IBM Visual Warehouse for Windows NT

Managing ETI•EXTRACT® Conversion Programs with Visual Warehouse

Version 5 Release 2

SC26-9467-01

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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 57.

Second Edition (November 1998)

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 you are using the correct edition for the level of the product.

Contents

About this book

This book describes how to set up and implement integration between Visual Warehouse and ETI•EXTRACT®.

Any information concerning ETI•EXTRACT is based on information provided by ETI (Evolutionary Technologies International). IBM makes no representation or warranty concerning the performance of ETI products.

Who should read this book

This book is intended for the administrators and data warehouse designers who want to build a data warehouse that contains both data that is managed by ETI•EXTRACT and data that is managed by Visual Warehouse or want to use Visual Warehouse to schedule and monitor data conversion programs that are generated by ETI•EXTRACT.

Prerequisite knowledge

You must be familiar with Visual Warehouse, DataGuide, and ETI•EXTRACT before you configure and use the integration features described in this document. Specifically, you must know how to do the tasks listed in the following table:

Table 1. Prerequisite knowledge of related products.

Product	**Task**	**For more information, see....**
ETI•EXTRACT	Master User tasks	*ETI•EXTRACT Master User's Guide*
	Conversion Specialist tasks	*ETI•EXTRACT Conversion Specialist's Guide*
DataGuide	Create an information catalog in DataGuide	*Managing DataGuide*
	Exchange synchronized metadata between Visual Warehouse and DataGuide	*Managing DataGuide*

Table 1. Prerequisite knowledge of related products. (continued)

Product	Task	For more information, see....
Visual Warehouse	Define a Visual Warehouse agent site	*Managing Visual Warehouse* and the Visual Warehouse online help
	Create, promote, run, and monitor business views	*Managing Visual Warehouse* and the Visual Warehouse online help
	Modify parameters for Visual Warehouse programs	*Managing Visual Warehouse* and the Visual Warehouse online help

How to send your comments

Your feedback is important in helping to provide accurate and high-quality information. If you have any comments about this book or any other Visual Warehouse documentation, visit the following Web site:

`http://www.software.ibm.com/data/vw`

There you will find a feedback page where you can enter and submit your comments.

If you have comments about ETI•EXTRACT or its documentation, contact ETI.

Chapter 1. Planning your ETI•EXTRACT-Visual Warehouse solution

Over the last few years, there have been such rapid innovations in technology that the lifespan of information systems has shortened significantly. As a result, companies are finding, much to their dismay, that the systems they had invested in just a few years back are already becoming obsolete. Even more disturbing is the problem of accessing the data stored in these legacy systems—data that chronicles the history of the companies' corporate growth, and contains hidden clues to the future. Answering just this problem is ETI•EXTRACT®, a leading data integration management tool from Evolutionary Technologies International (ETI). ETI•EXTRACT automatically extracts, transforms, and migrates existing data from legacy and operational systems into new applications, datamarts and warehouses, year-2000-compliant databases, bridges and interfaces. And now, this unique software is being integrated with IBM's Visual Warehouse to provide a comprehensive data warehousing solution that allows customers to leverage existing investments in legacy systems.

The integration between Visual Warehouse and ETI•EXTRACT gives users a single point of control from which to view all the processes in the data warehouse. ETI•EXTRACT generates all the conversion programs needed to collect, transform, and load data into target systems. Visual Warehouse then imports the execution plan for these programs and uses the plan to run and monitor the programs.

How the products work together

ETI•EXTRACT includes a new utility, the ETI•Meta Scheduler for IBM Visual Warehouse, that generates a version of the execution plan for use by Visual Warehouse. The utility transfers the Visual Warehouse execution plan to the workstation containing the Visual Warehouse server or Visual Warehouse administrative client.

Visual Warehouse then generates business views that correspond to each instruction in the Visual Warehouse execution plan.

For example, you have a data conversion that does the tasks shown in Table 2 on page 2. For each step in the execution plan, Visual Warehouse generates one business view.

Table 2. Sample data conversion

Step	Task	Type of instruction in execution plan	Generated business view
1	Queries an unsorted personnel file	QUERY	Query Personnel
2	Queries an unsorted salary database	QUERY	Query Salary
3	Sorts the results of the query of the personnel file on the EMP-ID field	SORT	Sort Personnel
4	Deletes the unsorted temporary file containing the results of the personnel file query	DELETE	Delete Personnel Temp File
5	Sorts the results of the query of the salary database on the EMP-ID field	SORT	Sort Salary
6	Deletes the unsorted temporary file containing the results of the salary database query	DELETE	Delete Salary Temp File
7	Merges the sorted data, based on the EMP-ID field	MERGE	Merge Sorted Data
8	Deletes the temporary file containing the sorted personnel data	DELETE	Delete Personnel Temp File
9	Deletes the temporary file containing the sorted salary data	DELETE	Delete Salary Temp File
10	Populates an employee database with the merged data	POPULATE	Populate Employee Database
11	Deletes the temporary file containing the merged data	DELETE	Delete Merged Data

Visual Warehouse maintains the sequencing of the execution plan by using the STARTED BY (cascade) schedule function. In Table 2, the Query Personnel business view corresponds to the first instruction in the execution plan. Visual Warehouse starts the Query Personnel business view. After the Query Personnel business view finishes processing, it starts the Query Salary business view, and so on.

Figure 1 shows how the steps in the ETI•EXTRACT data conversion correspond to the definitions generated by Visual Warehouse.

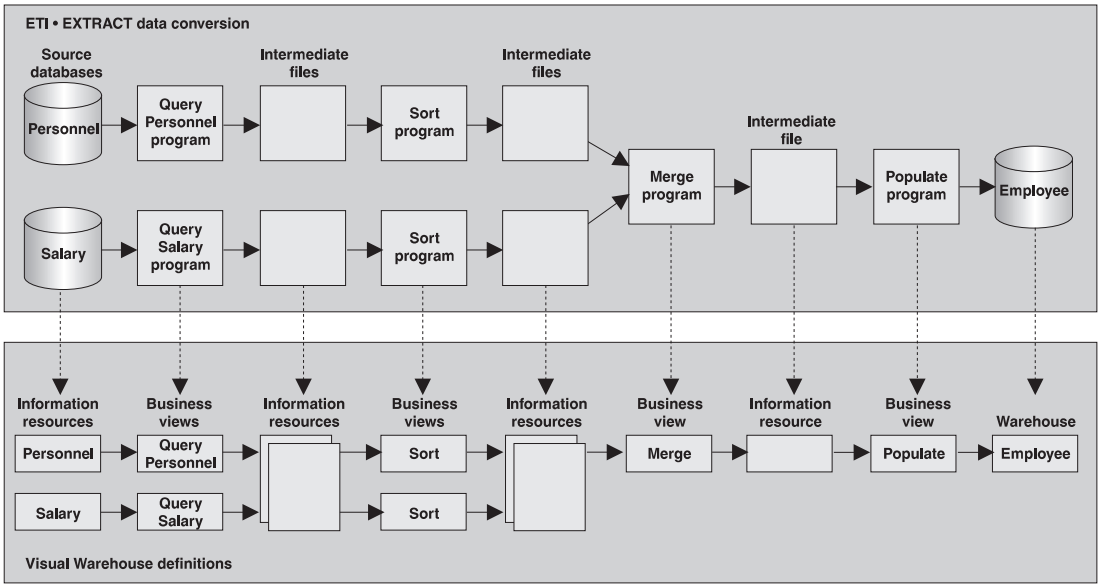

Figure 1. Relationship between an ETI•EXTRACT data conversion and Visual Warehouse definitions. For conciseness, the figure does not include any delete business views that Visual Warehouse would generate.

The business views that Visual Warehouse generates use Visual Warehouse programs to start the ETI•EXTRACT conversion programs. For example, the QUERY program for the personnel file is a COBOL program running on an MVS host. Visual Warehouse supplies a Visual Warehouse program, ETIEXMVS, that submits the JCL that ETI•EXTRACT generates for the QUERY program to an MVS system for execution and receives the JES log file on the agent site. The personnel QUERY business view uses ETIEXMVS to start the QUERY program on MVS.Figure 2 on page 4 illustrates this example.

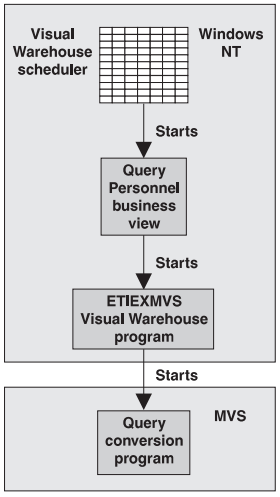

Figure 2. Relationship between a business view, a Visual Warehouse program, and an ETI•EXTRACT conversion program

In Figure 2, the Visual Warehouse scheduler starts the business view at the scheduled time. The business view starts a Visual Warehouse prorgam, ETIEXMVS, which in turn starts an ETI•EXTRACT conversion program on an MVS system.

You can also use Visual Warehouse to add business views that are related to the business views generated from the ETI•EXTRACT execution plan. For example, if you want to create a datamart that summarizes salary data by job title for your Human Resources department, you can create a business view that uses the Employee database as a source and the database for the datamart as a target.

ETI•EXTRACT conversion specifications and schemas contain information about enterprise data that is critical for administrators and users who need to understand the lineage of the data in the data warehouse. The conversion specifications and schemas contain information about databases, records, elements, and the relationships (joins and mappings) between those entities. The conversion specifications and schemas also contain information about the transformations of the data from its source format to its target format. The ETI•Meta Scheduler generates metadata that conforms to the Metadata Interchange Specification (MDIS), and transfers the metadata to the workstation that contains Visual Warehouse and DataGuide. Visual Warehouse publishes the MDIS metadata in DataGuide.

Hardware and software requirements

You must have the required hardware and software for the following products:

- Visual Warehouse Version 3.1 Refresh
- DataGuide Administrator Version 3.1 Refresh
- ETI•EXTRACT Release 3.3.1 (or later), including ETI•EXTRACT FX 4.0
- Data System Library® product for Shared Objects, Release 1.0.9 or later
- Data System Library product for Tclfcns, Release 1.0.10 or later
- ETI•Meta Scheduler for IBM Visual Warehouse, Release 1.1.0

In addition, you must have FTP and Telnet software installed on the workstation that is to contain the Visual Warehouse server or Visual Warehouse administrative client:

- If you want to automate the remote import of metadata as described in "Registering a conversion specification" on page 18, you need Hummingbird Exceed 5 for FTP and Telnet support between the Visual Warehouse and ETI•EXTRACT machines.
- If you do not want to install Hummingbird Exceed, you can install any FTP daemon. However, you will not be able to automate the remote import of metadata as described in "Registering a conversion specification" on page 18. Instead, you must transfer the metadata and then manually import the metadata as described in "Transferring files without importing metadata" on page 21.
- If you want to run conversion programs on your MVS system, TCP/IP 3.2 or above must be installed on MVS. Verify that the FTP service is enabled before running the conversion programs.

