



Hardware and Software Requirements

Overview

This appendix covers the hardware and software requirements and recommendations for each of the ETI•EXTRACT configurations: MetaStore Server, Application Server, Client, and Standalone. Where possible, ETI has provided recommendations on how to configure the systems, third-party software, network access and security to get the best performance and reliability from the ETI•EXTRACT product. The following topics are covered:

- Network configurations and types of Windows machines
- User accounts and Local/Domain groups
- Telnet and FTP services
- Accessing UNIX MetaStore Servers (Solaris, HP-UX, AIX) from Windows clients
- Accessing Windows MetaStore Servers from Windows clients
- ETI•EXTRACT Windows configurations

Network Configurations

This section discusses the Domain and Workgroup network configurations.

Domain

A *domain* is a grouping of one or more machines in a network. Domains must contain at least one Windows server which acts as the primary domain controller (PDC). This allows centralized administration of all the machines in the domain. ETI recommends installing and running ETI•EXTRACT in a domain environment.

Workgroup

A *workgroup* is an alternative to using a domain. This configuration is best suited to a small number of machines (fewer than 10) within a workgroup or department. Administration is non-centralized and is controlled by the Administrator of each machine. ETI has not verified ETI•EXTRACT in a workgroup environment. However, existing customers are successfully using ETI•EXTRACT in this configuration.

Types of Windows Machines

This section discusses the following types of Windows machines:

- primary domain controller
- backup domain controller
- member server
- workstation

Primary Domain Controller (PDC)

A *primary domain controller* is a Windows server which has been installed with domain controller software. There can only be one PDC in a Domain.

The PDC maintains the master database of all Domain user accounts and Domain groups. The PDC is responsible for validating user logins and user transactions within the domain. Note that this responsibility places a heavy network load on the PDC.

Due to the heavy network load, a PDC may not be the ideal system for the ETI•EXTRACT MetaStore Server configuration. It would be better to install the MetaStore Server configuration on a different Windows server in the domain.

Note If the domain only has one Windows server (that is, the PDC), then you must install the ETI•EXTRACT MetaStore Server configuration on the PDC.

Backup Domain Controller (BDC)

A backup domain controller is an Windows server which has been installed with Domain Controller Software. You do not have to have a BDC but you could have multiple BDCs within the Domain.

The BDC maintains a backup copy of the master database of Domain user accounts and domain groups. The BDC assists with the validation of user logins within the domain.

The ETI•EXTRACT MetaStore Server and Application Server configurations could be installed on a BDC within the network. If more than one Windows server exists in the domain, you should determine which Windows server is best suited to install ETI•EXTRACT.

Member Server

A member server is a Windows server which is optimized to operate as a network server within the domain. A member server is not used for validating user accounts or logins; therefore, this server has more available bandwidth for operating as a network server, file server, or database server.

The operating system on the member server is optimized to support heavy network traffic, which may occur when operating as a database server.

A member server would be an ideal system for installing the ETI•EXTRACT Application Server configuration or the ETI•EXTRACT MetaStore Server configuration.

Note that not all domains will have a member server. The need for a member server depends on your site configuration.

Workstation

A workstation is any PC with Windows operating system. A Workstation's operating system is not optimized to operate as a network server. Therefore, the ETI•EXTRACT Standalone configuration or Client configuration can be installed on workstations. ETI recommends that you do not install the ETI•EXTRACT MetaStore Server configuration or the Application Server configuration on workstations.

IP Addressing and Name Resolution

The MetaStore Server must be able to perform “ip to hostname to ip” resolution for all ETI•EXTRACT FX Client systems. Similarly the ETI•EXTRACT FX Clients must be able to do “name to address” resolution for the MetaStore Server. Configuration and validation of these abilities are normally provided by users with global domain administrative privileges. Confirm that one of these services is in use so that communications between Client and Server is possible.

Typically this capability is provided by at least one of the following:

- WINS (Windows Internet Name Service)—Windows Service for resolving NetBios computer names to IP addresses.
- DNS (Domain Name Service)—Windows Service for resolving host names or fully qualified domain names when assigning IP addresses stored in a table for the server to resolve from.
- DHCP (Dynamic Host Configuration Protocol)—This protocol allows for automatic and dynamic IP addressing with subnet mask assignment.

Types of User Accounts and Windows Administrators

This section discusses the following user accounts and account information:

- Domain
- Local
- ETI•EXTRACT user account
- domain Windows administrator
- local Windows administrator
- ETI•EXTRACT administrator
- Standalone Administrator
- Why ETI recommends the **exadmin** user account

Domain Account

A *domain account* is a user account which is recognized by all machines within a domain. **DomainA\AccountName** is an example of a domain account. The part before the “\” indicates the domain or local machine name. The part after the “\” is the actual account name.

The Windows domain makes a distinction between domain accounts and local accounts. These two accounts are not treated as the same even if they have the same account name (for example, **AccountName**).

Local Account

A *local account* is a user account which is specific to a single machine, and is not recognized by other machines in the domain. **Aurora\cwehner** is an example of a local user account, where **Aurora** is the name of the local machine and **cwehner** is the actual account name.

The Windows Domain makes a distinction between domain accounts and local accounts. These two accounts are not treated the same even if they have the same account name (for example, an account name of `cwehner`).

Note A local user account can only be used to log in to the local machine. It cannot be used to log in to the domain even if the machine is a member of the domain.

Local accounts may be used when the machine is disconnected from the network, such as a laptop being used as an ETI•EXTRACT Standalone configuration. Local accounts are also used when access to the domain is unavailable.

Many Windows systems are set up with both a local and domain account for the user. However, each account will have a distinct user profile. Therefore, you may notice differences in user settings, desktop icons or customizations to the program menu, depending on which user account you used at log in.

ETI•EXTRACT User Account

Each ETI•EXTRACT user must have an account set up within the domain. Some additional considerations are required when setting up user accounts depending on whether the MetaStore Server is an Windows or UNIX system.

If the MetaStore Server is a Windows system, then the user account should also be a member of the ETI•EXTRACT user group (`extract`) to facilitate NTFS security and setting up share access/permissions to the MetaStore area on the server.

