

NDS Object Administration

NDS™ 7

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NDS Object Administration

Most NDS management tasks involve the managing of NDS™ "objects," which represent the user accounts and network resources available to them. Such resources include applications, printers, files, and directories. The tool you use to manage these objects is NetWare® Administrator, Novell's graphical administration utility.

1

Basic Tasks

NetWare® Administrator, Novell's graphical management utility, allows you to manage network login accounts and resources as objects in a tree structure. This section gives you the basics of object administration using NetWare Administrator.

Browsing Objects and Properties

Each browser window displays a single tree. Each tree lets you view the network object that are stored in a single Directory. You can open multiple browser windows to view multiple trees. You can expand, collapse, print, and adjust the scope of each view.

You can also open property pages to edit the properties of individual objects.

To Open a New Tree

- 1** From the Tools menu, choose NDS Browser.
- 2** In Tree, type or choose the tree you want, or choose the tree button to choose from the available trees.
- 3** In Context, type or choose the complete name of the container or Volume object that you want to place at the top of the view, or choose the browse button to choose from the available containers and volumes.
- 4** Choose OK.

To Open a Duplicate of the Current Browser Window

- 1** From the Window menu, choose New Window.

To Open Property Pages for an Object

- 1 Right-click the object, and then choose **Details**.

You can browse and edit the property pages if you have the necessary rights.

To Open a New Container or File System View

- 1 From the current browser window, right-click the container or Volume you want to view, and then choose **Browse**.

A new browser window appears with the selected container or Volume at the top.

To Adjust the Scope of a Browser Window

- 1 To adjust the scope of the current browser window up one level in the tree, press **Backspace**.
- 2 To set the top object in the current browser window, double-click the tree name in the status bar. Then, in **Context**, choose the object you want and choose **OK**.
- 3 To expand or collapse a container or Volume, double-click it.

To Print a Browser Window

- 1 Click the browser window you want to print.
- 2 From the **Object** menu, choose **Print**, and then choose **OK**.

In the **Print** dialog box, you can change the format, print quality, and print device used for the output. For details, choose **Help**.

Finding, Moving, and Renaming Objects

In the browser, you can move and rename objects. You can also search for objects based on specific property values.

To Jump to an Object in the Browser Window

- 1 Begin typing the object's name. Press **Enter** when the object appears.

To Search for Objects by Property

- 1** Choose the container you want to start the search from.
- 2** From the Object menu, choose Search.
- 3** Choose from the following options:

Search entire subtree

Search for

Property

Save

Open

- 4** Choose OK.

The matching objects are displayed in a new browser window. You can work in the new window just as you do in any browser window.

To Move Objects

- 1** Browse to the objects you want to move.
- 2** Browse to the destination container.

The destination can be in another browser window that contains the same tree or a different tree. You might need to tile the windows so that both the source and destination are visible.

- 3** Choose the objects you want to move.

To choose multiple items, hold down Ctrl or Shift while clicking.

- 4** Drag and drop the objects onto the destination container.
- 5** In the dialog box that appears, choose OK.

To Rename an Object

- 1** Choose the object.
- 2** From the Object menu, choose Rename.
- 3** In New Name, type a new name for the object.

Make sure you follow standard object naming conventions.

- 4** Choose from the following options:
 - Save Old Name
 - Create Alias in Place of Renamed Container
- 5** Choose OK.

Organizing Network Resources

To organize the administrative view of your network, you create containers, which include Country, Organization, and Organizational Unit objects. For guidelines on designing this view, see the table of contents.

You can also create Alias objects to provide access to the same object from several containers, and Computer objects to track extraneous network hardware.

To Create a Country Object

- 1** Right-click the root object in the tree, and then choose Create.
- 2** In Class of New Object, choose Country, and then choose OK.
- 3** In Country Name, type a name for the new object.
 - Make sure you follow the Country naming conventions.
- 4** Choose Create.

To Create an Organization Object

- 1** Right-click the Root or Country object where you want to create the Organization, and then choose Create.
- 2** In Class of new object, choose Organization, and then choose OK.
- 3** In Organization Name, type a name for the new object.
 - Make sure you follow standard object naming conventions.
- 4** Choose Create.

To Create an Organizational Unit Object

- 1** Right-click the Organization where you want to create the Organizational Unit, and then choose Create.
- 2** In Class of new object, choose Organizational Unit, and then choose OK.

- 3** In Organizational Unit Name, type a name for the new object.
Make sure you follow standard object naming conventions.
- 4** Choose Create.

To Create a Locality Object

- 1** Right-click the container where you want to create the Locality, and then choose Create.
- 2** Define how the Locality object is to be identified in its typeful name by clicking Locality (which appears as .L) or State or Province (which appears as .S).
- 3** Type a name for the new Locality object.
Make sure you follow standard object naming conventions.
- 4** Choose Create.

To Create an Alias Object

- 1** Right-click the container where you want to create the alias, and then choose Create.
- 2** In Class of New Object, choose Alias, and then choose OK.
- 3** In Alias name, type a name for the new object.
Make sure you follow standard object naming conventions.
- 4** Fill in Aliased object.
- 5** Choose Create.

To Create a Computer Object

- 1** Right-click the container where you want to create the Computer, and then choose Create.
- 2** In Class of New Object, choose Computer, and then choose OK.
- 3** In Computer name, type a name for the new object.
Make sure you follow standard object naming conventions.
- 4** Choose Create.

2

Setting Up User Accounts

NetWare's flexibility gives you a number of ways to create and manage user accounts, which appear as User objects in NetWare® Administrator. In addition to managing the User objects themselves, you can create login scripts that run when the user logs in.

