehouse Name** field.
4. On the Agent Sites page, check that **Default VW AgentSite** is shown in the **Selected Agent Sites** list. If it is not, add it from the **Available Agent Sites** list.
5. On the Database page, enter the following values:

Testing Visual Warehouse functions

Database

VWTGTWHS

User ID

Your Visual Warehouse user ID

Password

Your Visual Warehouse password

Verify password

Your Visual Warehouse password

System Name

The host name of the workstation

6. Import tables into the warehouse as described in “Import tables” on page 115. Select tables that are different from those that you selected for the source.

Create a business view

To create a business view:

1. Double-click the warehouse you created.
The Business Views window for that warehouse opens.
2. Click **File** → **New**.
The Create Business View notebook opens.
3. Type a name for the business view in the **Business Name** field.
4. From the **Select Source** list, select the source you created earlier.
5. Add all the tables that are shown in the **Available Tables** list.
6. Click **OK**.
The Business View notebook opens.
7. To add columns to the business view, click **Add**.
8. Select all the columns (using the mouse and the Shift key), then click **Add**.
9. Click **Close** to close the Add Columns window.
10. Click **OK** to close the Business View notebook and create the business view.

Promote the business view

To promote the business view:

1. In the Business View window, click the business view, then click **Status** → **Promote to Test**.
The value in the **Status** field changes from **Development** to **Test**.
2. Click **Status** → **Promote to Production**.

The value in the **Status** field changes from **Test** to **Production**.

Create a subject

To create a subject:

1. From the Visual Warehouse desktop, click the **Subjects** tab.
2. Click **File** → **New**.
The Subjects notebook opens.
3. On the General page, type a name for the subject in the **Name** field.
4. Close the Subjects notebook.

Verify the business view within the subject

To verify the business view within the subject:

1. Double-click the subject you created.
The Business Views window for that subject opens.
2. Click **File** → **Add**.
The Add to Subject window opens.
3. From the **Select a Subject or Warehouse** list, select the warehouse that you created.
4. Double-click the business view to add it to the subject, then click **Close**.
5. Open the business view and click each tab. Make sure that no error messages are displayed.
6. Click **OK**. A confirmation message is displayed. Click **Yes**.
7. Close the Business View notebook.

Run the business view

To run the business view:

1. From the Visual Warehouse desktop, click **Operations** → **Work in Progress**.
The Operations Work in Progress window opens.
If a message about the EDITION database is displayed, click **OK** to continue.
2. In the Operations Work in Progress window, click **New**.
3. Click the business view you created, then click **OK**.
The status of the business view should change from **Populating** to **Successful**.

Testing Visual Warehouse functions

Verify that the business view ran

To verify that the business view ran and created a table with data:

1. From the DB2 Command Line Processor, enter connect to vwtgtwhs.
2. Enter `list tables for all`. Ensure that the list includes the business view that you created. You might need to scroll up in the window to see the business view.
3. Enter `select * from iw.testbv` where *iw* is the table qualifier and *testbv* is the name of the business view you created. Ensure that column names are displayed.

Purge, demote, and delete the business view

To purge, demote, and delete the business view:

1. From the Operations Work in Progress window, click the business view, then click **Purge**. Click **Yes** in the message window to continue.
The business view is removed from the Operations Work in Progress window.
2. Close the Operations Work in Progress window.
3. From the Business View window, click the business view, then click **Status** → **Demote to Test**.
The value of the **Status** field changes from **Production** to **Test**.
4. Click **Status** → **Demote to Development**. Click **OK** in the message window to continue.
The value of the **Status** field changes from **Test** to **Development**.
5. Click **Edit** → **Delete**. Click **OK** in the message window to continue.
The business view is removed from the Business View window.
6. To make sure that the business view is deleted, open the DB2 Command Line Processor and enter `list tables for all`. Ensure that the business view is not in the list.
7. Close the DB2 Command Line Processor.
8. Close the Business View window.

Delete the subject, target warehouse, and source

To delete the subject, target warehouse, and source:

1. From the Visual Warehouse desktop, click the **Subjects** tab, click the subject, then click **Edit** → **Delete**. Click **OK** in the message window to continue.
2. Click the **Warehouses** tab, click the warehouse, then click **Edit** → **Delete**. Click **OK** in the message window to continue.