If the MetaStore Server is a UNIX system, then the Windows Administrator must ensure that the domain user account and password are *exactly* the same (in both case and spelling) as the user account and password on the UNIX MetaStore Server. This is required because the ETI•EXTRACT software, with the embedded Versant database, validates the user account and password before access and operations are allowed on the MetaStore Server. The ETI•EXTRACT validation is case-sensitive as UNIX user validation is case-sensitive.

The Primary Domain Controller (PDC) stores user account information in a case-sensitive format. However, user login validation is case-insensitive within the Domain. The ETI•EXTRACT software uses the Windows account information, as stored by the PDC, during user access validation on the MetaStore Server. The Windows Administrator *must* ensure that the user account has been created on the PDC with the identical case as the UNIX user account.

Warning It is not sufficient to log in to the Windows domain using the same case as the UNIX account. It is the PDC account database, *not* the login information, which is used during MetaStore access validation.

Domain Windows Administrator

A *Domain Windows Administrator* is any member of the Domain Administrators group. There can be one or more Domain Administrator user accounts. A Domain Administrator has the ability to do Windows system administrative functions for any Windows system that is a part of the domain, for example:

- create new Domain user accounts
- reboot the Primary Domain Controller.

The Domain Administrator is the most powerful user in the domain, as this user can perform any administrative operation on any machine in the Domain. The Domain Administrator can install ETI•EXTRACT on any machine in the Domain.

Local Windows Administrator

The *local Windows administrator* is any member of the Administrators group on the local machine. There can be one or more local Windows administrator user accounts, each of which has the ability to do Windows system administration on the local machine. The local Windows administrator does *not* have permissions to perform Windows administrative functions on any other machine in the domain. However, the local Windows administrator can install ETI•EXTRACT on the local machine.

ETI•EXTRACT Administrator

The *ETI•EXTRACT Administrator* is the person responsible for administering ETI•EXTRACT MetaStores (for example, creating, deleting, backing up, restoring, and loading DSLs). Please note that the ETI•EXTRACT administrator is not the same as a Windows administrator. They have distinctly different roles and functions at the customer site.

ETI recommends that the customer create a single *global* Domain user account called **exadmin** for ETI•EXTRACT administration of MetaStores on the network MetaStore Server. Most of the MetaStore operations are restricted to the designated ETI•EXTRACT administrator.

Creating a local **exadmin** account, in addition to the domain account, is only necessary for ETI•EXTRACT Standalone configurations, where **exadmin** will be used to administer the local MetaStores.

The ETI•EXTRACT Administrator can install ETI•EXTRACT on the local machine *if and only if* the account has Windows administrative privileges for the local machine. This means that the ETI•EXTRACT administrator is also a member of the local Windows administrators group or has administrative privileges on the local machine.

Note The ETI•EXTRACT administrator must be able to back up and restore MetaStores. These operations can only be performed on the MetaStore Server. Therefore, you must set the policies for the **exadmin** user account such that the ETI•EXTRACT administrator has local login privileges for the MetaStore Server.

The ETI•EXTRACT administrator account does *not* need to be a member of the domain or local administrators group in order to administer ETI•EXTRACT MetaStore (create MetaStores, delete Metastores, and so forth).

Only a member of the Windows administrators group can start, stop, or set up the FLEXlm License Manager on the Windows ETI•EXTRACT MetaStore Server. Therefore, the ETI•EXTRACT administrator who is not a Windows administrator cannot start or stop the FLEXlm server on the MetaStore Server.

If the customer really wants the ETI•EXTRACT administrator to be able to start and stop FLEXlm, then the ETI•EXTRACT administrator should be a member of the local Windows administrators group on the MetaStore Server.

ETI does not recommend that the customer make the ETI•EXTRACT administrator a member of the domain Windows administrators group, as this is a security risk at most customer sites.

Standalone Administrator

ETI•EXTRACT Standalone systems are intended to be single-user systems. The MetaStores which are created on the local machine will be used only by a single ETI•EXTRACT user. In this case, it is likely that the ETI•EXTRACT user will need to perform administrative functions such as creating, backing up and restoring MetaStores on the local machine. For this setup, there are two possible administration scenarios to consider:

1. Set up a local MetaStore administration account (such as **exadmin**) and require that the user log in to this account for administration. This places a greater burden on the user to switch accounts before doing administration functions but does allow use of the backup and restore utilities to transfer entire MetaStores between the Standalone system and the MetaStore Server.
2. Set up the user account to have ETI•EXTRACT administrative privileges on the local machine. For Windows systems, create a local group called **exadmins** and add the user's account to this group. (For further information, see "ETI•EXTRACT Administrators Group (exadmins)" on page A-9.)

This setup allows the user administrative privileges only on the local system. Data can be transferred between MetaStores using import/export of objects or packages. However, you cannot use the backup and restore utilities to move MetaStore information between the Standalone system and the MetaStore unless the same Administrator account is used.

Why ETI Recommends the exadmin User Account

Each ETI•EXTRACT MetaStore Server must have an administrator who is responsible for creating the MetaStores, loading Data System Libraries (DSLs) into a MetaStore, and backing up and restoring MetaStores. Only the creator of a MetaStore can back up, restore, or load DSLs into a MetaStore. Therefore, one account is designated to perform all MetaStore administrative tasks. This database management paradigm has been designed to simplify the administration of ETI•EXTRACT.

By default, the ETI•EXTRACT software requires that the **exadmin** user account for ETI•EXTRACT administration. This account must be set up before any MetaStores can be created. ETI recommends that you set up the **exadmin** account as a *global* domain account. This facilitates creating MetaStores from any ETI•EXTRACT Client system with domain access to the MetaStore Server.

You may prefer to use an existing account as the ETI•EXTRACT administrator or to select a different account name than **exadmin**. For information on setting up a different account name, see “ETI•EXTRACT Administrators Group (exadmins)” on page A-9.

Note ETI recommends that if you use a different administration account, it be consistent across the entire company.

Several advantages are associated with maintaining a single ETI•EXTRACT Administrator account across the company:

- Multi-site copying of MetaStores is facilitated.

If you use a single domain account to administer MetaStores, you can use the backup and restore utilities to move an entire MetaStore between servers within the same company. If you use different accounts, you must use the migration utilities to move MetaStores.

- Copying MetaStores between Windows Standalone and Windows server systems is facilitated.

Similarly, to use the backup and restore utilities to move entire MetaStores between the MetaStore Server and a Standalone system, the same administrator account must be used on both systems.