Creating Template, User, and Profile Objects

If you need to set up several new users who share certain requirements in common, you can create Template and Profile objects to facilitate the task. Typically, you complete the creation tasks in the order listed below.

To set up a user whose requirements are entirely unique, you don't need a Template or Profile. Just create the User object.

To Create a Template Object

- 1** Right-click the container where you want to create the Template, and then choose Create.
- 2** In Class of New Object, choose Template, and then choose OK.
- 3** In Name, type a name for the new object.
Make sure you follow standard object naming conventions.
- 4** (Optional) To base the Template on an existing Template or User, check Use Template or User, and then choose the browse button to choose the Template or User.
- 5** Choose Create.

To Create a User Object

- 1** Right-click the container where you want to create the User, and then choose Create.
- 2** In Class of New Object, choose User, and then choose OK.
- 3** In Login Name, type a name for the new object.

This is the name the user will enter to log in. Make sure you follow standard object naming conventions.
- 4** In Last Name, type the user's last name.
- 5** (Optional) Choose from the following options:
 - Use template
 - Create home directory
 - Define additional properties
 - Create another user
- 6** Choose Create.

To Create a Profile Object

- 1** Right-click the container where you want to create the Profile, and then choose Create.
- 2** In Class of New Object, choose Profile, and then choose OK.
- 3** In Name, type a name for the new object.

Make sure you follow standard object naming conventions.
- 4** Choose Create.

Editing Multiple Users Simultaneously

Use this procedure if you need to edit properties for several users at the same time.

To Edit Properties of Multiple Users Simultaneously

- 1** Choose the User objects whose properties you want to edit.

To choose the Users, hold down Ctrl or Shift and click any combination of Users, containers, Groups, and Templates.

- 2** From the Object menu, choose Details on Multiple Users.

- 3** Edit the property pages.

For help with individual properties, choose Help.

- 4** (Optional) To modify the list of users to which your changes will be applied, choose User List, edit the list, and then choose OK.

- 5** To apply your changes, choose OK.

You are prompted to confirm the operation, and you are given the option to pause if errors occur during the operation. If you choose not to pause on errors, you can view and save any errors when the operation is done.

Setting Up Account Resources

Using a Template object, you can automate the setting up of the network environment for users, such as working directories and files. You can also set up accounting charges and balances if you need them. If you prefer, you can set up these resources manually, without using a Template.

To Set Up the Network Environment for a User

- 1** Choose a Template if you haven't created the User object yet. Otherwise, choose the User.

- 2** From the Object menu, choose Details, and then choose the Environment page.

- 3** Fill in the following fields:

Language

Default server

Home directory

- 4** Perform any other needed setup tasks, such as copying files to the home directory.

If you are using a Template:

- 4a** Check Run Setup and enter the commands to perform the tasks in Setup script.

- 4b** Choose OK.

- 4c** Create the user based on the Template.

If you aren't using a Template:

- 4d** Choose OK.

- 4e** Perform the needed tasks 'manually' (outside of NetWare Administrator).

To Set Up Accounting Charges on a Server

- 1** Right-click the NetWare Server object, choose Details, and then choose Accounting.

If you are prompted to install accounting, choose Yes. If you are prompted to remove accounting, choose No.

- 2** Choose the property page for the service that you want to charge for: Blocks Read, Blocks Written, Connect Time, Disk Storage, or Service Requests.

If you aren't sure what a particular service means, choose its property page and then choose Help.

- 3** Define the charge rates for the service.
- 4** Repeat Steps 2 and 3 for each service that you want to charge for, and then choose OK.

You should set up accounting on each server that you want the user to be charged for using.

To Set the Account Balance for a User

- 1** Choose a Template if you haven't created the User yet. Otherwise, choose the User.
- 2** From the Object menu, choose Details, and then choose the Account Balance page.
- 3** Fill in Account balance.

- 4** (Optional) To enforce a credit limit, uncheck Allow unlimited credit and fill in Low balance limit.
- 5** Choose OK.
If you used a Template, create the User based on the Template.

3

Controlling Access to Resources

One of the most important jobs of a network administrator is making sure users have access to the resources they need, but not to restricted-access resources. Such resources can include printers, files, servers, and any other resources represented by NDS objects.

Assigning Rights

Each time a user attempts to access a network resource, the system calculates the user's effective rights to that resource. To ensure that users have the appropriate effective rights to resources, you can make explicit trustee assignments, grant security equivalences, and filter inherited rights.

To Grant a User Rights to Objects

- 1 Right-click the User, Group, or Organizational Role object that you want to grant rights to, and then choose Rights to Other Objects.
- 2 Edit the list of rights assignments, and then choose OK.

To Grant a User Rights to Files and Directories

- 1 Right-click the User, Group, or Organizational Role object that you want to grant rights to, choose Details, and then choose the Rights to Files and Directories page.
- 2 Edit the list of rights assignments, and then choose OK.

To Grant a User Security Equivalence to Objects

- 1 Right-click the User that you want to grant security equivalences for, choose Details, and then choose the Security Equivalences page.
- 2 Use Add and Delete to edit the list of objects that the user has security equivalence to, and then choose OK.

To Assign Trustees for an Object

- 1 Right-click the object that you want to assign trustees for, and then choose Trustees of this Object.
- 2 Edit the list of trustees, and then choose OK.

To Assign Trustees for a File or Directory

- 1 Right-click the file or directory that you want to assign trustees for, choose Details, and then choose the Trustees of this File/Directory page.
- 2 Edit the list of trustees, and then choose OK.

To Block Inherited Rights to an Object

- 1 Right-click the object that you want to block rights to, choose Trustees of this Object, and then choose Inherited Rights Filter.
- 2 Uncheck the check boxes for the rights that you want blocked, and then choose OK.