Testing Visual Warehouse functions

3. Click the **Sources** tab, click the source, then click **Edit** → **Delete**. Click **OK** in the message window to continue.

Testing Visual Warehouse functions

Appendix A. Maintaining and removing Visual Warehouse

This appendix provides information about applying maintenance upgrades, removing Visual Warehouse, and removing Visual Warehouse agents.

Applying maintenance

Occasionally, maintenance upgrades are available for Visual Warehouse. You can request to have upgrades sent to you on CD-ROM, or you can download images from the Internet. In either case, follow the instructions that come with the upgrade to apply the fixes.

Removing Visual Warehouse

When you remove Visual Warehouse, all the Visual Warehouse files and Windows NT registry entries are removed.

ODBC drivers are not deleted when you remove Visual Warehouse.

To remove Visual Warehouse:

1. Click **Start** → **Settings** → **Control Panel** → **Add/Remove Programs**.
2. Click **Visual Warehouse**.
3. Click **Add/Remove**.

Visual Warehouse is removed.

If you use the Visual Warehouse Host Adapter, its client components are also removed.

4. In the Confirm Removal window, click **Remove**.
A message about files that could not be removed is displayed. Click **OK** to continue.
5. Click **Cancel** in the Add/Remove Programs Properties window.
6. Restart your workstation.

Attention: You must restart your workstation after you remove Visual Warehouse. If you reinstall Visual Warehouse without restarting your workstation, Visual Warehouse will not install properly.

Recommendations: If you do not plan to install Visual Warehouse again, or if you plan to install Visual Warehouse on a different drive, complete the following tasks:

- Update the following system environment variables:

Removing Visual Warehouse

- PATH
- INCLUDE
- LIB
- LOCPATH
- HELP
- IPF_PATH32

See “Appendix B. Visual Warehouse environment structure” on page 125 for a complete list of the Visual Warehouse environment variable entries.

- Remove Visual Warehouse from the **Start** menu.

Attention: Do not complete this task if you plan to reinstall Visual Warehouse in the same location. If you remove Visual Warehouse from the **Start** menu and then reinstall Visual Warehouse in the same location, you will need to manually register all your information catalogs.

1. Click **Start** → **Settings** → **Taskbar**.
 2. Click the **Start Menu Programs** tab.
 3. Click **Advanced**.
 4. Click the **All Users** folder.
 5. Click the **Start Menu** folder.
 6. Click the **Programs** folder.
 7. Right-click the **Visual Warehouse** folder and click **Delete**.
 8. Close the Explorer window.
 9. Click **OK** in the Taskbar Properties window.
- Delete any files in the VWSWIN and VWSLIB directories that are not needed. You can also delete the directories.

Removing Visual Warehouse agents

This section contains information about removing the Visual Warehouse agents for OS/2, AIX, and SUN Solaris.

Removing the OS/2 agent

To remove the OS/2 agent components from your workstation, use the Installation Utility in the Visual Warehouse folder.

Removing the AIX agent

To remove the AIX agent:

1. Log on to AIX as *root*.
2. Enter `smit`.

Removing Visual Warehouse agents

The System Management window opens.

3. Select the **Software Installation and Maintenance** box.

The Software Installation and Maintenance window opens.

4. Select the **Maintain Installed Software** box.

The Maintain Installed Software window opens.

5. Select the **Remove Software Products** box.

The Remove Software Products window opens.

6. Click the arrow next to the **Software Name** field.

7. Select **IWH.agent** from the list.

8. Click **OK**.

The Remove Software Products configuration window opens.

9. Type No in the **Preview only?** field.

10. Click **OK**.

A confirmation window opens.

11. Click **OK** to confirm your selection.

After the AIX agent is removed, the Output window opens. The Results column at the bottom of the Output window displays the status of the removal process. If the removal process failed, contact IBM Software Support.

Removing the SUN Solaris agent

To remove the SUN Solaris agent, enter the following command at a command prompt:

```
usr/sbin/pkgrm IBMiwh
```

To confirm the removal of the SUN Solaris agent, enter yes in the confirmation display.

Appendix B. Visual Warehouse environment structure

The information in this appendix explains how Visual Warehouse is structured and how it interacts with the operating system.