Chapter 2. Setting up ETI•EXTRACT and Visual Warehouse

To set up ETI•EXTRACT® and Visual Warehouse to work together, do the following tasks:

- Install and configure prerequisite products
- Enable FTP and Telnet support
- Modify the Visual Warehouse template for FTP support

Installing and configuring prerequisite products

You must install and configure the prerequisite products before you can set up integration between ETI•EXTRACT and Visual Warehouse. Complete the tasks summarized in Table 3 on page 8, and see the documentation listed for each task for more information.

Table 3. Summary of installation and configuration tasks

Product	Tasks	For more information, see....
Visual Warehouse Version 3.1 Refresh	Install the Visual Warehouse server or Visual Warehouse administrative client on the same workstation as DataGuide Administrator. The user ID for the control database must match the user ID for the information catalog that is to be used for the metadata transferred from ETI•EXTRACT. However, the Visual Warehouse control database and the information catalog can be in the same or different databases.	*Installing Visual Warehouse and DataGuide* and the README file on the CD-ROM for the latest updates
	If you want to use the AIX agent, and you have previously installed it, uninstall it and reinstall it from the Version 3.1 Refresh CD-ROM.	• For instructions on uninstalling the AIX agent, see *Managing Visual Warehouse* • For instructions on installing the AIX agent, see *Installing Visual Warehouse and DataGuide*

Table 3. Summary of installation and configuration tasks (continued)

Product	Tasks	For more information, see....
DataGuide Administrator Version 3.1 Refresh	Install DataGuide Administrator on the same workstation as the Visual Warehouse server or Visual Warehouse administrative client. (DataGuide Administrator is required even if you do not intend to use the metadata that is transferred from ETI•EXTRACT.)	*Installing Visual Warehouse and DataGuide*
	Create an information catalog for the metadata that is transferred from ETI•EXTRACT. The user ID for the information catalog must match the user ID that is to be used to log on to Visual Warehouse. However, the Visual Warehouse control database and the DataGuide information catalog can be in the same or different databases.	*Managing DataGuide*
DataGuide User Version 3.1 Refresh (optional)	If end users require access to the metadata for the data sources and target, each end user must install DataGuide User.	*Installing Visual Warehouse and DataGuide*

Table 3. Summary of installation and configuration tasks (continued)

Product	Tasks	For more information, see....
ETI•EXTRACT Release 3.3.1 (or later)	Install ETI•EXTRACT on UNIX	*ETI•EXTRACT Installation and Administration Guide*
	Install the ETI•Meta Scheduler for IBM Visual Warehouse	*ETI•Meta Scheduler for IBM Visual Warehouse*
	Customize the ETI•EXTRACT Executive to connect to all remote hosts referenced in the conversions you plan to register with Visual Warehouse. Check connectivity from the ETI•EXTRACT host to the Visual Warehouse server workstation.	*ETI•EXTRACT Reference Manual*
	Perform the Master User tasks for the data sources and targets.	*ETI•EXTRACT Master User's Guide*
Hummingbird Exceed 5[1]	Install Hummingbird Exceed on the same workstation as the Visual Warehouse server and DataGuide Administrator.	• For instructions on installing Exceed, see *Exceed 5 for Windows, Windows NT, and Windows 95: Getting Started Guide.* • For instructions on configuring Exceed, see "Enabling FTP and Telnet support on the Visual Warehouse workstation".

1. If you are using a FTP daemon other than Hummingbird Exceed, refer to the product documentation for a list of configuration tasks.

Enabling FTP and Telnet support on the Visual Warehouse workstation

ETI•EXTRACT uses FTP and Telnet to transfer metadata to Visual Warehouse and DataGuide. You must install and configure Hummingbird Exceed on the workstation containing DataGuide Administrator, and the Visual Warehouse server or Visual Warehouse administrative client to set up FTP and Telnet connectivity to the workstation. The ETI•Meta Scheduler for Visual Warehouse runs ETI•EXTRACT Executive scripts that use FTP and Telnet to transfer files

to the workstation containing DataGuide and Visual Warehouse and to remotely import metadata into DataGuide and Visual Warehouse.

After you install Exceed, you must enable FTP and Telnet support:

1. Select **Start —> Settings —> Control Panel**.
2. Double-click the **HCL Inetd** icon (see Figure 3).

Figure 3. HCL Inetd icon.

The HCL Inetd Configuration window opens (see Figure 4).

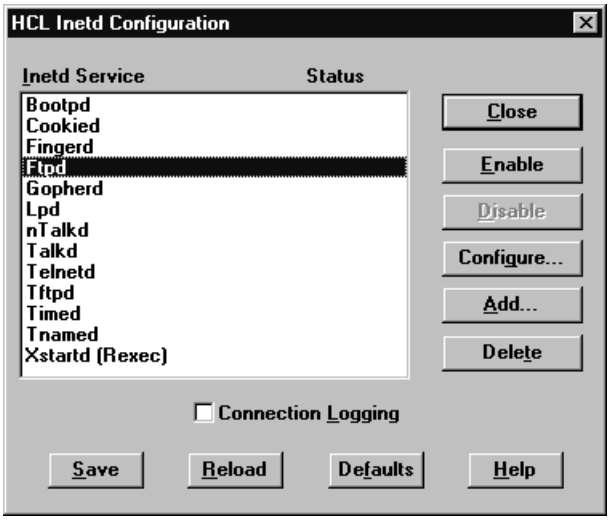

Figure 4. HCL Inetd Configuration window.

3. Select **Ftpd**.
4. Click **Enable**.
5. Select **Telnetd**.
6. Click **Enable**.

Figure 5 on page 12 shows Ftpd and Telnetd with the status Enabled.

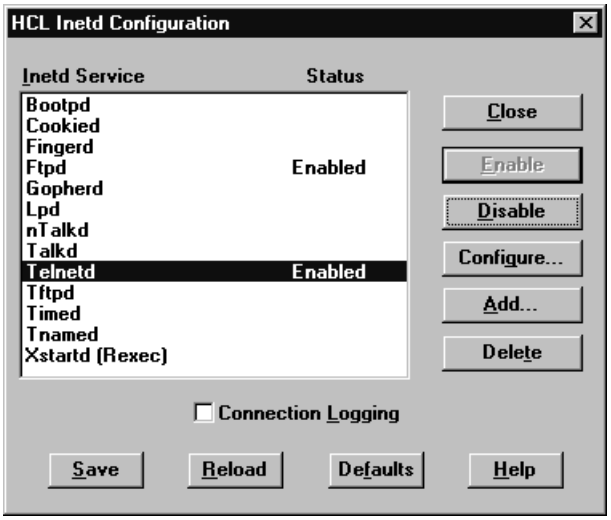

Figure 5. Ftpd and Telnetd enabled in HCL Inetd Configuration window.

7. Click **Save**.
8. Click **Close**.

You also must specify the directory that is to contain the files transferred from ETI•EXTRACT to DataGuide and Visual Warehouse. This directory is associated with a Windows NT user ID that you use to log on to Visual Warehouse and DataGuide Administrator.

To specify the directory:

1. Select **Start —> Programs —> Administrative Tools —> User Manager**.
   The User Manager window opens.
2. Select the user ID you use to log on to Visual Warehouse.
3. Select **User —> Properties**.
   The User Properties window opens.
4. Click **Profile**.
   The User Environment Profile window opens (see Figure 6 on page 13).

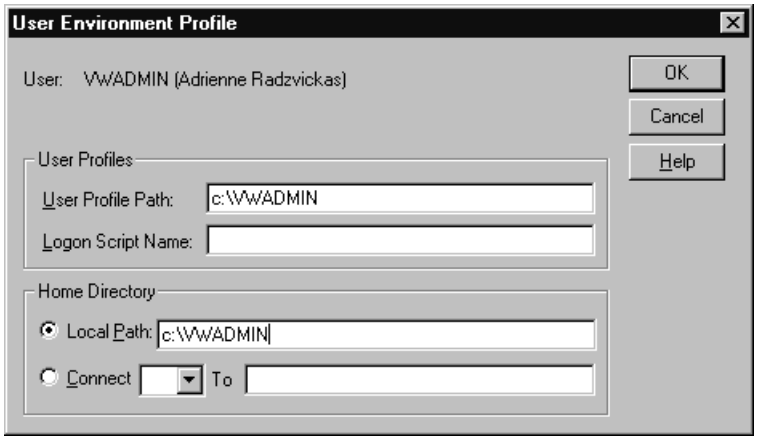

Figure 6. User Environment Profile window.

5. In the **User Profile Path** field, type the name of the default directory to use for FTP and Telnet services.

   The ETI•Meta Scheduler transfers files to a subdirectory of this default directory. You specify the subdirectory for a data conversion when you register the data conversion. For example, if you specify `c:\VWADMIN` as the default directory and `etidir` as the subdirectory for the data conversion, ETI•EXTRACT will transfer files to `c:\VWADMIN\etidir`.
6. In the **Local Path** field, type the same name you typed in the **User Profile Path** field.

Modifying the Visual Warehouse template for FTP support

Visual Warehouse installs a JCL template for transferring files using FTP. If you plan to use an FTP GET or PUT command to transfer files from an MVS host to another remote host, you need to modify the account information in this template for your MVS system. To modify the template:

1. If you are using AIX, log on with a root ID.
2. Find the ftp.jcl file on each agent site you intend to use:
   - On Windows NT, the file is in the VWSWIN\TEMPLATES directory,
   - On AIX, the file is in the /usr/lpp/IWH/templates directory.
3. Copy the file as *systemname*.ftp.jcl, where *systemname* is the name of the MVS system. Create a copy of this file for each MVS system on which you plan to run ETI•EXTRACT conversion programs.

   For example, if you want to run ETI•EXTRACT conversion programs on STLMVS1, create a copy of the file called STLMVS1.ftp.jcl.

4. Use a text editor to modify the account information to match the standard account information for your MVS system. Do not modify other parts of the JCL.

   Table 4 shows the JCL template shipped with Visual Warehouse.

Table 4. FTP JCL template

```
//[USERID]A  JOB , 'PUT/GET',
//            CLASS=A,
//            USER=&SYSUID,
//            NOTIFY=&SYSUID,
//            TIME=(,30),
//            MSGCLASS=H
//STEP1 EXEC PGM=FTP,PARM='( EXIT'
//INPUT DD DSN=[FTPFILE],DISP=SHR
//OUTPUT DD SYSOUT=*
//SYSPRINT DD SYSOUT=*
```

   Do not modify any parameters contained in brackets, such as [USERID] and [FTPFILE].

Modifying the ETI•EXTRACT map file

In the ETI•EXTRACT map file, you must specify any node that receives files from ETI•EXTRACT, including the workstation on which the Visual Warehouse server or Visual Warehouse administrative client is installed.

To add a Visual Warehouse workstation to the map file:

1. On the workstation where ETI•EXTRACT is installed,find the file in the *MetaStore*/exec directory, where *MetaStore* is the name of the MetaStore you are using for the conversion.
2. Open the file in a text editor
3. Add the following mapping to the map file:

   ```
   group: *hosttype=winnt
   *host (NT-Host VWhost)
   ```

   where *VWhost* is the TCP/IP host name of the workstation on which Visual Warehouse is installed.