To Block Inherited Rights to a File or Directory

- 1 Right-click the file or directory that you want to block rights to, choose Details, and then choose the Trustees of this File/Directory page.
- 2 Under Inheritance filter, uncheck the check boxes for the rights that you want blocked, and then choose OK.

Creating Group and Organizational Role Objects

To simplify the assignment of rights, you can create Group and Organizational Role objects, and then assign users to the groups and roles.

To Create a Group Object

- 1** Right-click the container where you want to create the Group, and then choose Create.
- 2** In Class of New Object, choose Group, and then choose OK.
- 3** In Group Name, type a name for the new object.
Make sure you follow standard object naming conventions.
- 4** Check Define Additional Properties, and then choose Create.
- 5** On the Members page, add the users that you want to be members of the group, and then choose OK.
- 6** Assign the rights that you want the group to have.

To Create an Organizational Role Object

- 1** Right-click the container where you want to create the Organizational Role, and then choose Create.
- 2** In Class of New Object, choose Organizational Role, and then choose OK.
- 3** In Organizational Role Name, type a name for the new object.
Make sure you follow standard object naming conventions.
- 4** Check Define Additional Properties, and then choose Create.
- 5** On the Identification page, in Occupant, add the complete names of the users who you want to be occupants of the role, and then choose OK.
- 6** Assign the name that you want the organizational role to have.

File System Rights

To explicitly grant a right, check the corresponding check box. Note that unchecking a check box doesn't effectively deny the right if the right is obtained by some other means, such as security equivalence or inheritance. If a check box is unavailable, you don't have rights to set the right.

Implementing Login Security

Login security is not provided by default. You can set up several optional login security measures, including login passwords, login location and time restrictions, limits on concurrent login sessions, intruder detection, and login disabling.

To Set Up Login Security for a User

- 1 Right-click the User object, and then choose Details.
- 2 (Optional) On the Login Restrictions page, limit the number of login sessions the user can have open at a time.
- 3 (Optional) On the Password Restrictions page, choose the password security features you want.
- 4 (Optional) On the Login Time Restrictions page, restrict the times of the day when the user can be logged in.
- 5 (Optional) On the Network Address Restrictions page, restrict the locations (network addresses) the user can log in from.
- 6 Choose OK.

To Set Up Intruder Detection for the Users in a Container

- 1 Right-click the container, and then choose Details.
- 2 Fill in the Intruder Detection page, and then choose OK.

To Disable or Enable a User Account

- 1 Right-click the User, choose Details, and then choose the Login Restrictions page.
- 2 Check or uncheck Account Disabled, and then choose OK.

Property Rights

Specific Properties Displayed for Container Objects

When administering specific property rights to a container object, all specific property rights are listed, even if those rights do not apply to the selected container object class. The rights that apply to that class are shown with an arrow, while the rights that might apply to subordinate objects (but not the selected container) have no arrow.

Setting Up Role-Based Administration

If you want have managers over such NDS information as passwords, information fields, login security, accounting, or any other specific properties, you can give those managers rights to those specific properties. If you apply those rights at a container level, the rights can be inheritable to an entire branch of the NDS tree.

This feature is available only with versions of NDS that ship with NetWare 5 or later.

To Set Up an Administrator over Specific NDS Properties

- 1** If necessary, create a User, Group, Organizational Role, Alias, or container object that you want to be a trustee over the specific properties.

If you create a container as trustee, all objects below that container in the tree will have the rights you grant.

- 2** Drag the object that represents the desired manager onto the highest-level container that you want the role-based administrator to manage.
- 3** Under Property Rights, click Selected Properties.
- 4** Scroll to the specific property rights you want to grant.

Normally you select multiple properties for a given role. For instance, to allow administration of passwords, you can select any or all of the following specific properties (using Ctrl-click):

- ♦ Account Reset Time
- ♦ all the 'Allow...' properties
- ♦ Date Password Expires
- ♦ Days Between Forced Password Changes
- ♦ Grace Logins Allowed
- ♦ Incorrect Login Attempts
- ♦ Last Intruder Address
- ♦ Minimum Password Length
- ♦ Password Management
- ♦ Remaining Grace Logins

- ♦ Require A Password
 - ♦ Require Unique Passwords
- 5 Click the Inheritable check box if you want the assignment to apply to the entire tree beneath the target container.
 - 6 Click OK.

Calculating Effective Rights

Each time a user attempts to access a network resource, the system calculates that user's effective rights to the target resource.

- ♦ If the target resource is an NDS* object, NDS does the calculation.
- ♦ If the target resource is a file or directory on a NetWare* volume, the NetWare file system does the calculation.

Calculation Process

To calculate a user's effective rights, the system uses the following process:

NOTE: This is the logical process, not the exact implementation.

1. List the trustees whose rights are to be considered in the calculation.
These include
 - ♦ The user who is attempting to access the target resource
 - ♦ The objects that the user is security equivalent to
2. For each trustee in the list, determine its effective rights as follows:
 - a. Start with the inheritable rights that the trustee has at the root of the tree.

Check the Object Trustees (ACL) property of the [Root] object for entries that list the trustee. If any are found and they are inheritable, use the rights specified in those entries as the initial set of effective rights for the trustee.
 - b. Move down a level in the branch of the tree that contains the target resource.
 - c. Remove any rights that are filtered at this level.

Check the ACL at this level for Inherited Rights Filters (IRFs) that match with the right types (object, all properties, or a specific property) of the trustee's effective rights. If any are found, remove

from the trustee's effective rights any rights that are blocked by those IRFs.