- Copying MetaStores between Windows servers that use different administrative accounts requires migration rather than backup and restore.
- Using the backup and restore utilities is generally faster and easier than using the migration utilities.
- The backup and restore utilities copy all versions of all objects in a MetaStore. The migration utilities copy only the latest minor version of an object. Therefore, the database is not identical to the original.

Users can use the Browser’s import/export interface to transfer objects or packages between MetaStores, regardless of the MetaStore administrator account. If the Access Control feature is enabled, the user must have the appropriate access privileges and permissions, as follows:

- Export—Read permissions for the current workset.
- Import an object—Write permissions for current workset; write permissions for object type.
- Import a package—Write permissions for current workset; write permissions for package object type.

Local/Domain Groups and Functions

This section discusses Windows group information that is useful for installing ETI•EXTRACT.

First, review the descriptions of the Administrator groups described below:

- local Administrator group
- domain Administrator group

Then refer to the section “ETI•EXTRACT Administrators Group (exadmins)” on page A-9 and “ETI•EXTRACT User Group (extract)” on page A-10 for suggestions on using:

- ETI•EXTRACT Administrators group (exadmins)
- domain ETI•EXTRACT user group (extract)

Local Administrator Group

A *local Administrator group* is a Windows group for users with Windows Administrative privileges for the local machine. It is not recognized within the domain. When running the User Manager on the local machine, only members of the Administrators group have the ability to view or update the local Administrators group.

Domain Administrator Group

The members of the *domain Administrator group* have Windows administrative privileges on the domain. This domain group and its members are only visible to users running the User Manager for domains. In general, only a Windows domain Administrator can see this information.

ETI•EXTRACT Administrators Group (exadmins)

To use an account other than **exadmin** to administer MetaStores, you must create a *global* domain ETI•EXTRACT Administrator’s group called **exadmins**. Then add the desired account name to the group. This approach allows you to specify multiple accounts to have administrative privileges. However, ETI recommends that you include only one user account.

Note Only the owner of a MetaStore can maintain it. Therefore the owner of a MetaStore has the responsibility to back up, restore, or load DSLs into the MetaStore.

Creation of this group is only required in the following cases:

- The customer does not want to use the **exadmin** account for ETI•EXTRACT Administration. You can then use the **exadmins** group to override the default ETI•EXTRACT Administrator account name of **exadmin**.
- You want to allow more than one user account to have ETI•EXTRACT Administration privileges. (Not recommended.)
- You are configuring an ETI•EXTRACT Standalone system and you want a user account other than **exadmin** to administer the local MetaStores.

The first two cases, the **exadmins** group must be created as a global domain group. For the third case, the **exadmins** group can be local to the Standalone machine as it will be used only for managing local MetaStores.

ETI•EXTRACT User Group (extract)

The *Domain ETI•EXTRACT User Group* may be a desirable option at some customer sites for increased security. This should be a global Domain group and ETI recommends calling the group **extract** for consistency with UNIX installations. However, the customer can choose a different name if desired. This domain group identifies all the ETI•EXTRACT user accounts. The ETI•EXTRACT Administrator should also be a member of the **extract** group.

For additional information on the ETI•EXTRACT Administrator, refer to the chapter called “Overview of ETI•EXTRACT Administration” in the *ETI•EXTRACT Tool Suite: Administration Guide*.

Telnet and FTP Services and the ETI•EXTRACT Executive

You can use the ETI•EXTRACT Executive to run the generated conversion programs. When you do so you choose either a client or the MetaStore Server as the *generation host*. The generation host is the host on which the generation is started. The relationships are shown in Figure A-1 and Figure A-2.