Chapter 3. Implementing ETI•EXTRACT-Visual Warehouse integration

To implement a data conversion that is to be managed by Visual Warehouse, do the following tasks:

1. Use ETI•EXTRACT® to do the following tasks:
   a. Create a conversion specification
   b. Generate the conversion programs
   c. Run the conversion programs to test them
   d. Register the conversion specification with Visual Warehouse

Use Visual Warehouse and DataGuide to do the following tasks:

1. If this is the first time a conversion specification has been registered with Visual Warehouse, add your Visual Warehouse user ID to the supplied security group.
2. Modify the Visual Warehouse business views to access remote hosts by supplying the passwords for remote hosts and, optionally, changing the agent site from the default agent site.
3. Run the business views to test the integration.
4. Schedule the business views for production.
5. Optionally, publish information about the intermediate transformations of the data from its source format to its target format in DataGuide.

Creating and running a conversion with ETI•EXTRACT

When you use ETI•EXTRACT with Visual Warehouse, you follow the same procedures to create a conversion specification as you would to use ETI•EXTRACT alone. However, the Conversion Editor generates execution plan files that are tailored for Visual Warehouse: one compiles and links the conversion programs, one runs the conversion programs, and one contains the metadata about the data conversion that Visual Warehouse requires to generate business views that correspond to the data conversion. The Conversion Editor also generates two job control scripts for each conversion program: one that compiles and links the conversion program and one that runs the conversion program.

Table 5 on page 16 lists the files that the Conversion Editor creates. *conversion* is the name of the conversion specification, and *program#* is the job control script for a conversion program.

Table 5. Files generated by ETI•EXTRACT for Visual Warehouse

		Job control scripts	
Task	**Execution plan**	**JCL**	**SH**
Generate, transfer, compile, link, and run the conversion programs.[1]	*conversion*plan.exm	*program#*.jcl	*program#*.sh
Generate, transfer, compile, and link the conversion programs[2]	*conversion*planc.exm	*program#*.jcc	*program#*c.sh
Run the conversion programs[2]	*conversion*plane.exm	*program#*.jce	*program#* e.sh
Provide metadata about the conversion for Visual Warehouse	*conversion*plan.vw[3]	N/A	N/A
Provide metadata about the conversion for the information catalog	*conversion*plan.mdis[4]	N/A	N/A

1. This is the format the ETI•EXTRACT Executive generally uses for testing.
2. This is the format ETI•EXTRACT uses for testing the compile and link of the conversion programs separately from running the conversion programs.
3. This file is transferred to Visual Warehouse during the step "Registering a conversion specification" on page 18 or "Registering conversion specifications with Visual Warehouse" on page 17.
4. This file is created and transferred to DataGuide during the step "Registering conversion specifications with Visual Warehouse" on page 17.

ETI•EXTRACT does not generate different COBOL and C programs for Visual Warehouse. (The extensions of the COBOL and C programs are the same as for any other release of ETI•EXTRACT.)

To confirm that the files have been created:

1. From the Workset Browser, select the **Files** tab.
2. Select the conversion from the list.
3. Click the arrow next to the conversion to see the list of files.

Recommendation: Generate, compile, link, and run the conversion programs before transferring the metadata for the conversion to Visual Warehouse.

To run the conversion programs, do one of the following procedures:

- Invoke the ETI•EXTRACT Executive from the Workset Browser:
  1. From the Workset Browser, select the **Conversions** tab.
  2. Select the conversion to execute.
  3. Select **Tools > Execute Conversion**.
  4. Select the *conversion*planc.exm file.
  5. Compile and link the conversion programs corresponding to the *conversion*planc.exm file.
  6. Select the *conversion*plane.exm file.
  7. Run the conversion programs corresponding to the *conversion*plane.exm file.
- Invoke the ETI•EXTRACT Executive from a UNIX command prompt. Type the following information on one line:

  ex_run -o *db_pathname* -w *workset_pathname* -
  c *conversion_name.major_version* -f -c vw_xfer_*conversion_name*plan.exm

  where:
  - *db_pathname* is the pathname of the oodb in the ETI•EXTRACT metastore database (for example: /export/home/MetaStore/*conversion_name*/oodb)
  - *workset_pathname* is the pathname of the Workset, starting at the System Workset
  - *conversion_name* is the name of the conversion specification to execute
  - *major_version* is the version of the conversion specification to execute

Registering conversion specifications with Visual Warehouse

In general, you specify that ETI•EXTRACT register a conversion specification with Visual Warehouse, which automatically transfers files between ETI•EXTRACT and Visual Warehouse, and imports the files into a DataGuide information catalog and Visual Warehouse. For more information, see "Registering a conversion specification" on page 18.

If you encounter problems in registering a conversion specification with Visual Warehouse, you also can specify that the files be transferred without importing the metadata into the information catalog and Visual Warehouse. This method enables you to verify that the file transfer between the ETI•EXTRACT host and the workstation containing the Visual Warehouse server or Visual Warehouse administrative client is working correctly. If you choose the transfer option, you must manually import the files into the information catalog and Visual Warehouse before you can use the conversion.

If you are using a FTP daemon other than Hummingbird Exceed, you cannot register a conversion specification with Visual Warehouse. You must use the transfer option and then manually import the files.

For more information about the transfer option, see "Transferring files without importing metadata" on page 21.

Registering a conversion specification

If you intend to use the same values for multiple conversion specifications, you can set default values for fields in the Register Conversion with Visual Warehouse window. For more information, see "Customizing the ETI•EXTRACT register conversion tool for Visual Warehouse" on page 24.

To register a conversion specification with Visual Warehouse:

1. From the Displaying Workset window, select the **Conversion** tab.
2. Select the conversion specification that you want to register.
3. Select **Tools > Register Conversion with Visual Warehouse**.
4. In the **Source Host** field, type the host name of the workstation on which ETI•EXTRACT is running.
5. In the **Source Account** field, type the name of the login account used to run ETI•EXTRACT.
6. In the **Visual Warehouse Account** field, type the name of the user ID used to log on to Visual Warehouse and DataGuide Administrator.
7. In the **Visual Warehouse Password** field, type the password of the user ID used to log on to Visual Warehouse and DataGuide Administrator.
8. In the **Visual Warehouse Directory** field, type the name of the directory in which to transfer the files.

   This directory is a subdirectory of the directory set by the *HOMEDRIVE* and *HOMEPATH* environment variables. For example, if *HOMEDRIVE* = `c:` and *HOMEPATH* = `\vwadmin`, and you specify `etidir` in the **Visual Warehouse Directory** field, ETI•EXTRACT will transfer the files to `c:\vwadmin\etidir`.
9. In the **Visual Warehouse Control Database** field, type the name of the control database in which to store the business views that Visual Warehouse will generate.
10. In the **DataGuide Catalog** field, type the name of the DataGuide catalog that is to contain the metadata for the ETI•EXTRACT data sources and targets.
11. In the **Skip Setup** field, type N if you want ETI•EXTRACT to compile and link the conversion programs as well as run them.

The default value is Y, which specifies that ETI•EXTRACT will not compile and link the conversion programs, but will only run them.

You must have previously used the ETI•EXTRACT Executive to compile and link the conversion programs. For information about compiling and linking conversion programs, see "Creating and running a conversion with ETI•EXTRACT" on page 15.

12. Click **OK**.

    A command window opens and prompts you for password information.

13. Type the password for the login account used to run ETI•EXTRACT.

ETI•EXTRACT creates the *conversion*.mdis file, where *conversion* is the name of the conversion specification for which you are transferring files, in the mdis_export directory under the MetaStore's root directory. ETI•EXTRACT transfers the *conversion*.mdis file and the *conversion*plan.vw file

Visual Warehouse then imports metadata about the sources and targets from the MDIS file into the DataGuide information catalog you specified in step 10 on page 18. It imports metadata about the sequence of conversion programs to run and the inputs and outputs for the conversion programs into Visual Warehouse.

To confirm that the files were successfully transferred and the metadata was successfully imported into Visual Warehouse and DataGuide, read the messages in the following log files:

- For Visual Warehouse, *VWS_LOGGING**conversion*PLAN.log
- For DataGuide, *VWS_LOGGING**conversion*.mdis.log

where:

- *VWS_LOGGING* is the directory set by the *VWS_LOGGING* environment variable
- *conversion* is the name of the conversion specification

To view the Visual Warehouse definitions that were generated from the ETI•EXTRACT metadata, complete the steps in "Adding your user ID to the generated security group" on page 25. In the Visual Warehouse desktop, you should see new sources and a new subject that contains new business views.

Figure 7 on page 20 shows an example of database objects generated in an information catalog from ETI•EXTRACT metadata. LongEmplFlat1, LongEmplFlat2, ShortEmpl, and ShortEmplTrgt are ETI•EXTRACT database objects.

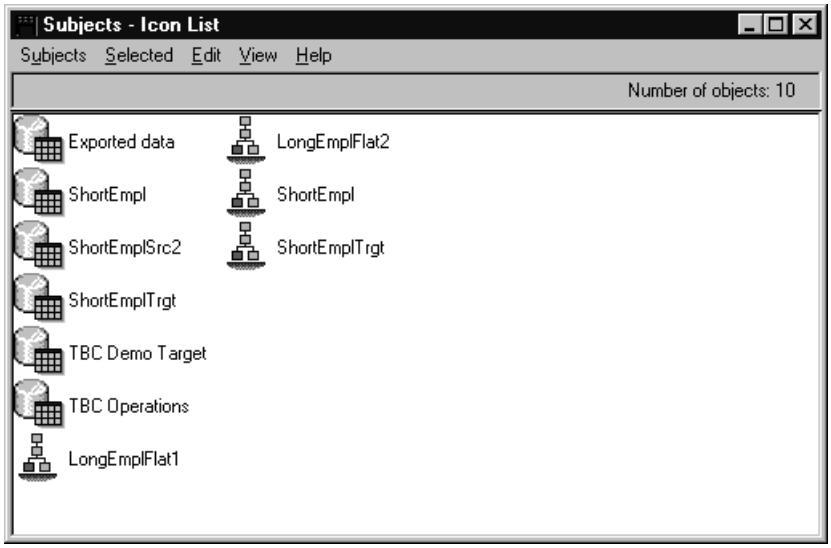

Figure 7. ETI•EXTRACT database objects in an information catalog.

In Figure 7, LongEmplFlat1 is a source database and LongEmplFlat2 is the corresponding target database. Both databases are IMS databases.

Attention:

> By default, the ETI•EXTRACT metadata defines all non-relational databases as hierarchical databases. To override the default, specify a value for the *mdis_db_type* conversion property (in order of precedence) on the database, on the schema, or on the DAS, which sets the default. The allowable values are RELATIONAL, HIERARCHICAL, FILE, or NETWORK. These values are case-sensitive.
>
> For more information about setting the *mdis_db_type* conversion property, see *ETI•Meta Scheduler for IBM Visual Warehouse* .

To view the objects within a database, double-click the icon for the database. Figure 8 on page 21 shows an example tree structure of objects within a database. (In Figure 8 on page 21, the tree is expanded to show the transformation objects.)