For example, if the trustee's effective rights so far include an assignment of Write all properties but an IRF at this level blocks Write all properties, the system removes Write all properties from the trustee's effective rights.

- d. Add any inheritable rights that are assigned at this level, overriding as needed.

Check the ACL at this level for entries that list the trustee. If any are found and they are inheritable, copy the rights from those entries to the trustee's effective rights, overriding as needed.

For example, if the trustee's effective rights so far include the Create and Delete object rights but no property rights, and if the ACL at this level contains both an assignment of zero object rights and an assignment of Write all properties for this trustee, then the system replaces the trustee's existing object rights (Create and Delete) with zero rights and adds the new all property rights.

- e. Repeat the filtering and adding steps (c and d above) at each level of the tree, including at the target resource.
- f. Add any noninheritable rights assigned at the target resource, overriding as needed.

Use the same process as in Step d above. The resulting set of rights constitutes the effective rights for this trustee.

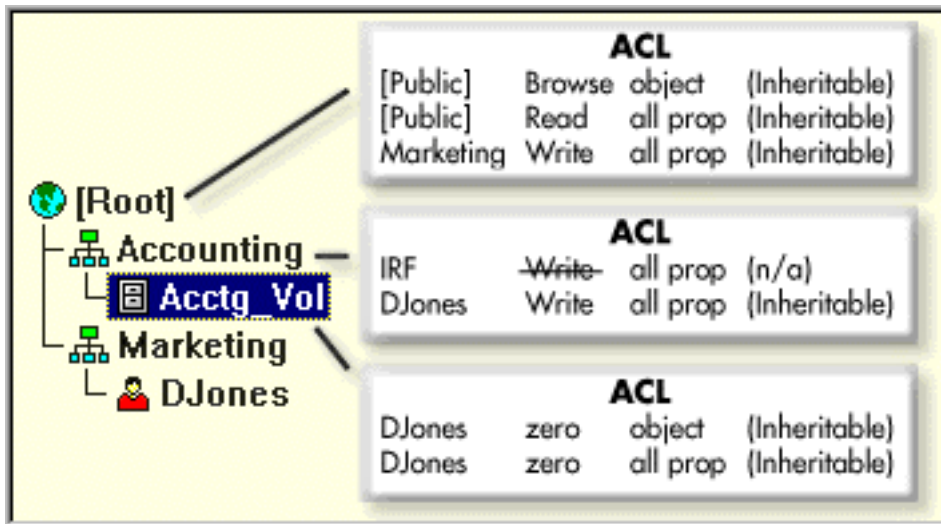
3. Combine the effective rights of all the trustees in the list as follows:

- a. Include every right held by any trustee in the list, and exclude only those rights that are missing from every trustee in the list. Do not mix right types. For example, do not add rights for a specific property to rights for all properties or vice versa.
- b. Add rights that are implied by any of the current effective rights.

The resulting set of rights constitutes the user's effective rights to the target resource.

Example

In the tree shown below, user DJones is attempting to access volume Acctg_Vol.



Here's how NDS calculates DJones' effective rights to Acctg_Vol:

1. The trustees whose rights are to be considered in the calculation are DJones, Marketing, [Root], and [Public].

This assumes that DJones doesn't belong to any groups or roles and has not been explicitly assigned any security equivalences.

2. The effective rights for each trustee are as follows:

- ♦ DJones: zero object, zero all properties

The assignment of zero all property rights at Acctg_Vol overrides the assignment of Write all properties at Accounting.

- ♦ Marketing: zero all properties

The assignment of Write all properties at the root of the tree is filtered out by the IRF at Accounting.

- ♦ [Root]: (no rights)

No rights are assigned for [Root] anywhere in the pertinent branch of the tree.

- ♦ [Public]: Browse object, Read all properties

These rights are assigned at the root and aren't filtered or overridden anywhere in the pertinent branch of the tree.

3. Combining the rights from all these trustees, we get the following:

DJones: Browse object, Read all properties

4. Adding the Compare all properties right that is implied by the Read all properties right, we get the following final effective rights for DJones to Acctg_Vol:

DJones: Browse object, Read and Compare all properties

Blocking Effective Rights

Because of the way that effective rights are calculated, it is not always obvious how to block particular rights from being effective for specific users without resorting to an IRF. (An IRF blocks rights for all users.)

To block particular rights from being effective for a user without using an IRF, do either of the following:

- ♦ Ensure that neither the user nor any of the objects that the user is security equivalent to ever gets assigned those rights, neither at the target resource nor at any level above the target resource in the tree.
- ♦ If the user or any object that the user is security equivalent to does get assigned those rights, ensure that that object also has an assignment lower in the tree that omits those rights. Do this for every trustee (associated with the user) that has the unwanted rights.

4

Managing NetWare File Services

File services are the most common services used in a network. NetWare Administrator and NDS give you flexible tools for making sure that users can access the files and directories they need, while you protect the file system from misuse.

Creating Server, Volume, and Directory Map Objects

When a new NDS™ server is installed, objects are automatically created in the tree to represent the server and its volumes. This enables you to manage the file system from NetWare® Administrator. You can also manage NetWare 2 and 3 file systems if you create the necessary objects.

To manage frequently used paths in the file system, you can create Directory Map objects. To record information about AppleTalk* services installed on NetWare servers, you can create AFP Server objects.

To Create a NetWare Server Object

- 1** Right-click the container where you want to create the NetWare Server, and then choose Create.
- 2** In Class of New Object, choose NetWare Server, and then choose OK.
- 3** In NetWare Server Name, type a name for the new object.
Make sure you understand the NetWare server naming conventions.
- 4** Choose Create.