Figure A-1. ETI•EXTRACT Executive—MetaStore Server is Generation Host

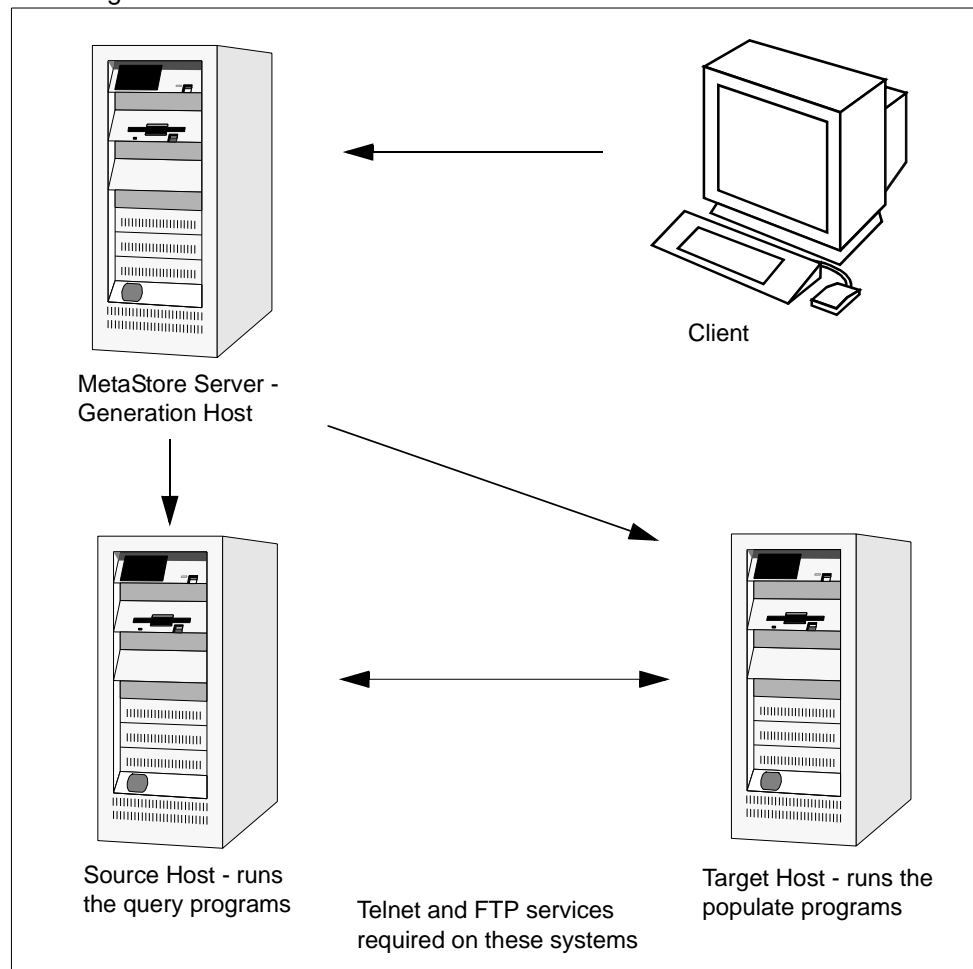
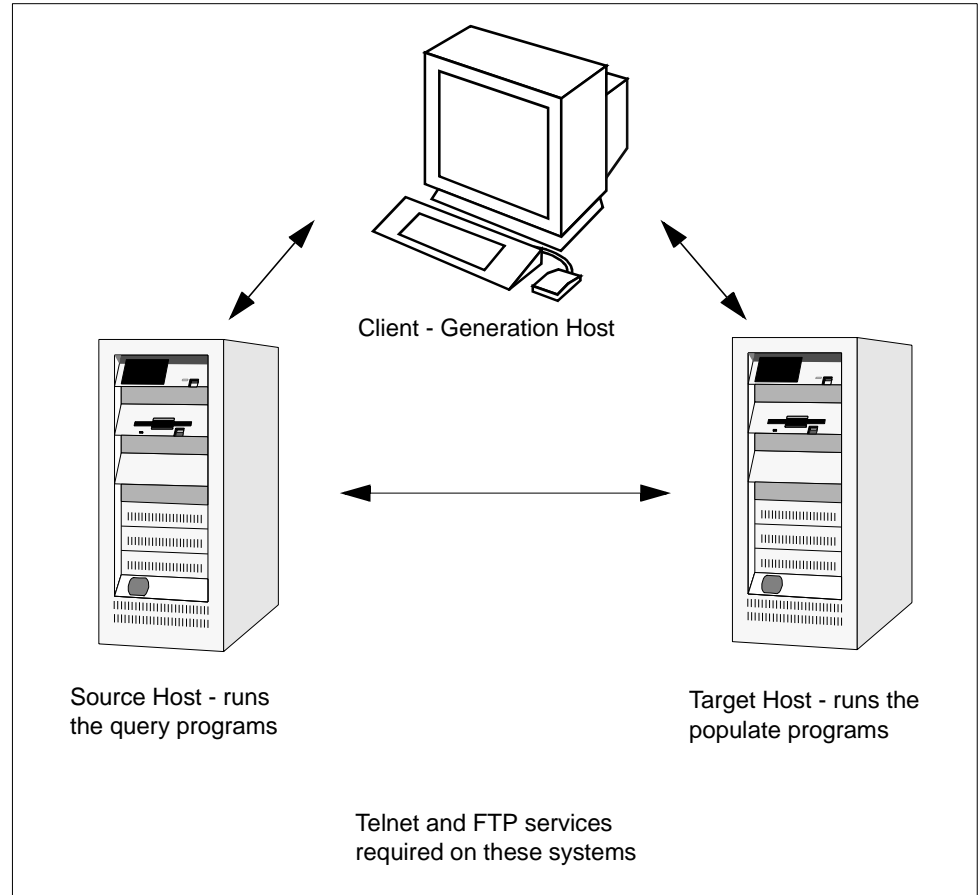


Figure A-2. ETI•EXTRACT Executive—Client is Generation Host



All of the hosts in the preceding figure potentially need to have the telnet and FTP services running. FTP is used to transfer files and telnet is used to start jobs on a host from a remote system.

Note FTP for MVS has an extension that allows jobs to be submitted. ETI recommends using FTP for submitting jobs on MVS systems.

The Difference Between an FTP or Telnet Client and an FTP or Telnet Service

While most systems come with FTP and telnet clients, many do not come with FTP and telnet services. A system running telnet client software but not a telnet service can use telnet to log on to another system but other systems cannot use telnet to log onto it.

A system running an FTP client and not an FTP service can use FTP to transfer files to another system that is running an FTP service, but other systems cannot use FTP to transfer files to it.

Telnet Services and Windows

Windows NT does not ship with a telnet service. Windows 2000 does ship with a telnet service. If any of your systems require a telnet service (see Figure A-1 and Figure A-2) and do not have them, contact your Windows system administrator.

FTP Services Not Shipped with Windows or ETI•EXTRACT

Windows NT and 2000 systems do not ship with an FTP service. If any of your systems require an FTP service (see Figure A-1 and Figure A-2) and do not have them, contact your Windows system administrator.

Accessing UNIX MetaStore Servers (Solaris, HP-UX, AIX) From Windows Clients

Refer to the *ETI•EXTRACT Tool Suite: Installation Guide for UNIX* for detailed information about UNIX hardware requirements. Additional software must be installed on the UNIX MetaStore Server to use the enhanced client/server features available in ETI•EXTRACT FX 4.2.

UNIX File System Access for Windows Clients

Prior to ETI•EXTRACT Release 4.0, ETI•EXTRACT allowed the use of Windows systems as ETI•EXTRACT clients. However, Windows users were required to log in to the remote ETI•EXTRACT Server using an X-Windows emulation package. The Windows client then ran tools directly on the ETI•EXTRACT Server with the user interface displayed on the local system.

This approach has several deficiencies. A large number of concurrent ETI•EXTRACT users places a heavy processing burden on the Server system. All display updates are sent across the network. Occasionally, third-party emulation products have defects which affect the usability of ETI•EXTRACT tools.

ETI•EXTRACT FX 4.0 and later releases provide an improved client/server interface so that Windows clients can execute the ETI•EXTRACT tools locally. This way, the processing power of the ETI•EXTRACT Server can be used for MetaStore operations rather than for running client tools.

Most ETI•EXTRACT tools create, modify or read data stored in the MetaStore files directory. With Windows clients running tools locally, the tools need a way to access the MetaStore Files directory on the server system. For Windows clients accessing a Windows server, transparent file access is accomplished by creating shares on the server system and mapping network drives on the client systems. For accessing the UNIX server's file system, a UNIX user account and additional third-party software are required.

Each Windows client must use a UNIX account to gain access to the MetaStore Files directory on the UNIX server. All security and file permissions are based upon the user's UNIX account.

