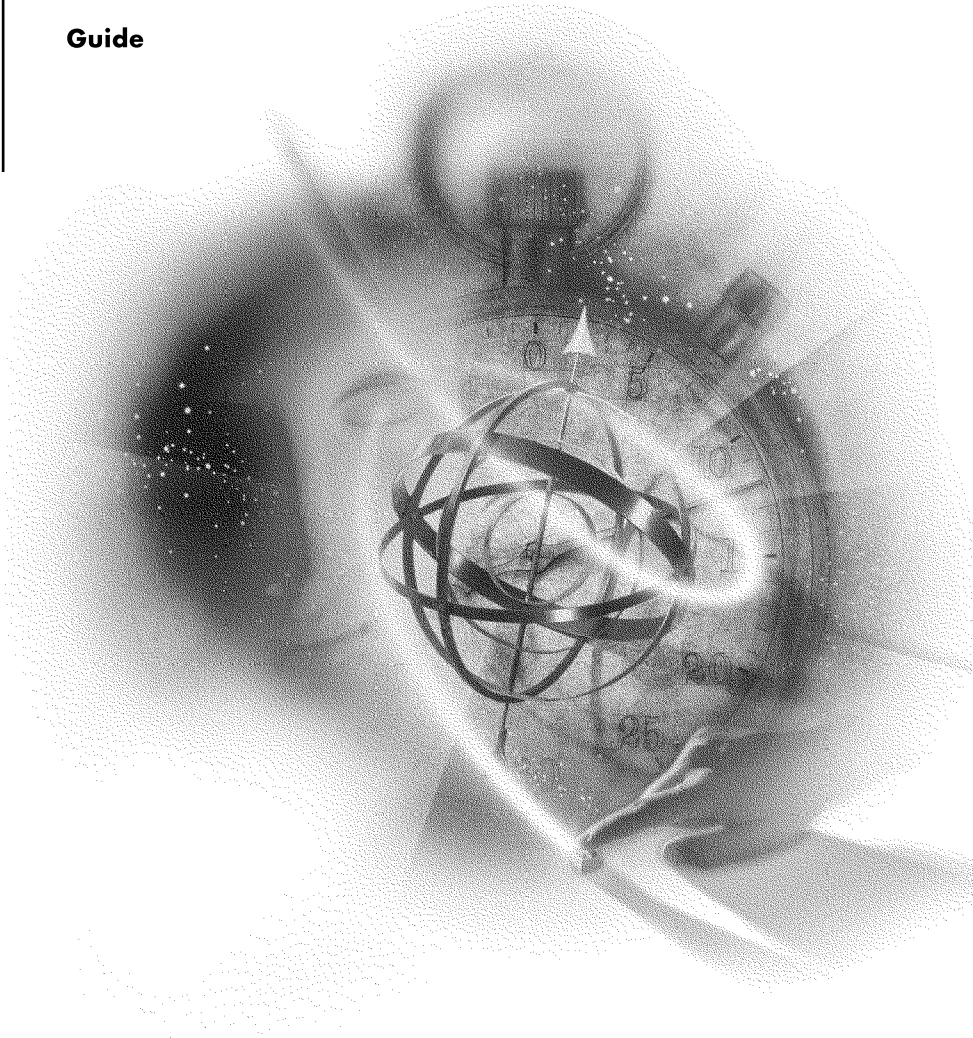

Administration

Guide



NetWare® FTP Server

Novell®

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FTP Server

The NetWare[®] FTP Server provides FTP service for transferring files to and from NetWare volumes.

You can use the file transfer protocol command from a workstation with FTP access to log in to an NDS[®] tree. You can also perform file transfers from any FTP client by using the FTP Server to log in to an NDS tree. After logging in to an NDS tree, you can navigate to other NetWare servers (in the same NDS tree) that may not be running FTP service.

1

Understanding

The NetWare[®] FTP Server is based on the standard ARPANET File Transfer Protocol that runs over TCP/IP and conforms to RFC 959. You can perform file transfers from any FTP client by using the FTP Server to log in to the NDS[®] tree.

Features of the NetWare FTP Server

The main features of the NetWare FTP Server include the following:

- ◆ Multiple Instances
- ◆ Access Restrictions
- ◆ Intruder Log In Detection
- ◆ Remote Server Access
- ◆ Anonymous User Access
- ◆ Special Quote Site Commands
- ◆ Firewall Support
- ◆ Active Sessions Display
- ◆ Name Space Support
- ◆ Simple Network Management Protocol Error Reporting Service
- ◆ FTP Logs
- ◆ Contextless Log In
- ◆ Welcome Banner and Message File Support

Multiple Instances

You can load multiple instances of the FTP Server on the same NetWare server. Each instance can be loaded either to bind to an IP address corresponding to each Network Interface Card (NIC), or to different ports on a single NIC. Typically, each instance could be used to provide FTP service to different sets of users. Each instance can be loaded with different sets of configuration parameters such as IP addresses and port numbers to bind to different access restrictions files and so on. However, the combination of IP addresses and port numbers should be unique for each instance.