To Ceate a Volume Object

- 1** Right-click the container where you want to create the Volume, and then choose Create.
- 2** In Class of New Object, choose Volume, and then choose OK.
- 3** In Volume Name, type a name for the new object.
Make sure you follow standard object naming conventions.
- 4** 4. Fill in Host server.
- 5** In Physical Volume, choose the volume that the new object will represent.
- 6** Choose Create.

To Create a Directory Map Object

- 1** Right-click the container where you want to create the Directory Map, and then choose Create.
- 2** In Class of New Object, choose Directory Map, and then choose OK.
- 3** In Directory Map Name, type a name for the new object.
Make sure you follow standard object naming conventions.
- 4** Choose the browse button between Volume and Path. Then, from the selection dialog box, choose the directory that the new object will represent and choose OK.
- 5** Choose Create.

To create an AFP Server object

- 1** Right-click the container where you want to create the AFP Server, and then choose Create.
- 2** In Class of New Object, choose AFP Server, and then choose OK.
- 3** In AFP Server Name, type a name for the new object.
Make sure you follow standard object naming conventions.
- 4** Choose Create.

Managing Files and Directories

You can browse files and directories just as you do objects in NetWare Administrator. You can copy, move, and delete files and directories, and create new directories. You can salvage or purge deleted files. You can also edit volume, file, and directory information, such as space limits, owners, and attributes.

To Browse Files and Directories

- 1** Double-click the Volume object that contains the files and directories.

If the Volume doesn't exist in a tree, create it.

- 2** Continue double-clicking directories to expand or collapse branches of the file system.

Double-clicking a file opens information about the file; it doesn't open the file itself.

To Copy or Move Files and Directories

- 1** Browse to the files and directories that you want to copy or move.

- 2** Browse to the destination volume or directory.

The destination can be in another browser window that contains the same tree or a different tree. You might need to tile the windows so that both the source and destination are visible.

- 3** Choose the files and directories that you want to copy or move.

To choose multiple items, hold down Ctrl or Shift while clicking.

- 4** Drag and drop the files and directories onto the destination.

- 5** In the dialog box that appears, choose **Move** or **Copy**, and then choose **OK**.

To Create a New Directory

- 1** Right-click the Volume or directory that you want to create the new directory in, and then choose **Create**.

- 2** Fill in **Directory name**.

- 3** Choose **Create**.

To Salvage or Purge Deleted Files

- 1 Choose the directory that the files were deleted from.
If the directory was deleted, choose any directory on the volume.
- 2 From the Tools menu, choose Salvage.
- 3 From the list of deleted files, choose the files that you want to salvage or purge, and then choose Salvage or Purge.
- 4 Choose Close.

To Edit File or Directory Information

- 1 Right-click the Volume, file, or directory whose information you want to edit, and then choose Details.
- 2 Edit the property pages.
- 3 Choose OK.

Setting File System Attributes

To control access to the NetWare file system, you can set file and directory attributes. Setting attributes is different than assigning file system rights, because the attributes of a file or directory are the same for all users, whereas the rights to a file or directory can be different for each user.

To Set Attributes for a File or Directory

- 1 Right-click the file or directory that you want to set attributes for, choose Details, and then choose the Attributes page.
- 2 Check and uncheck the check boxes for the attributes that you want to set and clear, and then choose OK.

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Configuring Queue-Based Print Services

You can manage NetWare's legacy queue-based print services using NetWare[®] Administrator. NetWare allows you to set up print services with a quick-setup option, or to create printing-related objects individually. You can also configure and control these objects after setting up printing.

Print Services Quick Setup (non-NDPS)

This dialog box lets you set up network printers and queues that can be shared by users in the selected container. This includes creating a Print Server, Printer, and Print Queue object, and loading the required server and driver software.

Prerequisites

- ☐ The printer is physically connected to the network or a server or workstation on the network.
- ☐ You are logged in as ADMIN or equivalent.

Steps

- 1** In Print Server Name, type a name for the Print Server object, or choose the browse button to choose an existing Print Server.
- 2** For a new Print Server, make sure you follow standard object naming conventions.
- 3** Under Printer in Name, type a name for the new Printer object.
Make sure you follow standard object naming conventions.

4 In Type, choose the type of communication used by the printer.

If the printer is attached to an OS/2* workstation or directly to the network, choose Other/Unknown. Examples of this type are HP IIIsi, Compaq* PageMarq* 20, GENICOM 7170, and Talaris 1794 Printstation.

If a dialog box appears, check the communication settings and make any needed changes.

For help with the settings, choose Help.

5 Under Print Queue in Name, type a name for the new Print Queue object.

Again, make sure you follow standard object naming conventions.

6 In Volume, type the complete name of the volume to create the physical queue on, or choose the browse button to choose from the available volumes.

7 Choose Create.

8 At the console of the NetWare server that you want to become the print server, load PSERVER.NLM.

When prompted for the Print Server name, type in the complete name of the object you created in Step 1, or press Insert to browse the tree for it.

9 Load the printer driver.

- ♦ If the printer is attached to the server, the driver (NPRINTER.NLM) is automatically loaded by the print server.
- ♦ If the printer is attached to a DOS workstation, run NPRINTER.EXE on the workstation.
- ♦ If the printer is attached to a Windows 95 workstation, run NPTWIN95.EXE on the workstation.

Creating Print Server, Printer, and Print Queue Objects (non-NDPS)

To set up network printing, you create Print Server, Printer, and Print Queue objects, and then assign them to each other. You must also load the required server and driver software.

To Create a Print Queue

- 1** Right-click the container where you want to create the queue, and then choose Create.
- 2** In Class of New Object, choose Print Queue, and then choose OK.
- 3** If the physical queue already exists outside the current tree, choose Reference a bindery queue. Otherwise, leave Directory Services queue selected.
- 4** In Print Queue Name, type a name for the new object.