ETI•EXTRACT and the underlying VERSANT database require that the user login ID be identical on both the UNIX and Windows platforms. Note that UNIX is case-sensitive when it validates the user login and Windows is not. Therefore, ensure the Windows domain controller is set up to use a user login with exactly the same case as required by UNIX.

Note Checking the user login for the local machine is not sufficient. You must check the name as set up on the domain controller. This will require domain administration privileges.

Two software packages, Samba and NFS Maestro, are verified by ETI to provide Windows clients with file system access of the UNIX ETI•EXTRACT Server. Either of these 3rd party products can be used to provide file system access for Windows clients.

Note It may be possible to use another product to provide remote file system access, however, make sure the product supports UNIX symbolic links, creation masks, long file names, and can preserve case sensitivity.

ETI only endorses third-party applications for use with ETI•EXTRACT which are Year 2000 compliant. Both the Samba and NFS Maestro products meet Year 2000 requirements.

SAMBA

Samba is a software package for UNIX systems which provides Windows clients with access to the UNIX file system. It implements the Common Internet File System protocol (CIFS), an industry standard for file system access.

Samba is made available under the GNU public license. There is no client license fee and you can use Samba at no cost on any UNIX server. A Samba release is available for all ETI•EXTRACT-supported UNIX servers.

ETI has tested and verified ETI•EXTRACT with Samba release 2.0.3 (for Windows NT) and release 2.0.7 (for Windows NT and *required* for Windows 2000); however, you can use a newer version of Samba at your discretion.

The Samba configuration parameters required for use with ETI•EXTRACT are documented in Table A-1 on page A-14. Each parameter listed, shows the default value set by Samba and the value required by ETI•EXTRACT.

Additionally, ETI recommends a scope for each of the parameters. You can set most parameters in the service-specific sections of the configuration file; these are identified these parameters with an 'S' in the scope column. This allows you to select a configuration which you apply only to the Samba service used with ETI•EXTRACT. The parameters that you must set in the global section have a 'G' in the scope column. In some cases, the value required by ETI•EXTRACT and the Samba default are the same.

Make sure that your configuration uses the settings listed for ETI•EXTRACT to operate correctly.

Note UNIX administrators should work with Windows administrators when setting the following parameters:

```
workgroup
force-group
password-server
```

For a detailed description of each parameter, see the **man** page for the Samba configuration file, smb.conf.

Table A-1. Required SAMBA Configuration Parameters

Parameter Name	Default Samba Value	ETI•EXTRACT Value	ETI•EXTRACT Scope
mangle case	no	no	S
preserve case	no	yes	S
short preserve case	no	yes	S
create mask	0744	0664	S
directory mask	0775	0775	S
follow symlinks	yes	yes	S
read only	yes	no	S

You can configure all other Samba parameters to the needs of the individual site. Other settings which may affect ETI•EXTRACT operation are listed in Table A-2.

Table A-2. Other SAMBA Configuration Parameters

Parameter Name	Default Samba Value	ETI•EXTRACT Value	ETI•EXTRACT Scope
deadtime	0	0	G (specific to the global section of the configuration file)
force group	Not set by default	extract*	S
force user	Not set by default	Setting this parameter is not recommended	S
workgroup	Not set by default	workgroup of server (site-specific)	G
security	security default=share	server	G
password server	Not set by default	name of password server (site-specific)	G

* This should be set to the *extract* or *eti* group, depending on the name of the UNIX ETI•EXTRACT group set up at your site on the UNIX MetaStore Server.

A sample Samba configuration file (smb.conf) is shown below:

```
# DEFAULT Non-master configuration

workgroup = eti-unix
domain master = no
preserve case = yes
short preserve case = yes
create mask = 0664
directory mask = 0775
force group = extract
name resolve order = host bcst
security = server
password server = etisrvr

[homes]
    force group = extract
    guest ok = no
    read only = no

[eti-extract]
    path = /export/home/extract
    guest ok = no
    read only = no

[printers]
    path = /var/spool/samba
    writable = no
    public = yes
    printable = yes
    print command = /usr/ucb/lpr -r -P%p %s
    lpq command = /usr/ucb/lpq -P%p
    lprm command = /usr/ucb/lprm -P%p %j
```

Mapping With Different User Accounts and Passwords

Although you can use different user accounts and passwords for setting up Samba connections, ETI•EXTRACT and the underlying VERSANT database require that the Windows Domain user account and password are exactly the same (that is, both in spelling and case sensitivity) as the user account and password on a UNIX MetaStore Server. VERSANT validates the user account and password before access and operations are allowed on the MetaStore.

Naming the Samba Share

Each directory or printer being shared via Samba has a separate section in the smb.conf file, with the “share name” in square brackets, for example, [eti-extract]. This file can be found in your Samba install area. The following is typical location for a Samba installation and the smb.conf file:

```
/usr/local/samba/lib/smb.conf
```

where *samba* is the name of the Samba install directory.

Settings which are specific to this share are specified in the lines following the share name, as shown in the `smb.conf` section below:

```
[eti-extract]
  path = /export/home/extract
  guest ok = no
  read only = no
```

The Samba share name should *not* be the same as a user account. There are two reasons:

- Samba can be configured to set up automatically a share for each user account which is exported.
- It is common for user accounts to be exported. If there are multiple shares with the same name, then unpredictable results can occur when mapping from the PC Client systems.

For UNIX MetaStore Servers, it is recommended that the Samba share name be called `eti-extract`, since many customer sites already have user accounts named `extract`. This avoids problems with multiple shares being named the same, as described above.

Detailed information about Samba and how to download a Samba distribution is available on the web page <http://samba.anu.edu.au/samba> and is mirrored at <http://www.samba.org>.

Using Samba on an HP-UX System

For Samba to work on an HP-UX system, you must add the following line to the `smb.conf` file in the global section (that is, not in `[homes]` or elsewhere):

```
  guest account = bin
```

At some point Samba tries to change to the user named “nobody” (UID = -2), but HP-UX considers this to be an invalid ID. The `guest account` line above changes that to `bin` which is an acceptable alternative in most cases.

NFS Maestro

NFS Maestro is a commercial software product developed and distributed by Hummingbird Communications Ltd. Some customer sites use this product to provide Windows systems with access to UNIX file systems.

ETI has tested and verified ETI•EXTRACT with Hummingbird Maestro release 5.1.3 (for Windows NT) and release 7.0 (for Windows NT and *required* for Windows 2000).