For further details, see [Multiple Instances of the FTP Server under "Managing."](#)

See [Parameters Related to Multiple Instances](#) for more details on parameters.

Access Restrictions

You can restrict FTP access at various levels through various types of access rights. The various levels at which FTP access can be restricted are: Host, Domain, Container and User. For each level the access rights that can be specified are: Allow (allows FTP access), Deny (denies FTP access), Readonly (gives read-only access), Guest (gives guest access to user), and Noremote (restricts access to remote server).

For a complete list of access rights and levels, see [Access Restrictions under "Managing."](#)

See [Parameters Related to Access Restrictions](#) for more details on parameters.

Intruder Log In Detection

The NetWare FTP Server lets you detect an intruder host or user who tries to log in using an invalid password. Users are marked as intruders when they try to log in with wrong passwords for more than a specified number of times. Similarly, a host is marked as an intruder when any user from that host tries to log in with a wrong password more than a specified number of times. The number of intruder user and host attempts allowed can be specified in the configuration file. Once a user is marked as an intruder, the user is not allowed to log in from a host for a certain period of time, which can also be specified in the configuration file. If a host is marked as intruder, no user from that host can log in for a certain period of time, which can also be specified in the configuration file.

For further details, see Configuring FTP Server Parameters under "Setting Up."

See Parameters Related to Intruder Detection for more details on parameters.

Remote Server Access

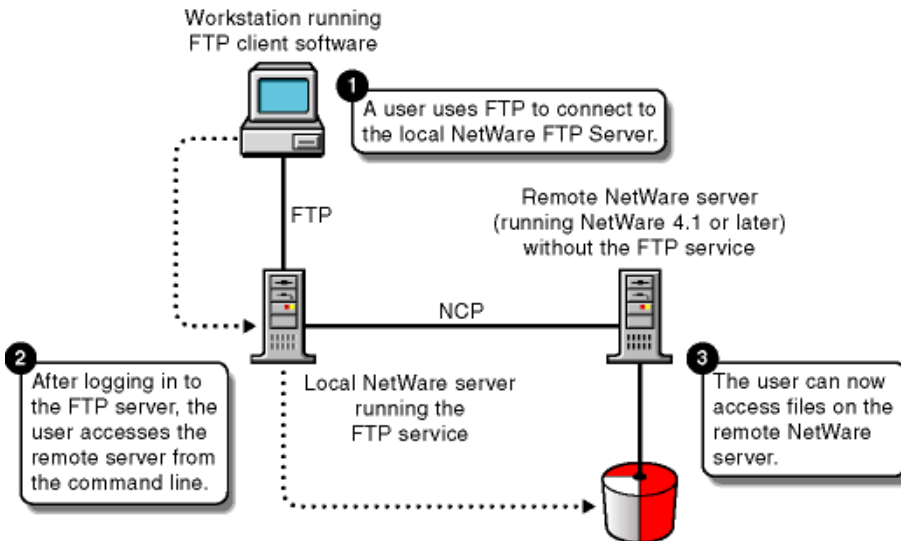
Using the Remote Server Access feature, FTP users can navigate and access files from other NetWare NDS servers in the same NDS tree and remote IBM* servers. The remote servers need not be running the NetWare FTP Server.

Remote NetWare NDS Servers

The NetWare FTP Server can run on any of the servers in the NDS tree, and you can browse through all the servers in the NDS tree and perform file operations specified by FTP.

Figure 1 shows how the NetWare FTP Server accesses remote NetWare servers

Figure 1 FTP Server Accessing Remote NetWare Servers



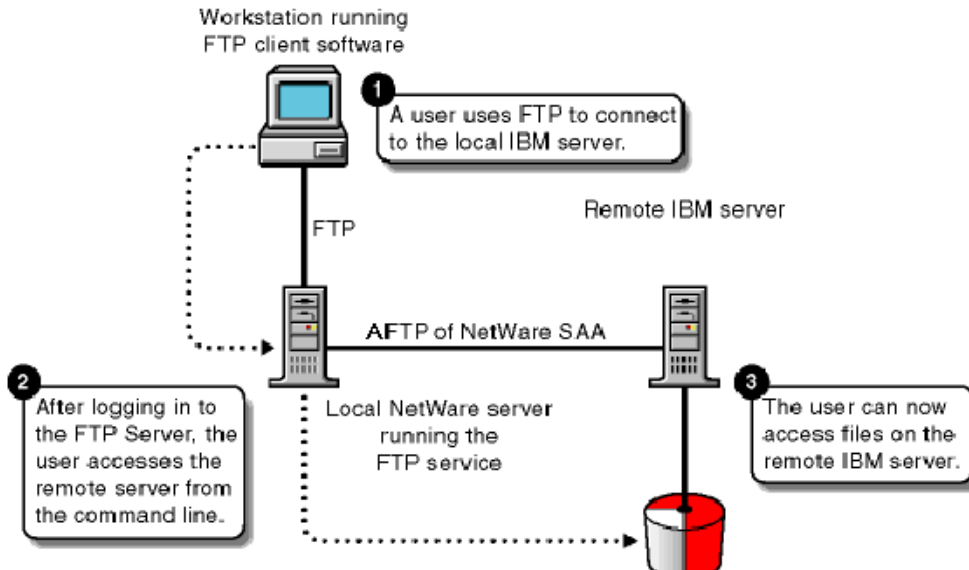
The NCP protocol allows you to navigate to and from remote NDS servers and transfer files.