Make sure you follow standard object naming conventions.

- 5** If you chose Reference a bindery queue in Step 3, in Server\Queue, type the name of the server and physical queue, with a backslash (\) between them, or choose the browse button to choose from the available servers and physical queues.

If you chose Directory Services Queue in Step 3, in Print Queue Volume, type the complete name of the volume where you want to create the physical queue, or choose the browse button to choose from the available volumes.

Novell recommends that you choose the volume that usually has the most free disk space.

- 6** Choose Create.

To Create a Printer

- 1** Right-click the container where you want to create the Printer, and then choose Create.
- 2** In Class of New Object, choose Printer, and then choose OK.
- 3** In Printer Name, type a name for the new object.

Make sure you follow standard object naming conventions.

- 4** Choose Create.

To Create a Print Server

- 1** Right-click the container where you want to create the Print Server, and then choose Create.
- 2** In Class of New Object, choose Print Server, and then choose OK.
- 3** In Print Server Name, type a name for the new object.

This is the name you will use for the print server at the server console. Make sure you follow standard object naming conventions.
- 4** Choose Create.

To Assign the Objects to Each Other

- 1** Right-click a Printer, choose Details, and then choose the Assignments page.
- 2** Choose Add, choose the queues you want, and then choose OK.

These are the queues where jobs destined for this printer will be temporarily stored.
- 3** Choose OK.
- 4** Right-click a Print Server, choose Details, and then choose the Assignments page.
- 5** Choose Add, choose the Printers you want, and then choose OK.

These are the printers that will be managed by this print server.

To Load Print Servers and Drivers

- 1** On each NetWare server that you want to become a physical print server, load PSERVER.NLM.

When prompted for the print server name, type in the complete name of the object, or press Insert to browse the tree for it.
- 2** On each server or workstation that a network printer is attached to, load the printer driver.
 - ♦ If the printer is attached to the server, the driver (NPRINTER.NLM) is automatically loaded by the print server.
 - ♦ If the printer is attached to a DOS workstation, run NPRINTER.EXE on the workstation.

- ♦ If the printer is attached to a Windows 95 workstation, run NPTWIN95.EXE on the workstation.

Managing Print Servers

Use this set of procedures to add or delete print server operators, users, and printer assignments. You can also change the print server password and unload the print server.

Prerequisite

- ☐ Right-click the Print Server object that you want to manage, and then choose Details.

To Add or Delete Print Server Operators

- 1 Choose the Operator page.
- 2 To add operators, choose Add, choose the User objects, and then choose OK.
- 3 To delete operators, choose the operators, and then choose Delete.

To Add or Delete Print Server Users

- 1 Choose the Users page.
- 2 To add users, choose Add, choose the Users, and then choose OK.
- 3 To delete users, choose the Users, and then choose Delete.

To Add or Delete Printer Assignments

- 1 Choose the Assignments page.
- 2 To add assignments, choose Add, choose the Printer objects, and then choose OK.
- 3 To delete assignments, choose the Printers, and then choose Delete.

You must reload the print server before the changes take effect. Also, at least one Print Queue assignment must exist for a printer serviced by this print server.

To Change the Print Server Password

- 1 Choose the Identification page.
- 2 Choose Change Password.

- 3** In New password, type the new password.

The password is not case sensitive.

- 4** In Retype new password, type the new password again.

- 5** Choose OK.

To remove a password without assigning a new one, leave both fields blank and choose OK.

To Unload the Print Server

- 1** On the Identification page, choose Unload.
- 2** 2. Choose whether to unload PSERVER.NLM immediately or after the current jobs have been serviced, and then choose OK.

Managing Printers

Use this set of procedures to add or delete print queue assignments and user notifications for a printer. You can also change the printer type or service mode and control the printer's status.

Prerequisite

- ☐ Right-click the Printer object that you want to manage, and then choose Details.

To Add or Delete Print Queue Assignments

- 1** Choose the Assignments page.
- 2** To add assignments, choose Add, choose the Print Queue objects, and then choose OK.
- 3** To delete assignments, choose the queues, and then choose Delete.

To Change the Printer Type or Service Mode

- 1** Choose the Configuration page.
- 2** In Printer type, choose the printer type.

For printers attached to an OS/2 workstation or directly to the network, choose Other/Unknown. Examples of this type are HP IIIsi, Compaq PageMarq 20, GENICOM 7170, and Talaris 1794 Printstation.

- 3** If a dialog box appears for the printer type, check the settings, correct any that are wrong, and then choose OK.

For help with the settings, choose Help.

- 4** In service mode for forms, choose the service mode you want.

To Add, Delete, or Modify User Notifications

- 1** Choose the Notification page.
- 2** To add user notifications, choose Add, choose the containers and/or User objects, and then choose OK.

If you choose a container, the users in the container are notified.

Notifications are sent for changes in printer status, such as paper outages and jams.

- 3** To delete user notifications, choose the containers and/or Users, and then choose Delete.

If you delete the (Print job owner) entry, you can add it back by checking Notify print job owner.

- 4** To modify the timing of notifications for a user, choose the User, and then in First and Next, enter new values.

The values correspond to the number of minutes until the first notification, and the number of minutes between any subsequent notifications.

To Control Printer Status

- 1** Choose the Printer Status page.

This page is available only if you are an operator of a print server that services this printer.

- 2** To make changes to the printer's status, such as mounting a different form or sending a form feed, choose the corresponding button.

For help with the buttons, choose Help. Changes you make are effective immediately.

Managing Print Queues

Use this set of procedures to manage print queues. Most printing management tasks are accomplished by managing print queues.