To facilitate use of the NFS Maestro product with ETI•EXTRACT, ETI recommends that you select the **Preserve Case** option as the default during the installation of NFS Maestro. Additionally, we recommend that you set **File Protection** to *RWX* for *User* and *Group*, and to *RX* for *Other* during the NFS Maestro installation. This allows ETI•EXTRACT Clients to use the Windows Explorer to map network drives to the UNIX MetaStore Server. If Preserve Case and the recommended File Protections are not the default, then ETI•EXTRACT Clients must use the Maestro NFS Network Access utility to map network drives, as described in “NFS Maestro Configuration” on page A-17.

Detailed information about NFS Maestro can be obtained from the Hummingbird web page <http://www.hummingbird.com>.

Warning Some UNIX servers ship with a PCNFS daemon. This default daemon should not be used with Hummingbird’s NFS Maestro product. Maestro requires the `hc1nfsd` daemon developed by Hummingbird specifically for use with Maestro. You can download a platform-specific version of this daemon for free from the Hummingbird web page <http://www.hummingbird.com/support/nc>.

UNIX Symbolic Links

UNIX MetaStore Servers make use of symbolic links. For example, a symbolic link is set up between the `$EXTRACT_ROOTDIR/FLEXlm/license.dat` file and the actual file which is installed in a standard location on the server. The Windows clients must be able to read the *license.dat* file and therefore must be able to follow the symbolic link. You must ensure that the Windows clients can read the *license.dat* file by following the symbolic links. This may require NFS exporting of the `/usr/local/flex` directory on the MetaStore machine.

Warning The Maestro product will not follow symbolic links unless the FLEXlm License Manager directory is also exported.

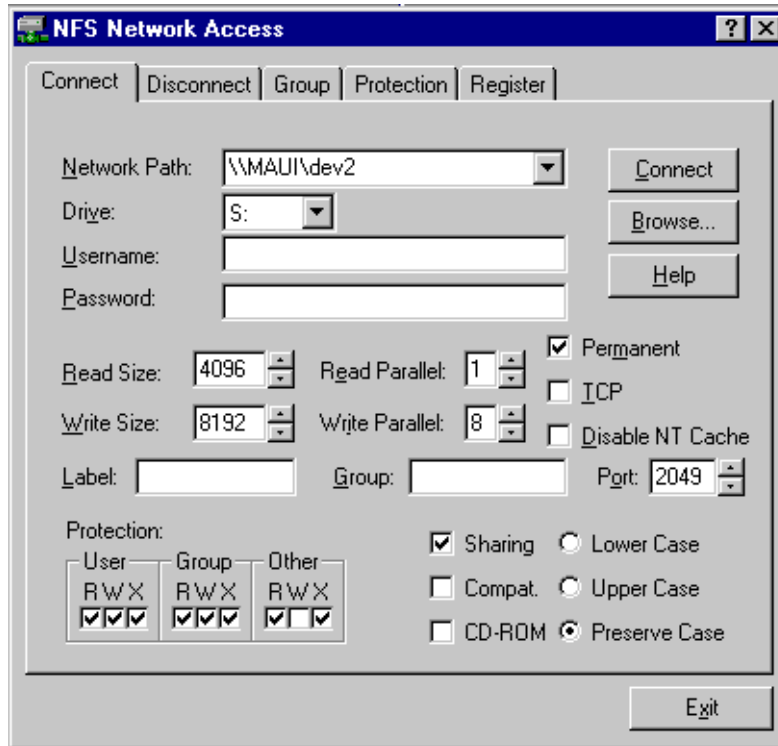
NFS Maestro Configuration

If Preserve Case and the recommended file protections are not specified as the default during NFS Maestro installation, you must use the Maestro NFS Network Access interface to configure the application as follows:

1. Start the NFS Network Access application from the following program folder:

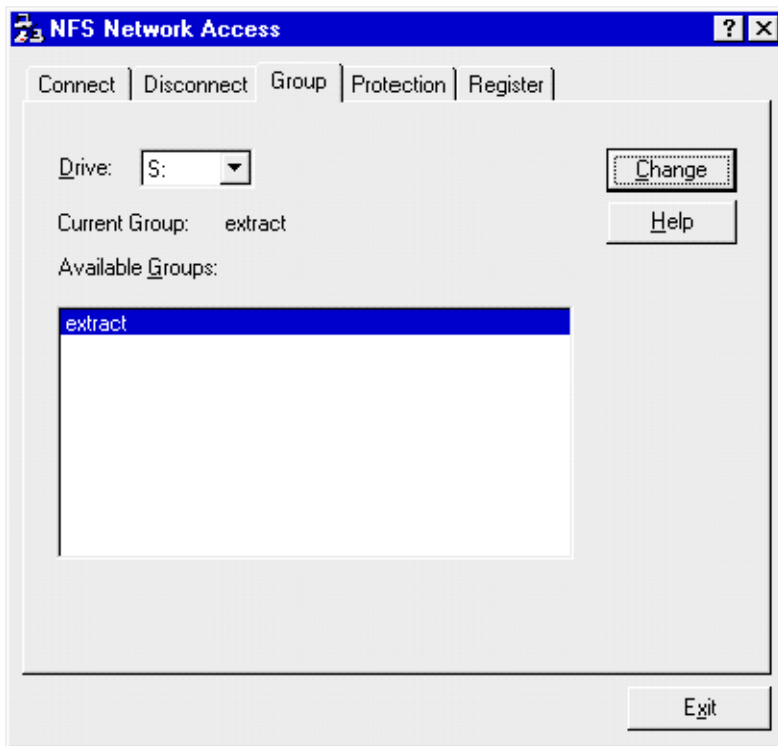
Start→Programs→Hummingbird NFS Maestro

2. Select the connect page, shown below:



3. Set up a connection to the ETI•EXTRACT Server. To do so:
 - a. Select the drive letter which you want this client system to use when connecting to the ETI•EXTRACT Server. To do this, press **Browse** for a listing of all the available NFS Maestro servers. Locate the ETI•EXTRACT Server and double-click on it. All the mount points on the server system will display.
 - b. Select the ETI•EXTRACT root directory. Make sure that you select the **Preserve Case** button.
 - c. The permanent option is checked by default; if it is not checked, be sure to check it to ensure that the connection to the ETI•EXTRACT Server is re-established each time the system is booted.
 - d. Modify the default values for all other options as required for your specific site configuration.
 - e. Press **Connect** to establish the connection.