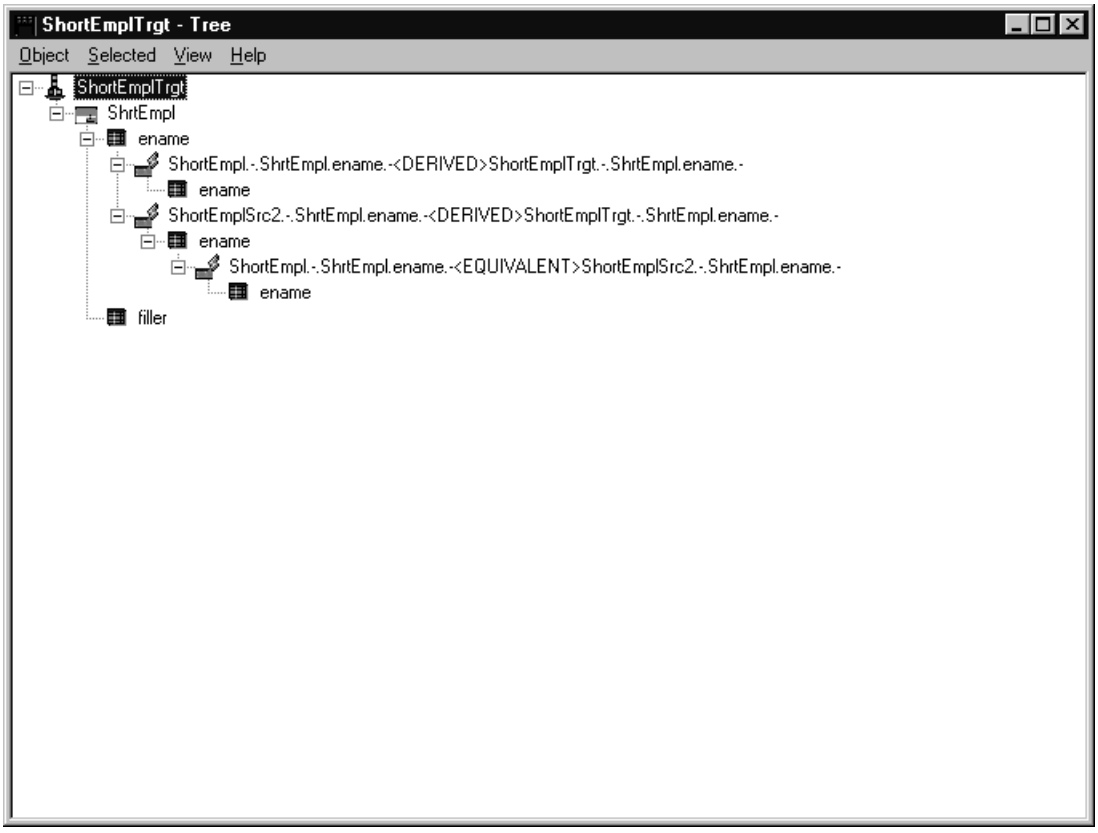

Figure 8. ETI•EXTRACT transformation objects in an information catalog.

Attention: Visual Warehouse generates business views each time a conversion specification is registered with Visual Warehouse. If you have previously registered the conversion specification, Visual Warehouse generates a second set of business views with a different time stamp from the original set. If you replaced a set of conversion programs with a new set and then re-registered the conversion specification, delete the old set of business views. If you have changed the location where the original set of conversion programs is stored and want to manage the original programs separately from the new programs, you can keep both sets of business views for versioning purposes.

Transferring files without importing metadata

If you intend to use the same values for multiple conversion specifications, you can set default values for fields in the Transfer Conversion to Visual

Warehouse Host window. For more information, see “Customizing the ETI•EXTRACT register conversion tool for Visual Warehouse” on page 24.

To transfer the files for use later:

1. From the Workset Browser, select the **Conversion** tab.
2. Select the conversion specification to transfer.
3. Select **Tools > Transfer Conversion to Visual Warehouse Host**.
4. In the **Source Host** field, type the host name of the workstation on which ETI•EXTRACT is running.
5. In the **Source Account** field, type the name of the login account used to run ETI•EXTRACT.
6. In the **Visual Warehouse Host** field, type the host name of the workstation on which the Visual Warehouse server or Visual Warehouse administrative client, and DataGuide Administrator are running.
7. In the **Visual Warehouse Account** field, type the name of the user ID for the Visual Warehouse control database and the information catalog.
8. In the **Visual Warehouse Directory** field, type the name of the directory in which to transfer the files.

   This directory is a subdirectory of the directory set by the *HOMEDRIVE* and *HOMEPATH* environment variables. For example, if *HOMEDRIVE* = `c:` and *HOMEPATH* = `\vwadmin`, and you specify `etidir` in the **Visual Warehouse Directory** field, ETI•EXTRACT will transfer the files to `c:\vwadmin\etidir`.
9. In the **Skip Setup** field, type `N` if you want ETI•EXTRACT to compile and link the conversion programs as well as run them.

   The default value is Y, which specifies that ETI•EXTRACT will not compile and link the conversion programs, but will only run them.

   You must have previously used the ETI•EXTRACT Executive to compile and link the conversion programs. For information about compiling and linking conversion programs, see “Creating and running a conversion with ETI•EXTRACT” on page 15.
10. Click **OK**.

    A command window opens and prompts you for password information.
11. Type the password for the login account used to run ETI•EXTRACT.
12. Type the password for the user ID used for the Visual Warehouse control database and the information catalog.

    ETI•EXTRACT transfers the files. To confirm that the files have been transferred, verify the following files exist on the target directory:

    - *conversion*.mdis
    - *conversion*plan.vw

where *conversion* is the name of the conversion specification for which you are transferring files.

After the files have been transferred, you can manually import the metadata from the files into the information catalog and Visual Warehouse. The *HOMEDRIVE* and *HOMEPATH* variables must be set. Exceed or Visual Warehouse installation will set these variables if they have not been previously set.

To import the metadata:

a. Log on to the user ID for which you specified the default directory for FTP and Telnet services. (See "Enabling FTP and Telnet support on the Visual Warehouse workstation" on page 10.)

b. Type the following command on one DOS command line (omit the carriage return):

```
FLGNMVE0.exe exec_plan MDISFile VWUser VWPass VWControl DGUser DGPass
DGCatalog
```

where:

exec_plan
Is the path and name of the transferred *conversion*plan.vw file. For the path, you can specify either the full path or a subdirectory of the directory set by the *HOMEDRIVE* and *HOMEPATH* environment variables. If you specify the full path, also specify the full path for the *MDISFile* parameter; if you specify the subdirectory, also specify the subdirectory for the *MDISFile* parameter.

For example, if the following directories are set:

- *HOMEDRIVE* = c:
- *HOMEPATH* = \VWADMIN
- Visual Warehouse directory set in ETI•EXTRACT = etidir

you can specify either `c:\VWADMIN\etidir\`*conversion*`plan.vw` or `etidir\`*conversion*`plan.vw`.

MDISFile
Is the path and name of the transferred *conversion*.mdis file. For the path, you can specify either the full path or a subdirectory of the directory set by the *HOMEDRIVE* and *HOMEPATH* environment variables. If you specify the full path, also specify the full path for the *exec_plan* parameter; if you specify the subdirectory, also specify the subdirectory for the *exec_plan* parameter.

For example, if the following directories are set:

- *HOMEDRIVE* = c:
- *HOMEPATH* = \VWADMIN
- Visual Warehouse directory set in ETI•EXTRACT = etidir

you can specify either `c:\VWADMIN\etidir\`*`conversion`*`.mdis` or `etidir\`*`conversion`*`.mdis`.

VWUser
Is the user ID to use to log on to Visual Warehouse, which must match the user ID to use for the information catalog

VWPass
Is the password to use to log on to Visual Warehouse, which must match the password to use for the information catalog

VWControl
Is the name of the control database in which to import the run-time metadata

DGUser
Is the name of the user ID to use to access the information catalog, which must match the user ID to use for Visual Warehouse

DGPass
Is the name of the password to use to access the information catalog, which must match the password to use for Visual Warehouse

DGCatalog
Is the name of the information catalog in which to import the end-user metadata

Customizing the ETI•EXTRACT register conversion tool for Visual Warehouse

You can customize the default values in the ETI•EXTRACT templates for the Register Conversion to Visual Warehouse and Transfer Conversion to Visual Warehouse Host tools. To customize the templates:

1. Before you start ETI•EXTRACT, set the *EXTRACT_REGISTER_TOOL* environment variable to True.

   (If ETI•EXTRACT is already started, you will not be able to customize the tools in this session.)
2. Start the Workset Browser on your MetaStore.
3. Select **Options > Register Tool**.
4. Select the appropriate tool to edit, either **Register Conversion with Visual Warehouse** or **Transfer Conversion to Visual Warehouse Host**.

5. To set a default for a parameter, add or edit the value of the parameter.

   For example, to change the text displayed in the **Tools** menu of the Workset Browser, edit the value of the **Command Name** parameter.

If you cannot change the default parameters, verify that you have write permissions to the *.vr files in your `../extract/MetaStore/YourMetastore/extoolreg` directory. Change the permissions to write as follows: `chmod +w *.vr`.

For more information about modifying templates, see *ETI•EXTRACT Reference Manual*.

Adding your user ID to the generated security group

When you log on to Visual Warehouse after the first time you register a conversion specification with Visual Warehouse, you will not see the new objects generated by the registration. You must add your user ID to the ETI Definition Default security group to see the new objects. The next time you register a conversion specification, you can skip this step.

To add your user ID to the security group:

1. From the Visual Warehouse desktop, select **Security > Groups**.

   The Groups window opens (see Figure 9).

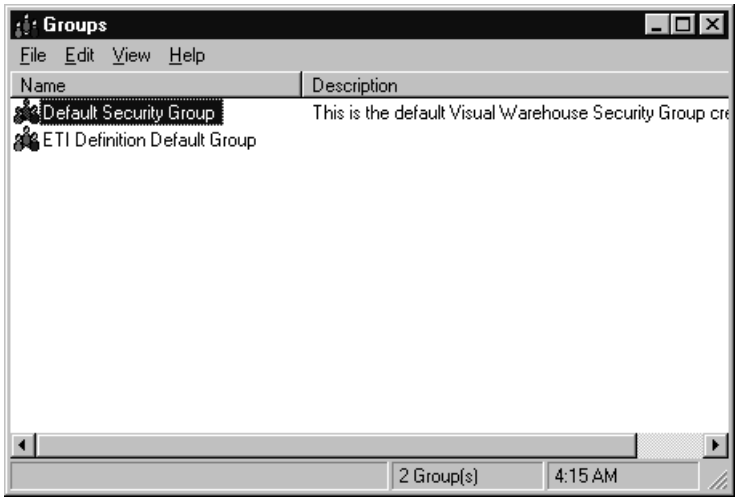

Figure 9. ETI Definition Default Group in Groups window

2. Double-click the ETI Definition Default Group.

The Group notebook opens (see Figure 10).