Remote IBM® Server

The NetWare FTP Server can run on any of the servers in the NDS tree and the user can browse through all the remote IBM servers and perform file operations specified by FTP.

Figure 2 shows how the NetWare FTP Server accesses the IBM server.

Figure 2 FTP Server Accessing the IBM Server



The NetWare FTP Server uses the AFTP Gateway component of NetWare-SAA to access remote IBM servers.

In order to navigate between IBM servers, it is assumed that users will have the same username and password in all the IBM servers.

For further details, see Remote Server Access under "Managing."

See Parameters Related to Logging In an NDS Tree for more details on parameters.

Anonymous User Access

The FTP Server provides a command line option to setup the Anonymous user. This NetWare user account can be used for general FTP transfer. Administrators can choose to enable or disable the Anonymous access. The home directory for the anonymous or guest user can be specified in the configuration file.

FTP users can log in as Anonymous and perform file operations. The FTP Server can be configured to accept users' e-mail addresses as passwords.

For further details, see *Anonymous User Access* under "Managing."

See *Parameters Related to Anonymous User Access* for more details on parameters.

Special Quote Site Commands

The NetWare FTP Server provides a set of Special Quote Site commands which are specific to NetWare. These commands can be used to change or view some of the NetWare server specific parameters such as client name space, server in the NDS tree, and so on.

For list of commands, see *Special Quote Site Commands* under "Managing."

Firewall Support

The FTP Server opens a data connection with a FTP client during transfer of data. When the FTP client is behind a firewall the FTP server cannot connect to the FTP client so the NetWare FTP Server supports passive mode data transfer and also allows for configuring a range of passive data ports.

See *Parameters Related to Firewall Support* for more details on parameters.

Active Sessions Display

Active Sessions Display provides details of all the active FTP instances at a particular time. The active instances and session details can be viewed from any browser. The information provided includes a list of all instances, details of each instance, all sessions in an instance, and all details of each session.

For further details, see *Active Sessions Display* under "Managing."

Name Space Support

The NetWare FTP Server can operate in both DOS and LONG name spaces. The FTP Server starts with a specified default name space. However, the FTP user can also dynamically change the name space, using one of the Quote Site commands.

If a NetWare volume does not support the LONG name space, the FTP Server enters the DOS name space on its own. When it comes across a volume which supports the LONG name space, it changes the name space.

For further details, see Special Quote Site Commands under "Managing."

Simple Network Management Protocol Error Reporting Service

Simple Network Management Protocol (SNMP) traps are issued when

- ◆ An FTP log in request comes from an intruder host
- ◆ A log in request comes from a node address restricted through NDS

The messages can be seen on the management console.

FTP Logs

The FTP service maintains a log of various activities of FTP Server through the following log files:

- ◆ **FTP Audit:** The FTP Audit log file maintains information on FTP sessions and activities. Information such as log in, log out, and files operated are logged in this file.
- ◆ **Intruder:** The Intruder log file maintains the details of unsuccessful log in attempts.
- ◆ **Status:** Details of all active sessions such as the number of users logged in and out, the number of failures during data transfer and so on are maintained in the Status log file.
- ◆ **System:** All the system error messages and FTP Server related messages (other than the messages related to sessions) are logged in this file.

The names of these files can be specified in the configuration file. For the formats of the above files see FTP Log Files under "Managing."

See Parameters Related to FTP Logs for more details on parameters.

Contextless Log In

Typically, while logging in, FTP users need to provide the full context of where they exist. The FTP Server eliminates this need by using NetWare Catalog Services. The FTP Server can be configured to use the Catalog Services so that when users log in the FTP Server will automatically use the current context.

For installation of Catalog Services, see *Configuring Contextless Log In* under "Setting Up."

See *Parameter Related to Contextless Log In* for more details on parameters.

Welcome Banner and Message File Support

The NetWare FTP Server displays the following files to the user:

- ♦ A welcome banner when an FTP client establishes a connection.
- ♦ A message file when the user changes the directory in which the file exists. This file can be used to list the contents of the directory.

The paths for these files can be specified in the configuration file.

See *Parameters Related to Welcome Banner and Message Files* for more details on parameters.