- Select the **Group** page, as shown below:

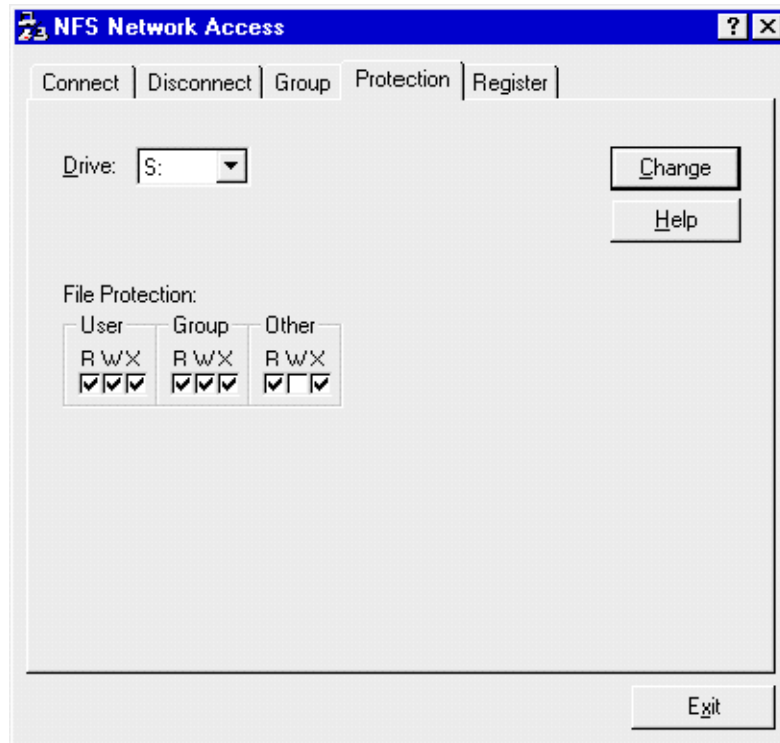


- Select the drive letter for the ETI•EXTRACT MetaStore Server.
- Select the group that was specified during the ETI•EXTRACT installation on the UNIX MetaStore Server (default is *extract*).

This group name may differ per customer site configuration. If the UNIX machine has been set up to use an alternate name (other than *extract*) for the ETI•EXTRACT user group, then the alternate group name will be displayed. If the user is a member of multiple UNIX groups, then all the group names will be displayed.

Note If a user is a member of multiple groups, then the *extract* group must be the primary group or ETI•EXTRACT will not operate correctly.

7. On the **Protections** tab, set the File Protection to allow full access for users and group (for example, rwx) and read and execute permissions for others.



Note The **Register** tab is not used when configuring Maestro to run with ETI•EXTRACT.

Accessing Windows MetaStore Servers From Windows Clients

This section discusses the NTFS and share guidelines.

NTFS Guidelines

The disk on which ETI•EXTRACT is installed should be configured as NTFS and not FAT. Additionally, the disk(s) where MetaStores are created should also be configured as NTFS drives. This ensures optimal performance, as NTFS-configured drives provide better performance for drives greater than 2 gigabytes in size.

By default, the Versant daemon is configured to run as the Windows System account. Therefore, the System account must have `full control` access to the ETI•EXTRACT installation. This can be provided directly or by giving the Windows Administrators group `full control` access to the ETI•EXTRACT installation. If you do not provide the appropriate access permissions, then ETI•EXTRACT Client systems will not operate correctly.

Finally, the ETI•EXTRACT Administrator and ETI•EXTRACT users must be able to create, modify and delete directories and files in the MetaStore. Therefore, the ETI•EXTRACT Administrator and ETI•EXTRACT users must have at least `change` access to the ETI•EXTRACT installation and MetaStore areas in order to correctly run ETI•EXTRACT tools. Additionally, the ETI•EXTRACT Administrator and ETI•EXTRACT users must have at least `read` access to all the subdirectories to the ETI•EXTRACT installation area in order to operate correctly.

The ETI•EXTRACT Administrator who is installing ETI•EXTRACT, must have permissions to set up the Share environment for ETI•EXTRACT client systems. In this case, the ETI•EXTRACT Administrator must have `full control` access to the ETI•EXTRACT installation.

Table A-3 lists ETI’s recommendations for setting up NTFS access permissions for a MetaStore Server. Table A-4 lists ETI’s recommendations for setting up NTFS access permissions for an Application Server.

Table A-3. ETI•EXTRACT MetaStore Server NTFS Access Permissions

Group Type	Directory		
	Drive (e.g., d:\)	Drive Subdirectories (e.g., d:\subdirectory\)	ETI•EXTRACT Installation Directory (e.g., d:\subdirectory\eti\)
extract Global Domain Group ^a	Read	Read	Change
Windows Administrators Group	Full Control	Full Control	Full Control

a. It is assumed that the ETI•EXTRACT Administrator and each ETI•EXTRACT user is a member of the **extract** global domain group.

Table A-4. ETI•EXTRACT Application Server NTFS Access Permissions

Group Type	Directory		
	Drive (e.g., d:\)	Drive Subdirectories (e.g., d:\subdirectory\)	ETI•EXTRACT Installation Directory (e.g., d:\subdirectory\eti\)
extract Global Domain Group ^a	Read	Read	Change
Windows Administrators Group	Full Control	Full Control	Full Control

a. It is assumed that the ETI•EXTRACT Administrator and each ETI•EXTRACT user is a member of the **extract** global domain group.

Share Guidelines

The ETI•EXTRACT Administrator and ETI•EXTRACT users must be able to create, modify and delete directories and files on the MetaStore Server from the ETI•EXTRACT Client system. Therefore, the ETI•EXTRACT share must be set up with at least *change* permissions for both the ETI•EXTRACT Administrator and users in order for ETI•EXTRACT to operate correctly on the Client system. Additionally, if the Windows Administrator's account is used to install ETI•EXTRACT Client systems, then the Windows Administrators group must have full-control access to the ETI•EXTRACT share.

Table A-5 lists ETI's recommendations for configuring access permissions for the ETI•EXTRACT share on a MetaStore Server. Table A-6 lists ETI's recommendations for configuring access permissions for the ETI•EXTRACT share on an Application Server.