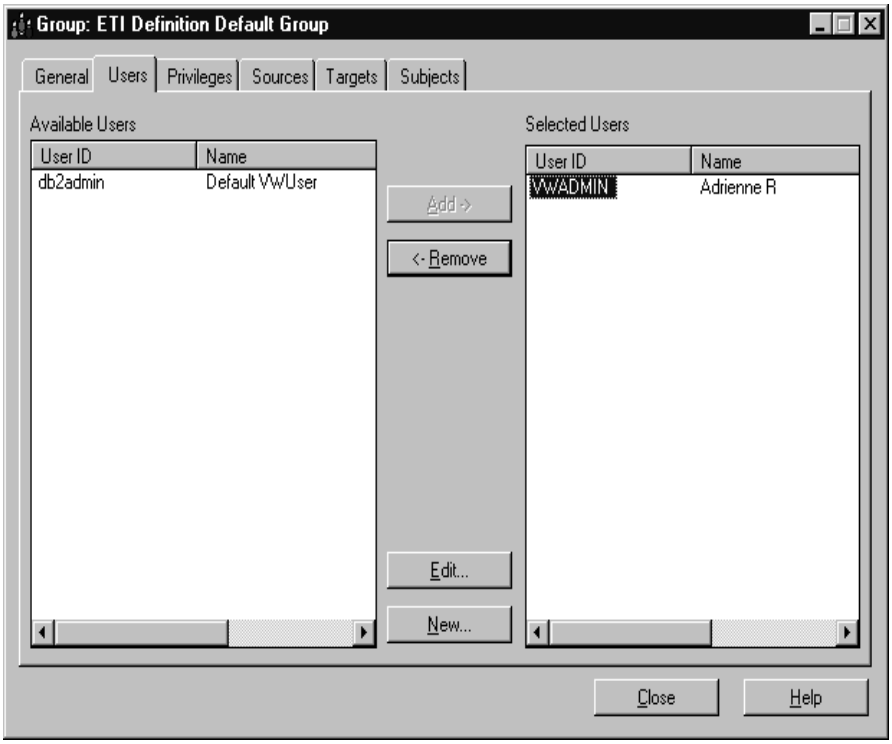

Figure 10. Adding a user ID to the ETI Definition Default Group. In this example, VWADMIN is the user ID under which the user has logged on to Visual Warehouse.

3. Select the **Users** tab.
4. Select your user ID.
5. Click **Add**.
6. Click **Close**.
7. From the Visual Warehouse desktop, select the **Sources** tab.
8. Select **View —> Refresh**.

   You will see new sources in the Source portion of the window. Figure 11 on page 27 shows an example of the sources.

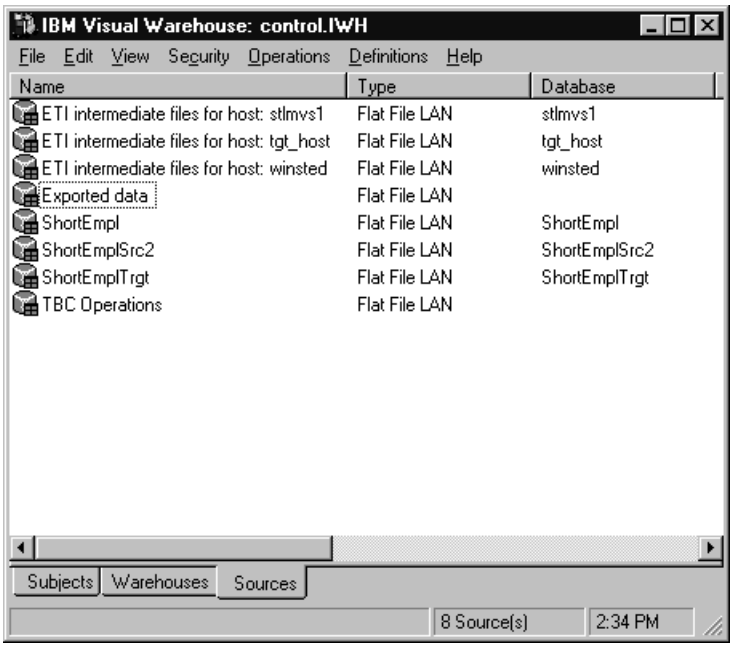

Figure 11. Generated sources in the Visual Warehouse desktop

9. Select the **Subjects** tab.
10. Select **View —> Refresh**.

    You will see a new subject in the Subjects portion of the window. Figure 12 on page 28 shows an example of the subjects.

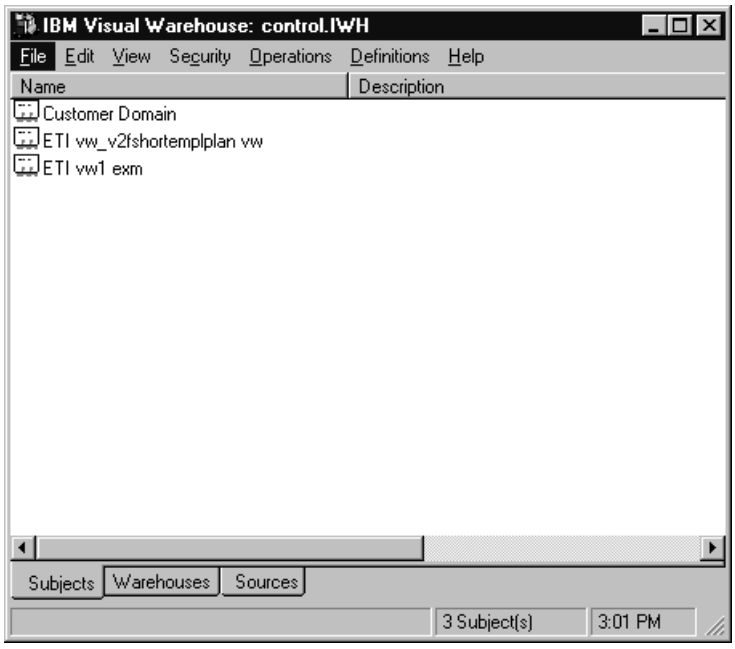

Figure 12. Generated subjects in the Visual Warehouse desktop

11. To view the new business views, double-click the name of the new subject.

    The Business View List window opens, displaying the new business views. Figure 13 on page 29 shows an example of the business views.

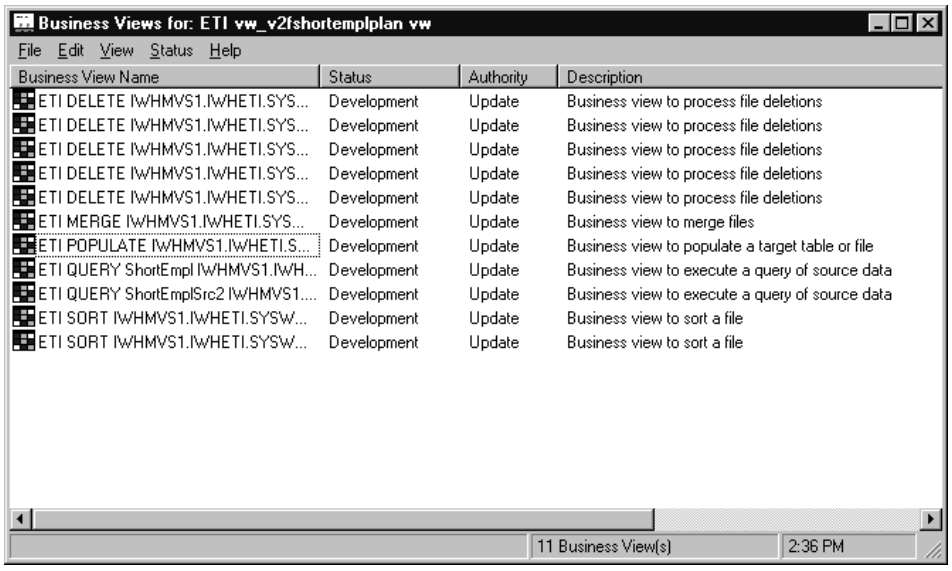

Figure 13. Generated business views for the ETI vw_v2fshortempl conversion.

Modifying the business views to access remote hosts

Some of the generated business views require a user ID and password for the remote MVS or UNIX host where the ETI•EXTRACT conversion program resides. Visual Warehouse passes the user ID and password to the Visual Warehouse program it uses to access the remote host. Visual Warehouse generates the user ID as part of the business view definition Visual Warehouse does not generate the password as part of the business view definition, so you must supply a value if a password is required.

By default, the generated business views use the Default VW Agent Site. If you want to use an agent site other than the default, you can select another agent site from those Windows NT or AIX agent sites you have defined to Visual Warehouse.

To modify the business views to access remote hosts:

1. Supply the password for the remote host on which the conversion program resides.
2. Optionally, change the agent site to use from the default value.

Supplying the password for the remote host

To view and modify the user ID and password:

1. Double-click a business view name in the Business View List window.

The Business View notebook opens.

2. Select the **Program** tab.
3. Click **Edit**.

   You see the list of parameters that the Visual Warehouse program requires (see Figure 14).

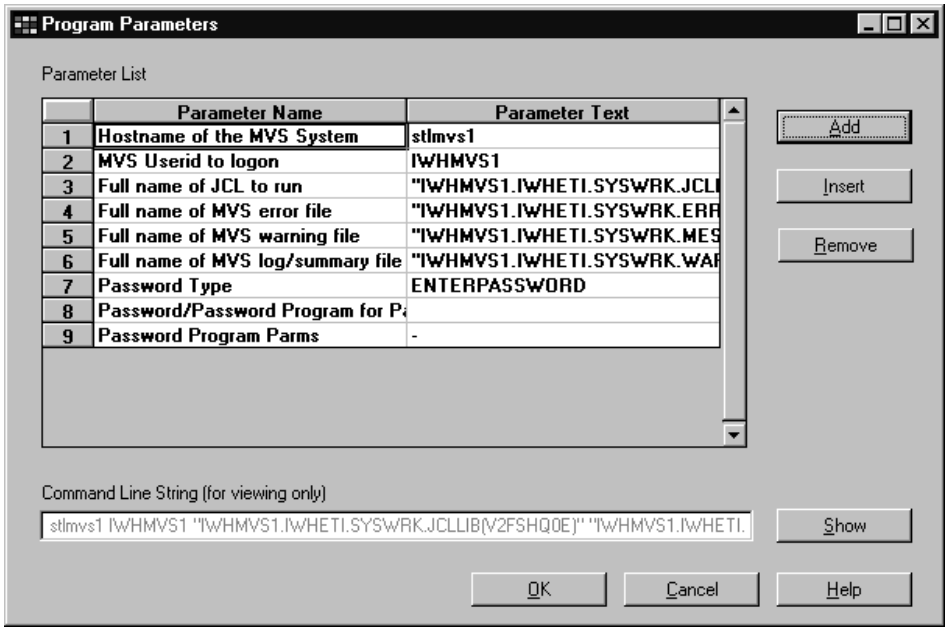

Figure 14. Parameters for the ETI - RUN for MVS Visual Warehouse program

4. If the conversion program consists of JCL, verify that the value of the **Parameter Text** field for the MVS user ID matches the first seven characters of the job name for the JCL.
5.

If the Password Type is...	Do this
ENTERPASSWORD	Supply a password. Type the password in the **Parameter Text** field corresponding to the Password / Password Program for Password parameter.