The relative priority of the print queues determines the order in which the print server services the jobs waiting in the queues.

For print jobs that specify a printer but no queue, the default queue for the printer is used. For example, this occurs when the CAPTURE command is used.

Prerequisite

- ☐ Right-click the Print Queue object that you want to manage, and then choose Details.

To Add or Delete Queue Users

- 1** Choose the Users page.
- 2** To add users, choose Add, choose the User objects, and then choose OK.
- 3** To delete users, choose the Users, and then choose Delete.

To Add or Delete Queue Operators

- 1** Choose the Operator page.
- 2** To add an operator, choose Add, choose the Users, and then choose OK.
- 3** To delete operators, choose the operators, and then choose Delete.

To Change the Queue's Priority

- 1** From the browser, right-click the Printer object that the queue is assigned to, choose Details, and then choose the Assignments page.
- 2** From Print queues, choose the Print Queue.
- 3** In Priority, enter the new priority for the Print Queue.
A priority of 1 is the highest; 10 is the lowest.

To Change the Default Queue for a Printer

- 1** From the browser, right-click the Printer, choose Details, and then choose the Assignments page.
- 2** In Default Print Queue, choose the new default queue.

Defining Print Devices, Job Configurations, and Forms

For the users in a container, you can add printer control capabilities not provided by the printing utilities by defining print devices. You can also define print job configurations and printer forms to simplify printing tasks.

Prerequisite

- ❑ Right-click the container that contains the users for whom you want to define the services, and then choose Details.

To Define Print Devices

- 1** Choose the Print Devices page.
- 2** Define the print devices.
 - ◆ To create a device, choose Create, and then complete the dialog box.
 - ◆ To modify a device, from Name, choose the device, choose Modify, and then complete the dialog box.
 - ◆ To delete a device, from Name, choose the device, choose Delete, and then choose OK.
 - ◆ To export a device, from Name, choose the device, choose Export, choose the filename and location, and then choose OK.

By convention, print device files have a .PDF extension.

- ◆ To import a device, choose Import, choose the .PDF file, and then choose OK.

The .PDF files that are shipped with NetWare[®] are in SYS:PUBLIC. They define functions for commonly used print devices.

To Define Print Job Configurations

- 1** Choose the Print Job Configuration page.
- 2** Define the print job configurations.
 - ◆ To create a configuration, choose New, and then complete the dialog box.
 - ◆ To modify a configuration, from Print job configurations, choose the configuration, choose Modify, and then complete the dialog box.

- ♦ To delete a configuration, from Print job configurations, choose the configuration, and then choose Delete.
- ♦ To choose the default configuration for the user or container, from Print job configurations, choose the configuration, and then choose Default.

A printer icon appears next to the configuration.

To Define Printer Forms

1 Choose the Printer Forms page.

2 Define the printer forms.

- ♦ To create a form, choose Create, and then complete the dialog box.
- ♦ To modify a form, from the form list, choose the form, choose Modify, and then complete the dialog box.
- ♦ To delete a form, from the form list, choose the form, choose Delete, and then choose OK.

Deletions cannot be undone.

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Configuring NetWare Administrator

NetWare® Administrator is your graphical tool for managing and NDS-based network. This section helps you configure NetWare Administrator to work best for your individual circumstances.

Understanding NetWare Administrator

NetWare Administrator lets you control the security and efficiency of your network by editing the contents and configuration of network Directories.

NetWare Administrator is like a control console. It has a default set of controls known as the browser. Other sets of controls, known as tools, can be installed for specific purposes, such as to configure Directory database partitions and replication.

In the browser, you view each Directory as a tree that contains various network objects. You control access to network resources by assigning properties to these objects, and by creating logical groupings, roles, and so forth.

Organizing Network Resources

When you start NetWare Administrator, the browser tool is activated by default. The browser provides various administrative views of the network, which let you organize, browse, and manipulate network resources.

To organize the administrative view of your network, you create containers, which include Country, Locality, Organization, and Organizational Unit objects. For guidelines on designing this view, see the table of contents.

You can also create Alias objects to provide access to the same object from several containers, and Computer objects to track extraneous network hardware.

Browsing, Printing, and Manipulating Network Resources

As mentioned, each browser window displays a single tree, and each tree lets you view the network resources (objects) that are stored in a single Directory. You can open multiple browser windows to view multiple trees. You can expand, collapse, print, and adjust the scope of each view.

You can also move, rename, search for, and edit specific objects. To edit an object, you open its property pages.

Configuring NetWare Administrator

You can configure the following aspects of NetWare Administrator:

- ◆ Views

You can hide, show, and reorder items in the main and detailed views provided by the browser tool. You can also turn on and off the toolbar tips and menu hints.

- ◆ Toolbar and status bar

You can show or hide the toolbar and status bar. You can also select and arrange the items to be included in the toolbar and status bar.

- ◆ Object deletion behavior

You can specify whether object deletions should require confirmation.

- ◆ Alias rights information

You can specify whether rights information displayed for Alias objects should be taken from the original object or the Alias.

- ◆ Tools

You can add or remove optional capabilities by installing or removing tools. This requires restarting NetWare Administrator.

- ◆ Registration process

The syntax you use for the NetWare Administrator command line controls where your preferences are registered.

Getting Technical Support

To get free technical support, contact the reseller you purchased NetWare from, or go to the support web page at <http://support.novell.com/>. Additional support options are at <http://support.novell.com/additional/>.

For direct, charged technical support, call 1-800-NETWARE.

Starting NetWare Administrator

Windows lets you start NetWare Administrator from the command line. Normally, you start it by clicking an icon that's associated with a command line. Either way, the syntax for the command line is the same.