Visual Warehouse variable entries for Windows NT and Windows 95

When you install Visual Warehouse components on Windows NT or Windows 95, the installation program updates your environment variables, as shown in Table 5 on page 126. During installation, a warning message is displayed about the length of your PATH variable. You can verify that the existing PATH variable is not longer than the maximum length for your operating system (which is given in the message).

To verify the length of the PATH variable:

For Windows NT:

1. Open the Control Panel.
2. Double-click **System**.
3. Click the **Environment** tab to view and, if necessary, change the system PATH variable.

For Windows 95:

View the AUTOEXEC.BAT file and, if necessary, change the PATH variable.

In Table 5 on page 126, the drive letter C indicates a local drive, and the drive letter X indicates a shared LAN drive.

Visual Warehouse variable entries

Table 5. Visual Warehouse Windows environment variable updates

If you are installing:	The environment variable:	Is added to, or modified, to include:
Visual Warehouse	PATH (used to access the Visual Warehouse code)	C:\VWSWIN\IWH\BIN and C:\VWSWIN\IWH\ODBC32
	LOCPATH (used by the Visual Warehouse Host Adapter Client)	C:\VWSWIN\IWH\ODBC32\LOCALE
	VWS_TEMPLATES	C:\VWSWIN\TEMPLATES
	VWS_LOGGING	C:\VWSWIN\LOGGING
	HOMEPAATH ¹	C:\VWSWIN\EXCHANGE
	HOMEDRIVE ¹	C:\Visual Warehouse install path
DataGuide	PATH	X:\VWSLIB\BIN
	LOCPATH	X:\VWSLIB\LOCALE
	HELP	C:\VWSWIN\DGWIN
	DGWPATH	C:\VWSWIN\DGWIN
	VWSPATH	X:\VWSLIB
	VWS_FOLDER	Visual Warehouse Solution folder name
	IPF_PATH3 ¹	X:\VWSLIB
	LIB ²	X:\VWSLIB\LIB
	INCLUDE ²	X:\VWSLIB\LIB
	MDIS_PROFILE ¹	C:\Windows operating system directory ³ \METADATA\PROFILES
	VWS_TEMPLATES ²	C:\VWSWIN\TEMPLATES
	VWS_LOGGING ²	C:\VWSWIN\LOGGING
	HOMEPAATH ^{1, 2}	C:\VWSWIN\EXCHANGE
	HOMEDRIVE ^{1, 2}	C:\Visual Warehouse install path
	LANG ¹	ll_cc (where ll is the language code and cc is the country code; see Table 6 on page 132)
Java (for the Visual Warehouse transformers)	Path	The path of the JDK bin subdirectory. The default path is C:\JDK1.1.7.
	CLASSPATH	The path where the transformers are installed, and the path of the directory that contains the DB2 Java support classes. For example, C:\SQLLIB\FUNCTION;C:\SQLLIB\JAVA\DB2JAVA.ZIP;

Table 5. Visual Warehouse Windows environment variable updates (continued)

If you are installing:	The environment variable:	Is added to, or modified, to include:
ISV Toolkit	DGWPATH	C:\VWSWIN\DGWIN
	VWS_TEMPLATES	C:\VWSWIN\TEMPLATES
	INCLUDE	C:\VWSWIN\TEMPLATES\INCLUDE

Notes:

1. If this variable exists, it is not changed. If it does not exist, it is added and set as specified.
2. Does not apply to DataGuide for Windows User.
3. For example: C:\WINNT\METADATA\PROFILES

In addition, if you are installing DataGuide, entries are added for the following Windows NT current user (local) variables:

Current user variable	Entry added
HELP	%HELP%
LOCPATH	%LOCPATH%
LIB	%LIB%
INCLUDE	%INCLUDE%

Your original PATH variable on Windows NT is copied and saved to the VWS_SV_PATH environment variable.

Your original AUTOEXEC.BAT file on Windows 95 is copied and saved as AUTOEXEC.VWS when you install Visual Warehouse and as AUTOEXEC.DGU when you install DataGuide for Windows 95/NT.