If the Password Type is...	Do this
GETPASSWORD	If the value of the **Password Type** field is GETPASSWORD, and you have written a program that supplies passwords, you can call the program instead of typing the password in this window. The password program must reside on the agent site that is selected for the business view. It must write a file that contains the password to use in the first line of the file. It must return 0 if it runs correctly. In the **Parameter Text** field corresponding to the Password/Password Program for Password parameter, type the path and name of your password program. In the **Parameter Text** field corresponding to the Password Program Parms parameter, type the values to pass to your password program. The parameter list must be in enclosed in double quotes (“”). The first parameter in the list must be the path and file name of the file that the password program creates during execution.
PASSWORDNOTREQUIRED	Type - if there is no value for the field.

Selecting the agent site

To select an agent site other than the default:

1. In the Business View notebook, select the **Information** tab.
2. Select a Windows NT or AIX agent site from the **Agent Site** list.
3. Click **OK**.

Running the business views to test the integration

Before you can run the business views, you must promote each business view to test status and then to production status:

1. In the Business View List window, select a business view.
2. Select **Status —> Promote to Test**.

   Visual Warehouse promotes the business view. The status of the business view changes to test.
3. Select **Status —> Promote to Production**.

   Visual Warehouse promotes the business view. The status of the business view changes to production.

To test the business views:

1. From the Business View List window, select **View —> Tree —> Cascaded by that BV** to display the sequence of the business views.

Figure 15 shows an example of a tree showing the sequence.

Figure 15. Sequence of generated business views. The selected business view is the one to start manually.

2. Note the name of the first business view in the tree. It will have QUERY as part of the name.

   This is the business view you will start manually. Visual Warehouse starts the rest of the business views as cascaded business views.

3. From the Visual Warehouse desktop, select **Operations —> Work in Progress** to open the Operations Work in Progress window.

4. Click **New**.

   The Run Business View window opens, displaying a list of business views (see Figure 16 on page 33).

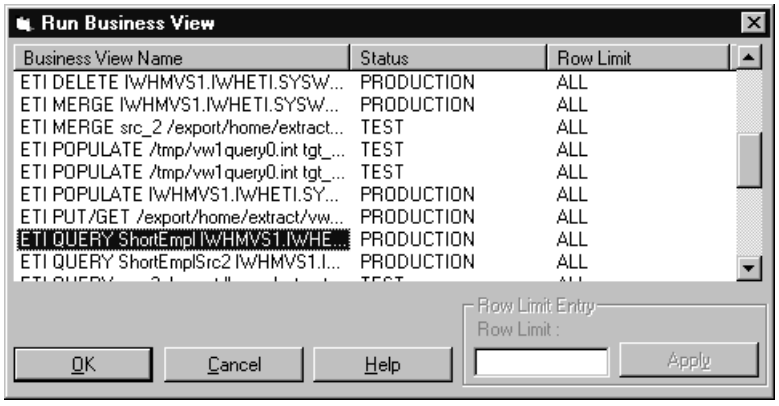

Figure 16. Manually starting a business view

5. Select the business view you noted in step 2.
6. Click **OK**.

   An entry for the business view is displayed on the Operations Work in Progress window. As Visual Warehouse starts each cascaded business view, it displays an entry for the cascaded business view in the Operations Work in Progress window.
7. If the business view runs with errors, use the trace and message files listed in Table 6 to debug the errors.

Table 6. Trace and message files on the Visual Warehouse workstation

Type	**Name**	**Location**
Conversion result message file	*conversion*PLAN.msg	*VWS_LOGGING*[1] on the Visual Warehouse workstation[2]
Conversion result trace file	*conversion*PLAN.trc	*VWS_LOGGING*[1] on the Visual Warehouse workstation[2]
DataGuide import log file	*conversion*mdis.log	*VWS_LOGGING*[1] on the Visual Warehouse workstation[2]
Visual Warehouse import log file	*conversion*PLAN.log	*VWS_LOGGING*[1] on the Visual Warehouse workstation[2]

Table 6. Trace and message files on the Visual Warehouse workstation (continued)

Type	Name	Location
Visual Warehouse program log file	trc-*xx-date-time*.log, where: • *xx* identifies the Visual Warehouse program (ex, dl, or rc) • *date* is the date in mmddyy format • *time* is the time in hhmmss format	• On a Windows NT agent site, *VWS_LOGGING*[1] • On an AIX agent site, the /var/IWH directory

[1] *VWS_LOGGING* is the directory set by the *VWS_LOGGING* environment variable

[2] The Visual Warehouse workstation contains the Visual Warehouse server or administrative client.

Scheduling the business views for production

After you test the business views, specify the schedule for Visual Warehouse to automatically run the business views. You need to specify the schedule on only the first business view in the cascade tree. When the first business view in the tree finishes processing, it will start the next business view in the tree, and so on.

To specify the schedule:

1. From the Business View List window, select the first business view in the tree. The business view will have QUERY as part of its name.
2. Select **Status —> Demote to Test**.

   Visual Warehouse demotes the business view to test status.
3. Double-click on the name of the business view.

   The Business View notebook opens.
4. Select the **Schedule** tab.
5. From the **Schedule Type** list, select a type of schedule, such as weekly.

   The schedule type is added to the Schedule List.
6. Make additional selections for the particular schedule type, such as the date and time (see Figure 17 on page 35).

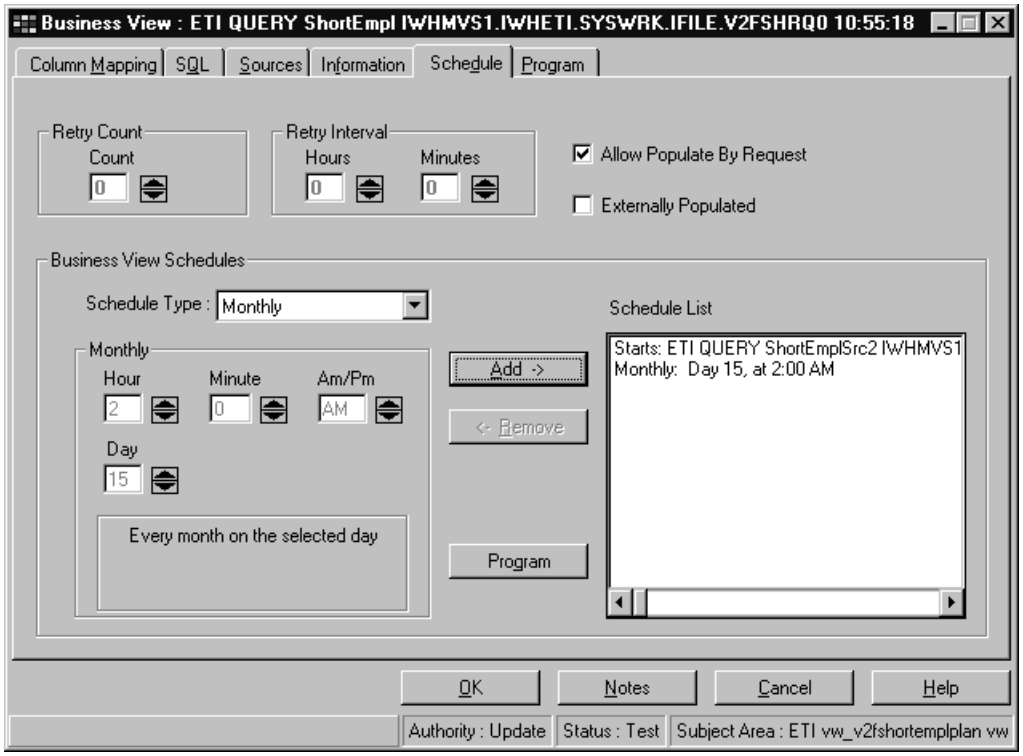

Figure 17. Adding a monthly schedule to a business view. In this example, the business view is scheduled to run on the fifteenth day of each month at 2:00 A.M.

7. Optionally, use the **Retry Count** spin button to select the number of times to retry the business view when its processing fails.
8. Optionally, use the **Retry Interval** spin buttons to select the interval to wait before retrying a failed business view.

If you want to modify the schedule of any of the cascaded business views, repeat steps 2 through 8. You must demote the business views to test status to modify their schedule.

For the schedule to take effect, you must promote the business view to production status:

1. In the Business View List window, select the business view you selected in step 1 of the previous procedure.
2. Select **Status —> Promote to Production**.

Visual Warehouse promotes the business view. The status of the business view changes to production. Visual Warehouse will run the business views at the scheduled time. The Visual Warehouse Operations window will show the status of each business view.

Publishing the business metadata in DataGuide

DataGuide automatically publishes information about the data sources, targets, and the mappings between them used in the ETI•EXTRACT data conversion. If you want end users to view the intermediate transformations of the data from its source format to its target format, you can also publish information about the business views that Visual Warehouse generates from the ETI•EXTRACT metadata. Because each business view contains information about the sources, target, and transformation for each step in the Visual Warehouse execution plan, however, the resulting information can be extremely complex.

For instructions on publishing information about the business views, see the information about synchronized metadata exchange in *Managing DataGuide* .

Chapter 4. Troubleshooting common problems

Use this section for hints on troubleshooting problems that involve both ETI•EXTRACT® and Visual Warehouse:

- Registering a conversion specification with Visual Warehouse does not result in generated business views
- Transferring files between ETI•EXTRACT and Visual Warehouse fails
- Running a business view fails

For related reference information, see the following appendixes:

- "Appendix A. ETI•EXTRACT execution plan files" on page 39
- "Appendix B. Return codes for Visual Warehouse programs" on page 47
- "Appendix C. ETI•EXTRACT error messages" on page 51

Registering a conversion specification with Visual Warehouse does not result in generated business views

If registering a conversion specification with Visual Warehouse fails, do the following steps:

1. Determine whether the files were transferred to the target directory.

   If the files were not transferred, read the error messages in the status window that ETI•EXTRACT displays during the transfer.

   If the files were transferred, but metadata was not imported into Visual Warehouse, go to step 4.
2. Read the messages in *conversion*PLAN.msg, the result message file. This file contains the directory that contains the result trace file and import log files. The directory is set by the *VWS_LOGGING* environment variable. Go to step 3.
3. Check the traces in *conversion*PLAN.trc, the result trace file. If the result message and trace files indicate a problem during the import of metadata:
   - For DataGuide, read the messages in the *conversion*.mdis.log file.
   - For Visual Warehouse, read the messages in the *conversion*PLAN.log file.
4. Verify that you have added your user ID to the ETI Definition Default security group, as described in "Adding your user ID to the generated security group" on page 25. If you have already added your user ID to the security group, go to step 2.

Transferring files between ETI•EXTRACT and Visual Warehouse fails

If the transfer of files fails, use the ETI•EXTRACT Executive to verify that you can use FTP and Telnet to transfer files from the ETI•EXTRACT host to the workstation containing the Visual Warehouse server or Visual Warehouse administrative client.

For more information on using the Executive, see the chapter on the ETI•EXTRACT Executive in the ETI•EXTRACT *Reference Manual*.

Running a business view fails

When a generated business view fails during processing, use the Log Viewer Details window to determine whether the Visual Warehouse program failed during processing. If the value of the **RC1** field is 8410, check the value of the **RC2** field. If the value is nonzero, do the following steps:

1. Look up the explanation of the RC2 code in "Appendix B. Return codes for Visual Warehouse programs" on page 47.
2. Look at the log file for the Visual Warehouse program.

   On Windows NT, the file is in the directory set by the *VWS_LOGGING* environment variable, which has a default value of VWSWIN\EXCHANGE.