2

Setting Up

In this section the following is discussed:

- ◆ Configuring FTP Server Parameters
- ◆ Configuring Contextless Log In

Configuring FTP Server Parameters

Before you start the NetWare[®] FTP Server, you should configure it by defining the configuration parameters in the configuration file. The default configuration file is `SYS:/ETC/FTPSERV.CFG`. See *FTP Server Start-Up* under "Managing" for details on starting the NetWare FTP Server. When the NetWare FTP Server is started, the IP address of the host (`HOST_IP_ADDR`) and the port number of the NetWare FTP Server (`FTP_PORT`), as defined in the configuration file, are used to bind to and listen for FTP client connection requests. If these parameters are not defined in the configuration file, the FTP Server binds to all configured network interfaces and the standard FTP ports.

Multiple instances of the NetWare FTP Server can run on a single machine with different IP addresses and port numbers. The various parameters in the configuration file along with the default values are described below:

Parameters Related to Multiple Instances

Parameter	Default Value	Description
<code>HOST_IP_ADDR</code>	All network interfaces	The IP address of the host on which the FTP Server is being loaded

Parameter	Default Value	Description
FTP_PORT	Standard FTP port: 21	The port number to which the FTP Server should bind to and listen for connection requests

Parameters Related to FTP Session

Parameter	Default Value	Description
MAX_FTP_SESSIONS	30	Maximum number of FTP sessions that can be active at one point in time
IDLE_SESSION_TIMEOUT	600 seconds	Duration in seconds for which any session can remain idle. The session will never time out if the value is set as negative.

Parameters Related to Anonymous User Access

Parameter	Default Value	Description
ANONYMOUS_ACCESS	No	Used to specify whether anonymous user access is allowed. Valid values are Yes or No.
ANONYMOUS_HOME	SYS:/PUBLIC	The anonymous user's home directory.
ANONYMOUS_PASSWORD_REQUIRED	Yes	Specifies whether to ask for e-mail ID as the password for anonymous guests to log in. Valid values are Yes or No.

Parameters Related to Access Restrictions

Parameter	Default Value	Description
RESTRICT_FILE	SYS:/ETC/FTPREST.TXT	The FTP Server can define access restrictions to various levels of users, hosts, and so on. These restrictions are defined in a file. The path of this file can be specified here.

Parameters Related to Logging In an NDS Tree

Parameter	Default Value	Description
DEFAULT_USER_HOME	SYS:/PUBLIC	The default home directory of the user.
IGNORE_REMOTE_HOME	No	Specifies whether to ignore the home directory, if it is on a remote server, and go to the default directory. Valid values are Yes or No.
IGNORE_HOME_DIR	No	Specifies whether to ignore the home directory and go to the default directory. Valid values are Yes or No.

Parameters Related to Intruder Detection

Parameter	Default Value	Description
DEFAULT_NS	LONG	The default name space.
INTRUDER_HOST_ ATTEMPTS	20	The number of unsuccessful log in attempts for intruder host detection. At value 0, intruder host log in detection is disabled.

Parameter	Default Value	Description
INTRUDER_USER_ATTEMPTS	5	Number of unsuccessful log in attempts for intruder user detection. At value 0, intruder user log in detection is disabled.
HOST_RESET_TIME	10	Time interval in minutes during which the intruder host is not allowed to log in.
USER_RESET_TIME	5	Time interval in minutes during which the intruder user is not allowed to log in.

Parameters Related to Firewall Support

Parameter	Default Value	Description
PASSIVE_PORT_MIN	1	Minimum port number used for establishing passive data connection.
PASSIVE_PORT_MAX	65534	Maximum port number used for establishing passive data connection. The port value is 1-65534. The minimum value should always be less than or equal to the maximum value.

Parameters Related to Welcome Banner and Message Files

Parameters	Default Value	Description
WELCOME_BANNER	SYS:/ETC/WELCOME.TXT	When the FTP client establishes a connection, the contents of this file will be displayed. For this, the file of that name should exist in the directory.

Parameters	Default Value	Description
MESSAGE_FILE	MESSAGE.TXT	When the user changes the directory, the contents of this file will be displayed. For this, the file with that name should exist in the directory.

Parameter Related to Contextless Log In

Parameter	Default Value	Description
FTP_CATALOG_NAME	FTPCAT	The object name for the FTP catalog for contextless log in.

Parameters Related to FTP Logs

Parameter	Default Value	Description
FTP_LOG_DIR	SYS:/ETC	The directory in which log files will be stored.
LOG_LEVEL	7	Indicates the log level. These are: L_ERROR 1 L_WARNING 2 L_INFO 3 The log levels indicate bits for which any combination can be given. For example, if LOG_LEVEL is 3, then error messages and warning messages will be logged.
FTPD_LOG	FTPD	The file contains all the internal system related information encountered by the FTP Server.
AUDIT_LOG	FTP_AUDIT	The file has details about the log in activities of the user.

Parameter	Default Value	Description
INTRUDER_LOG	FTPINTR	The file provides information about unsuccessful login attempts.
STAT_LOG	FTPSTAT	The details of all active sessions are maintained in this file.

Configuring Contextless Log In

NDS[®] Catalog Services can be installed through the NetWare 5.0 or NetWare 5.1 server installation. To enable Contextless Log In to function, you must install NDS Catalog Services and create a Contextless Log In Catalog.