Visual Warehouse directory structure

Visual Warehouse directory structure

Visual Warehouse has a target directory where it places the files that are needed to run Visual Warehouse.

```
<system-disk>:vwswin
<shared-disk>:vwslib - Can be a local drive or a network drive
\<Base Target Directory>
  \books
  \dgwin
  \dgwin\types
  \exchange
  \iwh
  \iwh\bin
  \iwh\odbc32
  \iwh\system
  \logging
  \templates
  \templates\include
  \templates\isv
  \templates\messages
  \templates\samples
  \templates\tags

\<shared target directory>
  \bin
  \dgwext
  \exchange
  \lib
  \locale
  \locale\ar_aa
  .....
  \locale\en_us
  .....
  \locale\zh_tw
  \metadata
  \metadata\profiles
  \protocol
  \samples
  \samples\dgextbac
  \samples\dgextbob
  \samples\dgextdpr
  \samples\dgextief
  \samples\dgextims
  \samples\dgextird
  \samples\dgextodb
  \samples\dgextora
  \samples\dgextrct
  \samples\sampdata
```

Visual Warehouse registry updates

The following updates are made to the Windows NT registry. The numbers shown in parentheses refer to the notes at the end of this section.

```
HKEY_LOCAL_MACHINE
  \Software
    \IBM
      \Visual Warehouse
        \CurrentVersion (1)
          \Components (2)
            \ServiceParams (3)
              \5.2
HKEY_LOCAL_MACHINE
  \Software
    \Microsoft
      \Windows
        \CurrentVersion
          \Uninstall
            \VisualWarehouse

HKEY_LOCAL_MACHINE
  \Software
    \ODBC
      \ODBCINST.INI
        \ODBC Drivers

HKEY_LOCAL_MACHINE
  \Software
    \ODBC
      \ODBC.INI
        \IWH_TEXT
```

Notes:

1. The following values are added:

Value Name	Value Data
Description	"Visual Warehouse"
Install Date	<mm/dd/yy>
Install Path	<disk:\dir\IWH>
DGWPATH	<disk:\dir\DGWIN>
Shared Path	<disk:\dir>
VWS_FOLDER	<folder name>
Version	5
Release	2
Modification	0
Title	"Visual Warehouse"
Service Level	
Last Modified Date	<mm/dd/yy>

Visual Warehouse registry updates

- The list of values will vary depending on the components that are installed:

Value Name	Value Data
-----	-----
<component>	<Uninstall_logfile_name>

- The following values are added:

Value Name	Value Data
-----	-----
DatabaseName	<Control DB name>
LogDirectory	<disk:\dir\>
Password	<password>
Qualifier	<table qualifier>
Userid	<DB2 user ID>

Visual Warehouse configuration files

The following updates are made to TCP/IP configuration information:

TCP/IP SERVICES:

vwkernel	11000/tcp
vwd	11001/tcp
vwlogger	11002/tcp

Appendix C. National language support considerations

This appendix describes considerations for using Visual Warehouse and DataGuide in languages other than English.

Visual Warehouse considerations

You can enter information such as business view names and descriptions by using your local characters. If the default font does not display those characters well, you can change the Visual Warehouse system font by using the IWH2EFNT command. This command is located in the Visual Warehouse run-time directory (usually VWSWIN\IWH\BIN).

Run the IWH2EFNT command by clicking **Start** → **Run**, then select the appropriate font and font size.

DataGuide considerations

If you install the English version of DataGuide on a non-English system, and you want to enter text in a language other than English, you can change the DataGuide LANG environment variable. When the English version of DataGuide is installed, the LANG environment variable is set to EN_US. The LANG environment variable is set in the AUTOEXEC.BAT file in Windows 95, and in the system environment variables in Windows NT.

To change the value of the variable for Windows 95, include the following statement in your AUTOEXEC.BAT file:

```
SET LANG=language
```

where *language* is the value given in Table 6 on page 132 for the language you want to use.

To change the value of the variable for Windows NT:

1. Click **Start** → **Settings** → **Control Panel**.
2. Open the System icon.
3. Click the **Environment** tab in the System Properties window.
4. In the **System Variables** list, click the **LANG** variable.
5. In the **Value** field, type the value given in Table 6 on page 132 for the language you want to use.
6. Click **Set**.