Command-Line Syntax

NWADMN32 [/N | /Ffile]

- ♦ */N* causes your preferences to be registered in your User object in the Directory.
- ♦ */F* causes your preferences to be registered in the specified *file*. If you don't include a path, the local Windows directory is assumed.
- ♦ Omitting the parameters causes your preferences to be registered in the local Windows registry.

Examples

- ♦ `nwadm32`
Registers your preferences in the local Windows registry.
- ♦ `nwadm32 /n`
Registers your preferences in your User object in the Directory.
- ♦ `nwadm32 /fh:\admin\myconfig.ini`
Registers your preferences in the file H:\ADMIN\MYCONFIG.INI.

New Features

This release of NetWare Administrator provides the following new features:

- ♦ An option to copy/move trustee assignments when copying/moving a file or directory.
- ♦ An inheritable option to allow or not allow inheritance of rights to a container object, including both object and property rights. This feature makes it possible to create an administrator over specific properties, such as passwords.
- ♦ When administering specific property rights to a container object, all specific property rights are now listed, even if those rights do not apply to the selected container object class. The rights that apply to that class are shown with an arrow, while the rights that might apply to subordinate objects (but not the selected container) have no arrow.
- ♦ The File Migration and DS Migrate tools have been removed from the tools menu. Instead, you can use the Novell Upgrade Wizard to upgrade to the newest release of NetWare. You can download the new upgrade wizard from <http://www.novell.com/intranetware/upgrade/>. On the NetWare 5 Operating System CD-ROM, you can find the self-extracting upgrade wizard file (upgrdwzd.exe) at \products\upgrdwzd\
- ♦ One executable file (NWAdmn32.exe) for Windows 32-bit environments.

Configuring the Toolbar and Status Bar

You can show, hide, or select the items to be included in the toolbar and status bar.

To Show the Toolbar and Status Bar

- 1 On the View menu, check Show Toolbar and Show Status Bar.

To Hide the Toolbar and Status Bar

- 1 On the View menu, uncheck Show Toolbar and Show Status Bar.

To Add, Remove, or Reorder Buttons on the Toolbar

- 1 Activate the tool for which you want to configure the toolbar.
- 2 Right-click the toolbar and then choose Configure Toolbar and Status Bar.

- 3** On the Toolbar - Main Features tab, select and arrange the main toolbar buttons.
- 4** On the Toolbar - View Features tab, select and arrange the view-specific toolbar buttons.
- 5** On the Toolbar Location tab, select the desired location for the toolbar.
- 6** Choose OK.

To Add, Remove, or Reorder Information on the Status Bar

- 1** Activate the tool for which you want to configure the status bar.
- 2** Right-click the status bar and then choose Configure Toolbar and Status Bar.
- 3** On the Status Bar tab, select and arrange the items of information to be included in the status bar.
- 4** Choose OK.

Setting Miscellaneous Preferences

You can turn on and off the toolbar tips and menu hints. You can also choose whether to be prompted for confirmation of object deletions, and whether rights information displayed for Alias objects should come from the original object or the Alias.

To Turn on Toolbar Tips and Menu Hints

- 1** On the View menu, check Show QuickTips and Show Hints.

To Turn off Toolbar Tips and Menu Hints

- 1** On the View menu, uncheck Show QuickTips and Show Hints.

To Get Confirmation on Object Deletions

- 1** On the Options menu, check Confirm On Delete.

To Cause Rights Information on Aliases to Be Taken from the Original Object

- 1** On the Options menu, check Get Aliased Object Trustees.

To Cause Rights Information on Aliases to Be Taken from the Alias

- 1 On the Options menu, check Get Alias Trustees.

Filtering and Reordering Browser Views

You can show, hide, or reorder items in the tree and property-page views provided by the browser tool. This enables you to focus on the items that are of most interest to you.

To Show, Hide, or Reorder Objects in a Tree

- 1 Choose the window containing the tree, and then choose Sort and Include from the View menu.
- 2 On the Sort and Include by Object Class tab, select and arrange the classes of objects that you want shown.
- 3 Choose OK and then reexpand the containers in the tree.

To Show, Hide, or Reorder Property Pages for a Class of Objects

- 1 Open the property pages (Details) for an object of the target class, and then choose Page Options.
- 2 On the Sort and Include Property Pages tab, select and arrange the property pages that you want shown.
- 3 Choose OK.

The changes affect the property pages of all the objects of that class.

Installing and Removing Tools

You can install and remove capabilities in NetWare Administrator by installing and removing tools. To conserve memory, you should install only the tools that you need for your work.

To Install or Remove a Tool

- 1 Open the registry or file where your preferences are stored.
Your NetWare Administrator command-line syntax determines the location. If the preferences are stored in
 - ♦ A file, open the file with a text editor.

- ♦ The Windows registry, run REGEDIT.EXE and open the following keys: HKEY_CURRENT_USER, Software, NetWare, Parameters, NetWare Administrator.
 - ♦ Your User object, right-click the object, choose Details, and then choose the NetWare Registry Database page.
- 2** Under Snapin View DLLs and napin Object DLLs, add or remove the entries for the desired tool.
 - 3** Save your changes and then restart NetWare Administrator.

For information on the registration entries required for a tool, see the section of the table of contents that corresponds to the tool.

Registering Preferences

You can control the registration of your configuration preferences.

- ♦ To specify where your preferences are to be registered, use the appropriate command-line syntax when starting NetWare Administrator.
- ♦ To cause preference changes to be saved on exit, on the Options menu, check Save Settings On Exit.

If you uncheck this item, any preference changes you make during the current session won't be effective in the next session.



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