If you have administrative rights you can install Catalog Services by logging in to the target tree and following these steps:

- 1** Install NDS Catalog Services with the NetWare 5 or NetWare 5.1 installation.
- 2** Select to install all except the NDS Catalog Services SDK.
- 3** During the Catalog Services setup, select a tree and server and copy the dredger (DSCAT.NLM) to them.
IMPORTANT: The install program modifies the server AUTOEXEC.NCF to automatically load DSCAT.NLM. After installation, if you want to edit this file, load it manually and edit it.
- 4** From the Start Menu, run the NetWare Administration Utility program such as Z:\PUBLIC\WIN95\NWADMIN95.EXE.
- 5** To create the Catalog Object, type
NDSCat:Master Catalog
and name it FTPCAT.
- 6** Save it in the default context on the server.
- 7** Select the catalog object just created and define the following additional attributes.

See Identification Page, Filter Page, Attributes/Indexes Page, and Schedule Page for more information.

Identification Page

To create the Identification Page

- 1 Select the Browse button to the right of the Host Server field.
- 2 Select the host server.
- 3 Click Security Equals > select the Admin user.

Filter Page

- 1 From the Filter Page type,
`"Object Class" = "User"`
IMPORTANT: Include the quotation marks in the command.
- 2 Select the Search Subtree.
- 3 Leave the Context Limits field blank or designate the context limiting container.

This will be the starting point for the dredger to fill the catalog with users. In other words, only users in this container and below will be added to the FTPCAT database. (If this field is blank, the entire tree will be cataloged from the [root] container down.)

Attributes/Indexes Page

From the Attributes/Indexes Page

- 1 Select the Selected Attributes > click on Select Attributes.
- 2 Select CN from the available list > click Add OK.
- 3 Click Select Indexes.
- 4 Select CN from available > click Add OK.

Schedule Page

- 1 From the Schedule Page, select Manual.
IMPORTANT: If you add more users to your tree, you'll need to update the catalog as well.
- 2 Click OK to save all your changes.
- 3 Right-click Root or the container used in the Filter Page > select Trustees of This Object
- 4 Click Add Trustee.

- 5** Locate the catalog FTPCAT created and add it as a trustee.
- 6** FTPCAT should now appear in the Trustees list for this container.

Verify that Browse is enabled under Object rights. Also verify that Compare and Read are enabled under Property rights. This gives the catalog object rights to the container in order to read objects and populate the catalog.
- 7** Click OK to save your changes.
- 8** Right-click Trustees of This Object
- 9** Click Add Trustee.
- 10** Select [Public] under the Available objects listing > select OK.

[Public] should now appear in the Trustees list for the catalog FTPCAT. Verify that Browse is enabled under Object rights. Also verify that Compare and Read are enabled under Property rights. This gives FTP Server the ability to open and read a catalog using [public] rights. This is necessary because the user is not currently authenticated to the tree.
- 11** Click OK to save changes.
- 12** Go to the server and load DSCAT.NLM or verify that it is loaded
- 13** Return to the workstation and run the Administration tool again.
- 14** Select the catalog object.
- 15** Open the Schedule page and select Update Now (unless you are using automatic updating).
- 16** Return to the server and wait for a successful dredge of the catalog.

After the line that says FTPCAT dredge is complete appears, unload the DSCAT.NLM if you wish.
- 17** Return to the Administration tool and verify that the catalog has data by re-selecting the FTPCAT object.
- 18** Select the summary page and verify the dates and times.
- 19** Click Query and query the catalog. You should only see a listing of distinguished names for all users currently defined in the database (tree).
- 20** Exit the Administration tool.

IMPORTANT: Before starting the FTP Server, the DSCQRY32.NLM must be loaded on the server. This is the NLM which provides the Catalog Services APIs required for querying the catalog.

3

Managing

In this section the following are discussed:

- ◆ FTP Server Start-Up
- ◆ Using the FTP Server from an FTP Client
- ◆ Administering the NetWare FTP Server

FTP Server Start-Up

The FTP Server can be loaded from the NetWare[®] server using the following command:

```
nwftpd
```

The server takes the default configuration file `SYS:/ETC/FTPSERV.CFG`. On installation, this configuration file has all the parameters, commented, with their default values.

To start the NetWare FTP Server with a different configuration file (for example: `MYCONFIG.CFG`), place the file in `SYS:/ETC` directory and use the following command line options:

```
nwftpd -c myconfig.cfg
```

For Creating Anonymous User

For creating an anonymous user, type the following command:

```
nwftpd -a [-c Configfile]
```

The server takes the anonymous user home directory from the configuration file and displays it on the screen with the option to modify the directory.

Active Sessions Display Start Up

To load the Active Sessions Display Utility, type the following command:

```
ftpstat [-p <port number>]
```

The server takes a port number to which the HTTP browser should connect to view the NetWare FTP active sessions. The default port is 2500.