   On AIX, the file is in the /var/IWH directory.

   On both operating systems, the file is called trc-*xx-date-time*.log, where:

   - *xx* identifies the Visual Warehouse program (ex, dl, or rc)
   - *date* is the date the Visual Warehouse program created the log file in mmddyy format
   - *time* is the time the Visual Warehouse program created the log file in hhmmss format

   To find the most recent log file, sort the files by the date and time.
3. If the business view corresponds to conversion programs on MVS, look at the JES log file that is in the same directory as the trc and ftp log files. The JES log file is a copy of the JES log file produced on the MVS system.

Appendix A. ETI•EXTRACT execution plan files

The information in this appendix is intended for troubleshooting purposes only. Refer to it only if an ETI•EXTRACT® data conversion fails to run successfully.

When you register a conversion specification with Visual Warehouse, ETI•EXTRACT sends the Visual Warehouse execution plan to Visual Warehouse. An execution plan is a set of instructions that Visual Warehouse uses to generate business views that manage the ETI•EXTRACT data conversion. Occasionally, ETI•EXTRACT or Visual Warehouse will fail to run these instructions properly.

The Visual Warehouse execution plan is generated in the same directory where the programs are generated for a given data conversion. The name of the Visual Warehouse execution plan is *conversion*plan.vw.

To view the execution plan files:

1. Open the Workset Browser.
2. Select the **Files** tab.
3. Double-click the name of the execution plan.

   A text editor displays the contents of the file.

You can also use a common text editor to view the execution plan files.

Instruction types

The Visual Warehouse execution plan file is organized in a comma-delimited format. It lists the instruction types that are used and the parameters that define the instruction types. There are seven instruction types. Table 7 on page 40 lists each instruction type, describes its function, and lists the parameters that define it. The parameters are listed in the order that they are passed. For more information on parameters, see “Parameters” on page 41.

Table 7. Instruction types

Instruction Type	Function	Parameters
COMMENT/END_COMMENT	Inserts comments, usually conversion specifications, into the execution plan. Comments contain metadata about the execution plan that you might find useful. Anything that appears between the comma after COMMENT and before END_COMMENT is a comment. Comments can be multiple lines and can include any imbedded characters. Visual Warehouse does not act on information contained in a COMMENT/END_COMMENT instruction type as it does a parameter. Instead, Visual Warehouse uses this information as the long description in a subject area. COMMENT is always paired with END_COMMENT.	None.
LOGIN	Logs on to a remote system.	CurrentHost[1], RemoteHost[1], RemoteHostOS, RemoteAccount, PasswordType, RemotePasswordCommand, RemotePasswordCommandArgs
LOGOUT	Logs off from a remote system	CurrentHost[1], RemoteHost
GET	Copies a file from a remote system and stores it in a temporary file on the local system. This instruction type is limited to intermediate files only.	CurrentHost[1], File, RemoteHost, RemoteFile, RecordLength, TransferMode, RemoteHostOS, RemoteAccount, PasswordType, RemotePasswordCommand, RemotePasswordCommandArgs

Table 7. Instruction types (continued)

Instruction Type	Function	Parameters
PUT	Copies a file from a temporary file on the local system and stores it on a remote system. This instruction type is limited to intermediate files only.	CurrentHost[1], File, RemoteHost, RemoteFile, RecordLength, TransferMode, RemoteHostOS, RemoteAccount, PasswordType, RemotePasswordCommand, RemotePasswordCommandArgs
RUN	Runs a program on your local system.	*Instruction*, CurrentHost[1], Program, Input(n), Output(n), LogFile, ErrorFile, SummaryFile, ProgExt(n), PasswordType, RemotePasswordCommand, RemotePasswordCommandArgs
DELETE	Deletes a file on your local system. It is limited to intermediate files only.	CurrentHost[1], File

1. The system that is the current host switches during the execution of the plan. The current host initially is the system on which the plan is executing. After the LOGIN instruction is issued, however, the current system is the system that ETI•EXTRACT has logged on to (and the remote system is the system on which the plan is executing). After the LOGOUT instruction is issued, the current system switches back to the system on which the plan is executing.

   In the example in "Sample Visual Warehouse execution plan" on page 44, `minerva` is the system on which the plan is executing. The LOGIN instruction logs on to `funafuti`, which is the current system until the LOGOUT instruction is issued. After the LOGOUT instruction is issued, `minerva` is the current host.

Parameters

An instruction type defines a general action, such as logging on to a remote system, running a program, or deleting a file. Parameters define the instruction type. For example, the parameters for a DELETE instruction type tell the instruction type the name of the system that the file is on and the name of the file to delete. Table 8 on page 42 lists the names of the parameters and the areas they define in the instruction type. The parameters are listed

alphabetically by name.

Table 8. Parameter descriptions

Parameter	Defines
CurrentHost	The host name of the local system.
ErrorFile	The name and location of the file to which ETI•EXTRACT writes run-time error information.
File	The name of the file that a GET instruction copies to when it copies information from a remote system to your local system, or the name of the file that a PUT instruction copies when it copies from your local system to a remote system.
Input(n)	The data source used by a RUN instruction. Depending on the type of RUN instruction, the Input(n) parameter can be a flat file or a database table. In some cases, a RUN instruction has more than one input.
Instruction	The specific type of RUN instruction. See Table 9 on page 44 for more information.
LogFile	The name and location of the file to which ETI•EXTRACT writes log information.
Output(n)	The target to which the RUN instruction writes. In some cases, a RUN instruction has more than one output.
PasswordType	Password information for a remote host. When an instruction type accesses a remote host, it runs one the following password types: **GetPassword** This password type uses the Remote Password Command program to obtain the remote host password. **EnterPassword** This password type directly supplies a password to the remote host. **PasswordNotRequired** This password type is sent when the remote host does not require a password.
PrgExt(n)	A program used by an instruction type.

Table 8. Parameter descriptions (continued)

Parameter	Defines
Program	The name of the program that ETI•EXTRACT generates. This program is either JCL or a shell script.
RecordLength	The record length of file that a PUT or GET instruction uses, as necessary. This parameter is optional.
RemoteAccount	The user ID for the remote host.
RemoteFile	The name of the file that a GET instruction copies from a remote system to a file on your local system, or the name of the file that a PUT instruction copies to when it copies a file from your local system to a remote system.
RemoteHost	The host name of the remote system.
RemoteHostOS	The operating system of the remote system.
RemotePasswordCommand	The required password when the PasswordType is EnterPassword. You must supply a password when you schedule this instruction in Visual Warehouse. Otherwise, this parameter will not be passed.
RemotePasswordCommandArgs	The arguments that the RemotePasswordCommand passes. This parameter is used only with the RemotePasswordCommand.
SummaryFile	The name and location of the file to which ETI•EXTRACT writes information about warnings and status.
TransferMode	The type of file transfer (bin, char, or default to FTP). This parameter is used only with the RecordLength parameter.

The parameters for instruction types map to the parameters for the Visual Warehouse programs that are supplied for ETI•EXTRACT support.

Instruction parameters

Instruction is a general name for a subset of parameters that define a database action to a RUN instruction type. The term *Instruction* is not listed in the execution plan. Instead, the subset parameter that defines the database action is listed. Table 9 on page 44 lists the subset of parameters that the *Instruction*

parameter passes, describes their functions, and enumerates the sources and targets that they use.

Table 9. Data instruction types

Parameter instruction types	Description	Number of sources and targets
query	Reads data to an output file.	*n* sources, *n* targets
sort	Orders data.	1 source, 1 target
split	Writes information from one source to two targets. The source is the first target. The second target is a normal target.	1 source, 1 target
merge	Writes information from two or three different sources to one file.	2 sources, 1 target
populate	Populates a database table.	1 source, 1 target
query_populate	Performs a single-step conversion.	*n* sources, *n* targets

These parameters map to the parameters for the Visual Warehouse programs that are supplied for ETI•EXTRACT support.

Sample Visual Warehouse execution plan

An execution plan file is an exact mapping of the execution plan that is created when you register a conversion specification. When you open an execution plan file, a set of instruction types and parameter definitions is displayed. This section provides a sample Visual Warehouse execution plan file and an explanation of the information in the file.

An execution plan file will resemble the following sample:

```
LOGIN,minerva,funafuti,unix,extract,EnterPassword,,,

RUN,query,funafuti,/tmp/CBL_SIMP_splitquery0e.sh,SRC-EMP,/tmp/CBL_SIMP_
splitquery0.int,/tmp/CBL_SIMP_splitquery0.msg,/tmp/CBL_SIMP_splitquery0.err,
/tmp/CBL_SIMP_splitquery0.wrn,jcl=/tmp/CBL_SIMP_splitquery0.jcl,
shell-compile=/tmp/CBL_SIMP_splitquery0c.sh,shell-execute=/tmp/CBL_SIMP_
splitquery0e.sh,cobol74=/tmp/CBL_SMq0.cbl,prog_ext=last,PasswordNotRequired,,,
RUN,populate,funafuti,/tmp/CBL_SIMP_splitpopulate1e.sh,/tmp/CBL_SIMP_
splitquery0.int,TGT-EMP,/tmp/CBL_SIMP_splitpopulate1.msg,/tmp/CBL_SIMP_
splitpopulate1.err,/tmp/CBL_SIMP_splitpopulate1.wrn,jcl=/tmp
/CBL_SIMP_splitpopulate1.jcl,shell-compile=/tmp/CBL_SIMP_
splitpopulate1c.sh,shell-execute=/tmp/CBL_SIMP_splitpopulate1e.sh,
cobol74-prepop=/tmp/CBL_SMp1z.cbl,cobol74=/tmp/CBL_SMp1.cbl,prog_ext=last,
PasswordNotRequired,,,
DELETE,minerva,/tmp/CBL_SIMP_splitquery0.int
LOGOUT,funafuti,minerva
```

There are five separate instructions in this file:

- `LOGIN,minerva,funafuti,unix,extract,EnterPassword,,,`

  where:

  – `minerva` is the CurrentHost
  – `funafuti` is the RemoteHost
  – `unix` is the RemoteHostOS
  – `extract` is the RemoteAccount
  – `EnterPassword` supplies the password

- `RUN,query,funafuti,/tmp/CBL_SIMP_splitquery0e.sh,SRC-EMP,/tmp/CBL_SIMP_splitquery0.int,/tmp/CBL_SIMP_splitquery0.msg,/tmp/CBL_SIMP_splitquery0.err,/tmp/CBL_SIMP_splitquery0.wrn,jcl=/tmp/CBL_SIMP_splitquery0.jcl,shell-compile=/tmp/CBL_SIMP_splitquery0c.sh,shell-execute=/tmp/CBL_SIMP_splitquery0e.sh,cobol74=/tmp/CBL_SMq0.cbl,prog_ext=last,PasswordNotRequired,,,`

  where:

  – `query` is the *Instruction*
  – `funafuti` is the CurrentHost
  – `/tmp/CBL_SIMP_splitquery0e.sh` is the program
  – `SRC-EMP` is the Input(n)
  – `/tmp/CBL_SIMP_splitquery0.int` is the Output(n)
  – `/tmp/CBL_SIMP_splitquery0.msg` is the LogFile
  – `/tmp/CBL_SIMP_splitquery0.err` is the ErrorFile
  – `/tmp/CBL_SIMP_splitquery0.wrn` is the SummaryFile
  – `jcl=/tmp/CBL_SIMP_splitquery0.jcl` is a ProgExt(n)