National language support considerations

7. Click **Apply**.
8. Close the window and restart your workstation for the change to take effect.

Table 6. Language identifiers

Language - country	LANG value
Arabic - Arabic	AR_AA
Bulgarian - Bulgaria	BG_BG
Czech - Czech Republic	CS_CZ
Danish - Denmark	DA_DK
German - Switzerland	DE_CH
German - Germany	DE_DE
Greek - Greece	EL_GR
English - Great Britain	EN_GB
English - Japan	EN_JP
English - United States	EN_US
Spanish - Spain	ES_ES
Finnish - Finland	FI_FI
French - Belgium	FR_BE
French - Canada	FR_CA
French - Switzerland	FR_CH
French - France	FR_FR
Croatian - Croatia	HR_HR
Hungarian - Hungary	HU_HU
Icelandic - Iceland	IS_IS
Italian - Italy	IT_IT
Hebrew - Israel	IW_IL
Japanese - Japan	JA_JP
Korean - Korea	KO_KR
Macedonian - Macedonia	MK_MK
Dutch - Belgium	NL_BE
Dutch - Netherlands	NI_NL
Norwegian - Norway	NO_NO
Polish - Poland	PL_PL
Portuguese - Brazil	PT_BR

National language support considerations

Table 6. Language identifiers (continued)

Language - country	LANG value
Portuguese - Portugal	PT_PT
Romanian - Romania	RO_RO
Russian - Russian Federation	RU_RU
Slovak - Slovak Republic	SK_SK
Slovenian - Slovenia	SL_SI
Swedish - Sweden	SV_SE
Thai - Thailand	TH_TH
Turkish - Turkey	TR_TR
Chinese - China	ZH_CN
Chinese - Taiwan	ZH_TW

National language support considerations

Appendix D. Visual Warehouse AIX and SUN Solaris agent environment structure

The information in this appendix describes the structure of the AIX and SUN Solaris agent environments. Use this information to help you configure the AIX and SUN Solaris agent environments.

AIX agent directory structure

Table 7 shows the directory structure for the AIX agent.

Table 7. AIX agent directory structure

This directory:	Contains:
/usr/bin/IWH.startup	Agent daemon startup file.
/usr/bin/IWH2AGNT /usr/bin/vwdemon /usr/bin/iwhetrig	Soft links.
/usr/lpp/IWH/copyright.master /usr/lpp/IWH/deinstl /usr/lpp/IWH/inst_root	AIX INSTALLP control directories and files.
/usr/lpp/IWH/bin	Agent, ETI, and Visual Warehouse program executable files, and the environment setup file. This is the default install directory.
/usr/lpp/IWH/cRte	C run-time library modules needed by the agent.
/usr/lpp/IWH/demo	Sample source code for Visual Warehouse programs.
/usr/lpp/IWH/demo/Essbase/include	Essbase header files for compiling the sample source code.
/usr/lpp/IWH/demo/Essbase/lib	Essbase library files for linking the sample source code.
/usr/lpp/IWH/odbc	Sample .odbc.ini file.
/usr/lpp/IWH/templates	Template files used by the agent.
/var/IWH	Trace files. This is the default directory for the daemon traces, agent traces, and Visual Warehouse program output files.

SUN Solaris agent directory structure

Table 8 shows the directory structure for the SUN Solaris agent.

Table 8. SUN Solaris agent directory structure

This directory:	Contains:
/usr/bin/IWH.startup	Agent daemon startup file.
/usr/bin/IWH2AGNT /usr/bin/vwdemon /usr/bin/iwhetrig	Soft links.
/opt/IBMiwh	Default install base directory.
/opt/IBMiwh/bin	Agent, ETI, and Visual Warehouse program executable files, and the environment setup file.
/opt/IBMiwh/demo	Sample source code for Visual Warehouse programs.
/opt/IBMiwh/demo/Essbase/include	Essbase header files for compiling the sample source code.
/opt/IBMiwh/demo/Essbase/lib	Essbase library files for linking the sample source code.
/opt/IBMiwh/odbc	Sample .odbc.ini file.
/opt/IBMiwh/templates	Template files used by the agent.
/opt/IBMiwh/lib	Visual Warehouse SUN Solaris run-time library.
/var/IWH	Trace files. This is the default directory for the daemon traces, agent traces, and Visual Warehouse program output files.

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