Using the FTP Server from an FTP Client

This section describes the use of an FTP Server from an FTP client. It discusses the following:

- ◆ Starting an FTP Session
- ◆ Paths Formats
- ◆ Remote Server Access
- ◆ Special Quote Site Commands
- ◆ Name Space and Filenames

Starting an FTP Session

Users can start the FTP session from a workstation running FTP client software using the following command:

```
ftp hostname
```

where *hostname* is the name of the server in the DNS or IP address of the NetWare server running the FTP service. The FTP Server then prompts the user for a username and password.

The following are the session-based details and are not tied to individual user logins: bytes sent, bytes received, session duration, files sent, files received, and current NDS context.

See Parameters Related to FTP Session for more details on parameters.

Logging in to the NDS Tree

An NDS user can log in to the FTP Server either by specifying the user name with full context or with a context relative to the default context (which is the context of the NetWare server where FTP is running). If the context is not

specified, the FTP Server searches for the user only in the current session context.

If the Catalog Services is enabled, then the user doesn't need to specify the context. If multiple users exist with the same name in different contexts, the full distinguished name of the user needs to be specified. The context is set to the user's context after logging in.

If a user with an expired NDS password attempts to log in to the FTP Server, a message stating that the password has expired is returned after the user logs in. Logging in with an expired password uses the grace logins. If all the grace logins of the user expire, the user cannot log in and receives an error message.

After the user logs in, the FTP Server places the user in the user's NDS home directory (if defined) and attaches the user to the server where the home directory resides.

If the NDS home directory is not defined or cannot be located, the FTP Server places the user in the default user home directory specified in the configuration file.

A user is placed in the default user home directory under the following conditions:

- ◆ If `IGNORE_DIR_HOME` is set to yes.
- ◆ If `IGNORE_REMOTE_HOME` is set to yes and the user's home directory is on a remote server.

Logging in to an IBM Server

To log in to a remote IBM server, the user should have a user account in that server. To log in to the IBM server from FTP client, the user should start an FTP session using `FTPHost` and should give the username in the following format:

@IBMservername.username

To log in to IBM server from the browser, the following format should be used:

ftp://+IBMserver+username:password@FTPHost

For logging in as anonymous user, the user name and password can be omitted,

ftp://+IBMservername@FtpHost

After logging in to the IBM server, the user is placed in the home directory in that IBM server.

While logging in to IBM server, the user is not authenticated to the NDS tree. So, navigation between IBM servers and NDS servers is not possible.

Remote Server Access

The double slash (//) indicates that the user wants to access a remote server. The name of the remote server must be the first entry after the double slash.

Navigating to NDS Servers

After logging in to the NDS tree, users can access files and directories on a remote NetWare server that may not be running the FTP service.

To navigate to remote servers, type:

```
cd//remote_server_name/volume/directory_pathname
```

File operations such as get, put, and delete can be used on the remote server, even without changing directory path to that server. For example:

```
get //remote_server_name/volume/directory_path/file_name
```

If the current directory is on a remote server and the remote server goes down, the user is placed in the home directory in the home server. While switching back to the home server, if the home server is not available, the user is placed in the default user home directory.

Navigation to IBM servers

The IBM server to which the user logs in first will be considered the home server. Once logged in to an IBM server, the user can navigate to other remote IBM servers which identify the user with the same username and password.

To navigate to remote servers the following format should be used:

```
cd //@IBM server name/path
```

File operations such as get, put, and delete can be done only when the user is currently in that server.

If the current directory is on a remote server and the server goes down, the user is placed in the home directory in the home server. While switching back to the home server, if the home server is not available, the remote server is made the home server. If the current directory is in the home server and the server goes down, the user is logged out.

Paths Formats

The volume and directory path name must be specified in following format:

```
//server_name/volume_name/directory_path
```

To navigate to different volumes, type:

```
cd /volume_name
```

To switch back to home directory, type:

```
cd ~
```

To switch to home directory of any user, type:

```
cd ~user_name
```

Special Quote Site Commands

The SITE command enables FTP clients to access features specific to the NetWare FTP Server.

The SITE command has the following syntax:

```
QUOTE SITE [SLIST | SERVER | HELP | CX {CONTEXT} | LONG |  
            DOS | OU]
```

These commands are unique to the NetWare FTP service and are not standard FTP commands.

A list of quote site commands and their descriptions are given below:

Command	Description
SLIST	Lists all the servers within the NDS tree
SERVER	Lists all the servers in the NDS tree relative to the current context
HELP	Displays the help file related to the quote site commands
CX	Changes the current context to the specified context
OU	Shows all the organizational units relative to the current context

Command	Description
LONG	Changes the configured namespace to the LONG name space
DOS	Changes to the configured name space to the DOS name space.