  - shell-compile=/tmp/CBL_SIMP_splitquery0c.sh is a ProgExt(n)
  - shell-execute=/tmp/CBL_SIMP_splitquery0e.sh is a ProgExt(n)
  - cobol74=/tmp/CBL_SMq0.cbl is a ProgExt(n)
  - prog_ext=last is a ProgExt(n); last indicates that this is the last ProgExt(n) in the instruction.
  - PasswordNotRequired is passed because the password is pulled from the previous LOGIN instruction.
- RUN,populate,funafuti,/tmp/CBL_SIMP_splitpopulate1e.sh,/tmp/CBL_SIMP_splitquery0.int,TGT-EMP,/tmp/CBL_SIMP_splitpopulate1.msg,/tmp/CBL_SIMP_splitpopulate1.err,/tmp/CBL_SIMP_splitpopulate1.wrn,jcl=/tmp/CBL_SIMP_splitpopulate1.jcl,shell-compile=/tmp/CBL_SIMP_splitpopulate1c.sh,shell-execute=/tmp/CBL_SIMP_splitpopulate1e.sh,cobol74-prepop=/tmp/CBL_SMp1z.cbl,cobol74=/tmp/CBL_SMp1.cbl,prog_ext=last,PasswordNotRequired,,,

  You can run an instruction type more than once in an execution plan. While this RUN instruction runs a program that is different than the one called in the previous RUN instruction, the parameter breakdown follows the same format.
- DELETE,minerva,/tmp/CBL_SIMP_splitquery0.int where:
  - minerva is the CurrentHost
  - /tmp/CBL_SIMP_splitquery0.int is the file that is to be deleted.
- LOGOUT,funafuti,minerva where:
  - funafuti is the CurrentHost
  - minerva is the RemoteHost

Appendix B. Return codes for Visual Warehouse programs

This appendix describes the return codes for the Visual Warehouse programs that manage conversion programs on MVS or AIX. Use the descriptions of the return codes with the log files for the Visual Warehouse programs to debug problems with the programs.

- On Windows NT, the file is in the directory set by the *VWS_LOGGING* environment variable, which has a default value of VWSWIN\EXCHANGE.
- On AIX, the file is in the /var/IWH directory.

MVS programs

Table 10 lists the possible values of the **RC2** field in the Log Details window when the value of the **RC1** field is 8410.

Table 10. Return codes for MVS Visual Warehouse programs

Return code	Description
0	The program ran successfully.
4	The program ran but might have encountered a problem.
8	Parameter error. The program detected a parameter error error, such as the following errors: • Too few parameters were supplied to the program • The password type is incorrect • The File Record Length is not a number
12	FTP error. The program detected an FTP error, such as the following errors: • The system can't execute an FTP command. • The host name, user ID, or password for MVS is invalid. • A file for which the program issued an FTP GET command is empty on the target machine, but not on the source machine.

Table 10. Return codes for MVS Visual Warehouse programs (continued)

Return code	Description
16	Internal error. The program detected an internal error, such as the inability to open, create, or delete a file
20	MVS error. The program detected an MVS error, such as the following errors: • The JCL file does not exist on the MVS system. • The JCL file is empty. • The first 7 characters of the job name are different from the MVS user ID. • JES cannot execute the JCL for some reason, such as a syntax error or an invalid data set.
24	ETI•EXTRACT® error. The program detected an ETI•EXTRACT error and transferred an error file generated by ETI•EXTRACT.
36	FTP PUT error. The source file to be transferred with the FTP PUT command does not exist.
44	File empty error. The source file is empty on the MVS system,
48	Environment variable error. The *VWS_LOGGING* or *VWS_TEMPLATES* environment variable has not been set.
52	Get password program error. The program detected an error in executing the password program.

Table 10. Return codes for MVS Visual Warehouse programs (continued)

Return code	Description
60	Template error. The program could not find a customized Visual Warehouse template. For more information about copying and customizing Visual Warehouse templates, see “Modifying the Visual Warehouse template for FTP support” on page 13.

AIX programs

Table 11 lists the possible values of the **RC2** field in the Log Details window when the value of the **RC1** field is 8410.

Table 11. Return codes for AIX Visual Warehouse programs

Return code	Description
0	The program ran successfully.
4	The program ran but might have encountered a problem.
8	Parameter error. Too few or too many parameters were supplied to the program, or an invalid value was supplied for a parameter.
16	Internal error. The program detected an internal error, such as the inability to open, create, or write to a temporary file.
24	ETI•EXTRACT error. The program detected an ETI•EXTRACT error.
48	Environment variable error. The *VWS_LOGGING* environment variable has not been set.

Table 11. Return codes for AIX Visual Warehouse programs (continued)

Return code	Description
52	Get password program error. The program detected a password program error, such as a missing program, an invalid name, or the wrong number of parameters
56	Remote execution error. The program detected a remote execution error, such as the following errors: • An incorrect user ID or password was supplied. • A remote file was not found. • A remote host is not responding. • The supplied user ID is not authorized to create or read the remote file.

Appendix C. ETI•EXTRACT error messages

This appendix describes error messages that might be displayed when you customize the ETI•EXTRACT® Executive and error messages that might be displayed during ETI•Meta Scheduler for Visual Warehouse operation.

The error messages in this appendix represent only a portion of the common ETI•EXTRACT error messages.

ETI•EXTRACT Executive customization error messages

The following set of error messages describe errors that might occur when you customize the ETI•EXTRACT Executive to run at your site. For more information on the ETI•EXTRACT Executive, see “Installing and configuring prerequisite products” on page 7 and “The ETI•EXTRACT Executive” in the ETI•EXTRACT *Reference Manual*.

The messages in this section are alphabetized by error message.

Error Message:
Base level login to <host> has failed.

Explanation:
An error occurred while the Executive was logging into a remote host.

Action:
Use the ETI•EXTRACT Executive to ensure that connectivity to all pertinent hosts is accessible.

Error Message:
Cannot access <srcfile>

Explanation:
This error occurred while the Executive was copying files on the ETI•EXTRACT host. The source file does not have the correct permissions.

Action:
Ensure that the source file has the correct file permissions.

Error Message:
Cannot create the destination file <dstfile>. Please check that the pathname is valid.

Explanation:
This error occurred while the Executive was copying files on the ETI•EXTRACT host. The destination path name is incorrect.

Action:
Ensure that the destination path name is correct.

Error Message:
Connection closed by foreign host.

Explanation:
This error occurred while the Executive was copying files to a remote host from a local host or between remote hosts. The remote host system unexpectedly closed the FTP connection.

Action:
Check your FTP connection and retry.

Error Message:
Connection to <host> has terminated

Explanation:
This error occurred while the Executive was copying files to a remote host from a local host or between remote hosts. There are problems with the permissions for writing to a location or other problems related to the FTP.

Action:
Check the timeout section in the Execution script.

Error Message:
<srcfile> does not have permission to be copied - please make sure that the <dstfile> directory has correct file permissions.

Explanation:
This error occurred while the Executive was copying files on the ETI•EXTRACT host. There is a permission problem on the source file or in the target directory.

Action:
If this is part of a UNIX copy, ensure that the source file has read permission and that the target directory has write permission.

ETI•Meta Scheduler error messages

The ETI•Meta Scheduler for Visual Warehouse reports its own error messages. It captures any error written to standard output while the registration script is running, and writes it to the log file.

The Utility generates three types of messages to standard output and the log file:

- Status/informational messages (ETI-VW-STATUS-1##)
- Warning messages (ETI-VW-WARNING-2##)
- Error messages (ETI_VW_ERROR-3##)

where ## is the message number.

Status and warning messages require no action on the part of the user. Error messages generally require some action on the part of the user or indicate an unexpected condition.

The messages in this section are generated by the Utility.

ETI-VW-ERROR-301
The EXTRACT environment variables are not set.

Explanation:
The ETI•EXTRACT environment has not been set up correctly.

ETI-VW-ERROR-302
The specified MetaStore <MetaStore> is not valid

Explanation:
The selected MetaStore is not valid. This message occurs if the user is attempting to invoke the transfer utility from a UNIX command line. This is usually the result of a typographical error.

ETI-VW-ERROR-303
The Visual Warehouse software is not installed for this MetaStore. The expected directory <MetaStore>/mtu/vw could not be accessed.

Explanation:
Verify that the MetaStore has Visual Warehouse installed and that the UNIX permissions are correct on the mtu and vw directories.

ETI-VW-ERROR-304
The specified workset <workset> is not valid for this MetaStore

Explanation:
Check the spelling of the workset name. If the spelling is correct, verify that the correct MetaStore is specified.

ETI-VW-ERROR-305
The conversion <conv> must be generated before a transfer to the Visual Warehouse is possible

Explanation:
The conversion directory does not exist. The conversion directory should be created before the transfer is attempted. Normally, the conversion directory is created when the conversion is generated.

ETI-VW-ERROR-306
The execution plan set_<conv>plan.exm does not exist

Explanation:
Files are missing that were created when the conversion was generated.

ETI-VW-ERROR-307
The execution plan vw_<conv>plan.vw does not exist

Explanation:
The execution plan is missing. Normally, the execution plan is created when the conversion is generated.

ETI-VW-ERROR-311
A transfer is already in progress for conversion <name>.MajorVersion. Please try again later.

Explanation:
A lock file already exists.

ETI-VW-ERROR-312
Failed to create the lock file and therefore the transfer cannot proceed

Explanation:
Unable to create the lock file.

ETI-VW-ERROR-313
Unable to open logfile, '<ms>/tmp/<conv>.log - aborting the transfer

Explanation:
Unable to open the lock file.

ETI-VW-ERROR-321
Cannot open file <filename> to create the MDIS export script

Explanation:
Unable to create the script used to generate the MDIS export file. Check file permissions for the directory indicated in <filename>, and verify that there is enough disk space to create the file.

ETI-VW-ERROR-322
MDIS export failed

Explanation:
MTU-VW is unable to export the conversion using MDIS format. Check file permissions on the <MetaStore>/mdis_export directory, and verify that there is enough disk space to create the file.

ETI-VW-ERROR-331
Visual Warehouse setup failed

Explanation:
The Executive uses an execution plan that was created during the conversion generation. If it fails this message is received.

ETI-VW-ERROR-341
Cannot open file '<ms>/<ws>/cnvdir/<conv>/vw_xfer/plan.exm to create the execution plan for metadata transfer

Explanation:
Unable to create the transfer execution plan, possibly due to access permissions.

ETI-VW-ERROR-342
Visual Warehouse transfer failed

Explanation:
The execution plan created during conversion generation has failed. Check the specific Executive error message and fix any reported problems.

ETI-VW-Status–100
Visual Warehouse transfer was successful

Explanation:
The transfer execution plan was successfully created.

ETI-VW-Status-131
Skipping the setup operations, proceeding with the transfer

Explanation:
The -s flag on the command line or the skip setup parameter -y from the registered tool has been set. If the Visual Warehouse setup failed, this message will be generated.

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