Table A-5. ETI•EXTRACT MetaStore Server Share Access Permissions

Group Type	ETI•EXTRACT Share
extract Global Domain Group ^a	Full Control
Windows Administrators Group	Full Control

a. It is assumed that the ETI•EXTRACT Administrator and each ETI•EXTRACT user are members of the **extract** global domain group.

Table A-6. ETI•EXTRACT Application Server Share Access Permissions

Group Type	ETI•EXTRACT Share
extract Global Domain Group ^a	Read
Domain Administrators Group	Full Control

a. It is assumed that the ETI•EXTRACT Administrator and each ETI•EXTRACT user are members of the **extract** global domain group.

ETI•EXTRACT Windows Installations

Table A-7. ETI•EXTRACT 4.2 MetaStore Server Installation — Windows

Operating System	Windows NT Server Software Version 4.0* Windows 2000 Server Software Version *
Patches	Windows NT—with one of the following Service Packs (SP) required: SP3, SP4, SP5, SP6, or SP6a Windows 2000—Service Pack 1(required)
Required Software	Microsoft TCP/IP for Windows Telnet service, FTP service — required by the Executive to establish connections and transfer data between Clients, MetaStore Server, and Target systems.
Processor	Intel Pentium II, 400 Mhz or faster or Two Intel Pentium II processors, 233 Mhz or faster
Memory	256 MB or greater
Disk Drives	Two disk drives are recommended—with one disk drive dedicated to ETI•EXTRACT and its associated MetaStores
CD-ROM Drive	Required for installation. CD-ROM 4X or faster
Tape Drive	Recommended for backups
Swap Space	3 times the amount of physical memory
MetaStore Disk Space	6 GB for the ETI•EXTRACT MetaStores
Application Disk Space	ETI•EXTRACT requires about 200 MB
Remote Access	If a customer intends to use remote access other than to export objects from remote worksets to a local machine for use with ETI•EXTRACT, ETI will provide guidelines and recommend configurations based on the customer's specific needs. Customers should contact their ETI Account Representative to discuss their remote access needs. ETI does not support a Wide Area Network (WAN) configuration.

* It is possible to install the ETI•EXTRACT 4.2 MetaStore Server on a Windows NT 4.0 or Windows 2000 workstation. However, this installation is not recommended. The Windows NT 4.0 and Windows 2000 workstations limit the number of client connections, and the operating system has not been tuned for server operations, as required for the MetaStore Server.

Table A-8. ETI•EXTRACT 4.2 Application Server Installation — Windows

Operating System	Windows NT Server Software Version 4.0* Windows 2000 Server Software Version *
Patches	Windows NT—with one of the following Service Packs (SP) required: SP3, SP4, SP5, SP6, or SP6a Windows 2000—Service Pack 1(required)
Required Software	Microsoft TCP/IP for Windows Telnet service, FTP service — required by the Executive to establish connections and transfer data between Clients, MetaStore Server, and Target systems.
Processor	Intel Pentium II, 400 Mhz or faster or Two Intel Pentium II processors, 233 Mhz or faster
Memory	128 MB or greater
Disk Drives	One or more
CD-ROM Drive	Required for installation. CD-ROM 4X or faster
Swap Space	3 times the amount of physical memory
MetaStore Disk Space	No local MetaStore storage is required
Application Disk Space	ETI•EXTRACT requires about 200 MB
Remote Access	If a customer intends to use remote access other than to export objects from remote worksets to a local machine for use with ETI•EXTRACT, ETI will provide guidelines and recommend configurations based on the customer's specific needs. Customers should contact their ETI Account Representative to discuss their remote access needs. ETI does not support a Wide Area Network (WAN) configuration.

* It is possible to install the ETI•EXTRACT 4.2 Application Server on a Windows NT 4.0 or Windows 2000 workstation. However, this installation is not recommended. The Windows NT 4.0 and Windows 2000 workstations limit the number of client connections, and the operating system has not been tuned for server operations, as required for the MetaStore Server.

Table A-9. ETI•EXTRACT 4.2 Client Installation — Windows

Operating System	Windows NT Workstation Software Version 4.0 Windows 2000 Workstation Software Version*
Patches	Windows NT—with one of the following Service Packs (SP) required: SP3, SP4, SP5, SP6, or SP6a Windows 2000—Service Pack 1(required)
Required Software	Microsoft TCP/IP for Windows Telnet service, FTP service — required by the Executive to establish connections and transfer data between Clients, MetaStore Server, and Target systems Hummingbird Communications NFS Maestro required if using UNIX MetaStore Server and NFS Maestro on server
Processor	Intel Pentium II, 233 Mhz or faster
Memory	128 MB or greater
Disk Drives	One required
CD-ROM Drive	Required for installation. CD-ROM 4X or faster
Swap Space	3 times the amount of physical memory
MetaStore Disk Space	No local MetaStore storage is required
Application Disk Space	Client requires about 200 MB. Client with Application Server requires no local disk space
Remote Access	If a customer intends to use remote access other than to export objects from remote worksets to a local machine for use with ETI•EXTRACT, ETI will provide guidelines and recommend configurations based on the customer's specific needs. Customers should contact their ETI Account Representative to discuss their remote access needs. ETI does not support a Wide Area Network (WAN) configuration.

Table A-10. ETI•EXTRACT 4.2 Standalone Installation—Windows

Operating System	Windows NT Workstation Software Version 4.0 Windows 2000 Workstation Software Version *
Patches	Windows NT—with one of the following Service Packs (SP) required: SP3, SP4, SP5, SP6, or SP6a Windows 2000—Service Pack 1 (required)
Required Software	Microsoft TCP/IP for Windows Telnet service, FTP service — A Standalone system can be used as a Client on the LAN. These services are required by the Executive to establish connections and transfer data between Clients, MetaStore Server, and Target systems
Processor	Intel Pentium II, 233 Mhz or faster
Memory	128 MB or greater
Disk drives	A dedicated disk drive for ETI•EXTRACT is recommended but not required
CD-ROM Drive	Required for installation. CD-ROM 4X or faster
Swap Space	3 times the amount of physical memory
MetaStore Disk Space	2 GB minimum for local MetaStores, 4 GB recommended
Application Disk Space	ETI•EXTRACT requires about 200 MB