The parameters are defined as follows:

- ◆ HELP displays a description of and the syntax for all site commands.
- ◆ The CX parameter enables the user to browse the NDS tree for servers or OUs.
- ◆ CX with a context as an argument sets the current NDS context to a given value. For example:
 - cx ou=test sets the context to the OU test using the relative context
 - cx.ou=test.o=acme sets the context to the OU test using the absolute context
- ◆ CX without a context displays the current context of the FTP client.
- ◆ CX with the argument ~ resets the context back to user's context.
- ◆ DOS changes the configured name space to the DOS name space. All NetWare volumes support the DOS name space.
- ◆ OU enables users to display the NDS organizations (containers) below the current NDS context.
- ◆ SERVER displays all NetWare servers in the current NDS context and its sub-OUs.
 - For example, SITE SERVER displays all NetWare servers in the current context.
- ◆ SLIST displays NetWare servers in the whole of the NDS tree.

Name Space and Filenames

FTP Server supports DOS and LONG name space. The default name space is configured in the configuration file. FTP users can also change it dynamically using the QUOTE SITE DOS command or the QUOTE SITE LONG command.

The default configured name space is LONG.

When the user changes the name space, the change affects only those volumes that support the specified name space. If the LONG name space is not supported on a specific volume, users must follow the DOS file naming conventions of using no more than eight characters for the name plus no more than three additional characters for the suffix following the period.

In both name spaces, the user views the response to the ls or Dir in the NetWare format only. Format of the directory listing is as follows:

type rights owner size time name

where the above variables stand for:

- ◆ Type: Type of file, where {-} indicates a file and {d} indicates a directory
- ◆ Rights: Effective NetWare rights of the user to this file or directory.
- ◆ Owner: NetWare user who created this file or directory. In case the mapping of objects and the owner's name is not found, the object ID is displayed.
- ◆ Size: The size, in bytes, of the file or directory. In case of a directory, it is always 512.
- ◆ Time: The modification date and time of the file or directory.
- ◆ Name: The name of the file or directory in the current name space.

Administering the NetWare FTP Server

This section discusses the administration of the following:

- ◆ Multiple Instances of the FTP Server
- ◆ Intruder Detection
- ◆ Access Restrictions
- ◆ Anonymous User Access
- ◆ FTP Log Files
- ◆ Active Sessions Display

Multiple Instances of the FTP Server

Multiple instances of the FTP Server can be initialized if the NetWare Server has multiple network interface cards. Each FTP Server should have a unique IP address and port number combination. Each FTP Server instance can have its own configuration file, access restrictions file, and can listen on different IP addresses and port numbers.

The IP address of the host (HOST_IP_ADDR) and the port number (FTP_PORT) as defined in the configuration file are used to bind to and listen for FTP client connection requests. The configuration file can be specified while starting the FTP Server. If these parameters are not defined in the configuration file, the default IP address and the standard FTP port number are used.

See Parameters Related to Multiple Instances for more details on parameters.

Intruder Detection

A user is considered an intruder when the number of unsuccessful log in attempts is more than those specified in the configuration file (INTRUDER_USER_ATTEMPTS). Similarly, a host/client machine is considered as intruder when the number of consecutive log in failures for any user, from that host, is higher than the configured limit (INTRUDER_HOST_ATTEMPTS).

If a successful log in is encountered before the given limit, the count of log in failures is reset to zero.

When a user becomes an intruder, his account is locked out for an interval of time specified in the configuration file (USER_RESET_TIME).

When a host becomes an intruder, access to the FTP Server is denied for that host machine for an interval of time specified in the configuration file (HOST_RESET_TIME).

See Parameters Related to Intruder Detection for more details on parameters.

Access Restrictions

The FTP service enables you to specify access restrictions for a user, a client host, and the IP address of a client host. The access restrictions can be specified in the restrictions file, which can be configured (RESTRICT_FILE). Access restrictions can be specified at various levels and multiple access rights are allowed.

The levels of supported access restrictions include the following:

- ◆ Container level: Restriction can be specified for any NDS container. This will control all the users in that container and its sub-OUs.

**.container name*

The asterik (*) indicates the container level restriction. The container should be a fully distinguished name.

- ◆ User Level: The restriction can be specified for a particular user.

.user name

The period (.) indicates user level restriction. The user name should be a fully distinguished name.

- ◆ Domain Level: The restriction can be specified at the domain level. This will control all the hosts in that domain and its sub domains. The following is the RESTRICT file format:

DOMAIN= domain name

The DOMAIN= key word indicates the domain level restriction.

- ◆ Host Level: The restriction can be specified for a particular host machine.

ADDRESS= host name/IP address

The ADDRESS= key word indicates the host level restriction. The host name or IP address of the host can be specified.

The DNS configuration should be proper for address and domain name restrictions.

The access rights permitted include the following:

- ◆ DENY: Denies access to the FTP Server for that client.
- ◆ READONLY: Gives read-only access to the client.
- ◆ NOREMOTE: Restricts access to remote server navigation.
- ◆ GUEST: Gives only Guest access to the user. guest users are those users who cannot navigate to remote servers. A guest user has access only within the guest user's home directory and subdirectories.
- ◆ ALLOW: Gives normal FTP access without restriction.

Key words

The ADDRESS= key word should be used to restrict a particular node. The IP address or machine name can be used.

The DOMAIN= key word should be used to restrict a particular Domain.

The asterisk (*) should be used for container level restrictions.

The ACCESS= key word is mandatory for each line. It should be followed by access rights.

NOTE: The ACCESS= key word should precede the rights and is mandatory in every line. The access rights can be separated by a comma (,) and are taken according to the order in which they appear in the RESTRICT file.

The format and organization of the restrict file is as follows:

- ◆ Each line should have one entity name and corresponding access rights.
- ◆ The rights of the entities will be assigned according to the order of the RESTRICT file. If different rights apply to the same entity, the latest entities that appear in the RESTRICT file will be taken.
- ◆ All rights specified in the same line will be applied to that entity.
- ◆ If the RESTRICT file does not exist or is empty, the access is given to all users without any restrictions.

Example 1

```
*.novell                ACCESS=ALLOW
*.testou.novell        ACCESS=DENY
.user1.testou.novell   ACCESS=READONLY
```

User1 at testou will be allowed read-only rights. The other users at testou.novell will be denied the right. However, all other OUs at .novell will be allowed.

Example 2

```
*.testou.novell        ACCESS=DENY
*.novell                ACCESS=ALLOW
```

All OUs at .novell will be allowed because both rights apply to testou and the later would be taken.

Example 3

```
ADDRESS=Clientmachine1.blr.novell.com ACCESS=NOREMOTE
```

```
.user1.novell ACCESS=READONLY
```

The user1 logging from clientmachine1 will have read-only and no remote access.

See Parameters Related to Access Restrictions for more details on parameters.

Anonymous User Access

The FTP server supports an anonymous user account. This account provides people with access to public files. Access to the anonymous users account can be enabled or disabled by setting the ANONYMOUS_ACCESS parameter in the configuration file. By default, the parameter is set to No. The path of the anonymous user's home directory can be specified in the configuration file, in the ANONYMOUS_HOME directory parameter.

An anonymous user account can be initialized by loading the FTP Server with the -a option. This creates the anonymous user, creates the home directory (if it is not available), and adds access rights to the anonymous user. The administrator name and password are then taken from the screen and the anonymous user is created in the NDS tree at the default context. Also, the configured anonymous home directory is displayed on the screen with an option to modify it.

If the administrator does not specify a home directory then the default directory is taken. The anonymous user will have only read and file scan rights to the default directory. If the administrator specifies the anonymous home directory then the directory is created and the anonymous user will have read, file scan, create, delete, and modify rights to that directory.

See Parameters Related to Anonymous User Access for details on parameters.

FTP Log Files

The FTP log file records information about various activities of the FTP Server.

The FTP Server has four log files for logging different informations. All the log files are created in the FTP_LOG_DIR directory specified in the configuration file. The amount and type of information is controlled by the LOG_LEVEL parameter defined in the configuration file.

The log levels supported are:

- ◆ L_ERROR 1
- ◆ L_WARNING 2

- ◆ L_INFO 4

If the log level is 3, then error messages and warning messages will be logged. At default log level of 7, all messages will be logged.

Audit Log File

The Audit log has details about the log in and activities of the user. The default path for this file is `SYS:/ETC/FTP_AUDIT.LOG`. The file has entry for login, logout and other file system related operations like `mkdir`, `rmdir`, `put`, `set`, `delete`, and so on.

The general Audit log format is:

Log level: Thread ID: Date Time: IPaddress: Username: servername optional: message.

Statistics Log File

Details of all active sessions such as number of users logged in/out, number of failures during data transfer and so on are maintained in the status log file. The default path for this file is `SYS:/ETC/FTP_STAT.LOG`.

The statistics log file maintains three record types, each of which is separated by a comma. The record types are:

- ◆ TRANSFER: Contains information related to the data transfer
- ◆ USER: Contains information related to users logged in/out
- ◆ FAILURE: Contains information about the number of failures during data transfer

Intruder Log File

The Intruder log file provides information about unsuccessful login attempts. The default path of the intruder log file is `SYS:/ETC/FTP_INTR.LOG`. The following information is recorded in the file:

- ◆ The address of the machine where the login originated
- ◆ The time of the attempted access
- ◆ The login name of the user

Using this information, you can determine which machine the unauthorized user is using. You can also determine the number of times a specific unauthorized user has attempted to access the system.

The general Intruder log format is:

```
ErrorLevel: Date Time: Client IPaddress: UserName:  
message
```

If intruder host attempts = 0 then intruder detection is disabled.

System Log File

The System log file contains all the internal system related information encountered by the FTP Server.

The general System log file format is:

```
Error: Thread ID: Date Time: Message
```

See Parameters Related to FTP Logs for details on parameters.

Active Sessions Display

To load the Active Sessions Display Utility, type

```
ftpstat [-p port number]
```

You can enter the port number to which the HTTP browser should connect to view the NetWare FTP Active Sessions. The default port is 2500.

Use,

```
http://servername: port/
```

from the browser to see the active session details.

A

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