See also

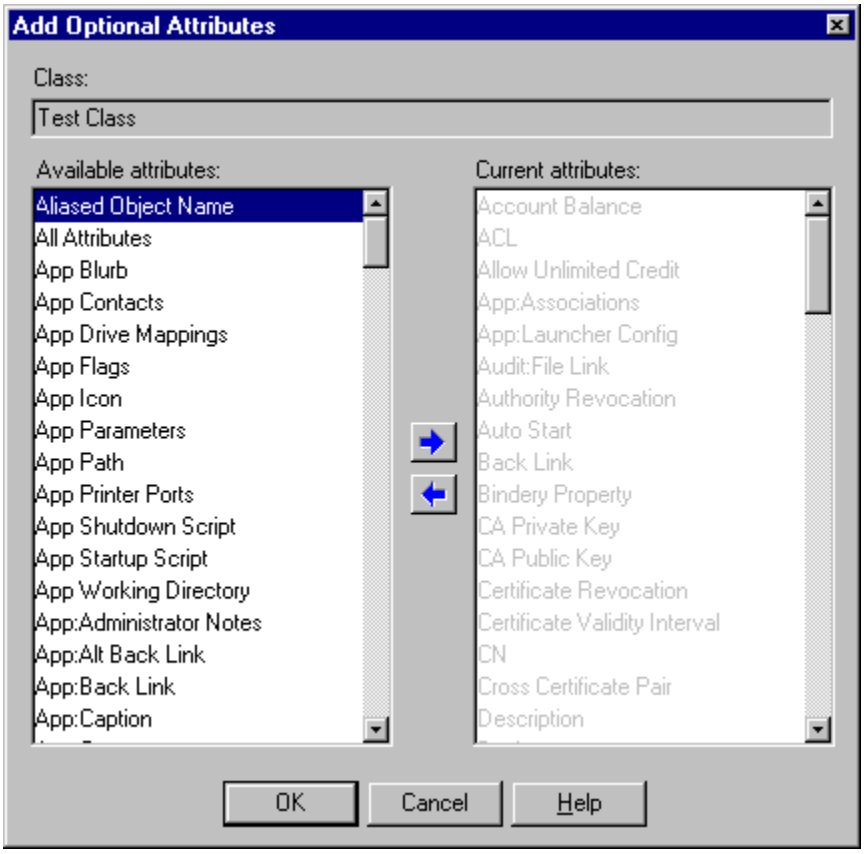
Add Optional Attributes Dialog Box

Purpose

You can modify an existing class by using this screen to add to the Current attributes list. You can only remove attributes you have added prior to clicking **OK**. You cannot remove any attribute that has been previously added and saved.

Options

For explanations of features, click where *appears.*



See also

Add an Optional Attribute to a Class

Purpose

You can add optional attributes to existing classes. This may be necessary if

- Your organization's informational needs change
- You are preparing to merge trees

Note: Mandatory attributes can only be defined while initially creating a class.

To Add an Optional Attribute

1. Select Object > Add Optional Attribute to Class.
2. Highlight an attribute in the Available attributes list, and then click the right arrow.
   The attribute you chose will now display in the Current attributes list as a bolded entry.
3. Repeat Step 2 as needed until you are satisfied with the list.
4. If you add an attribute by mistake, highlight the attribute in the Current attributes list, and then click the left arrow.
5. Choose OK.

See also

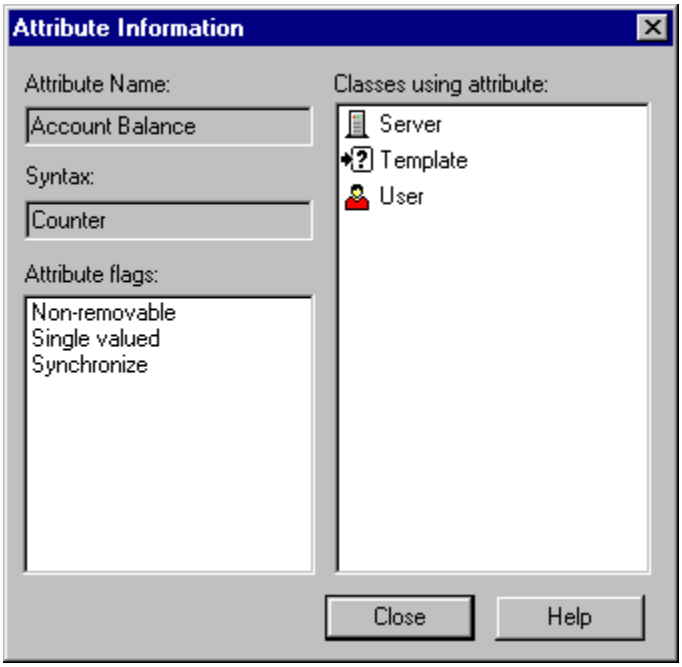
Attribute Information Dialog Box

Purpose

Use this screen to view information about the selected attribute.

Options

For explanations of features, click where  *appears.*



Class Inheritance Dialog Box

Purpose

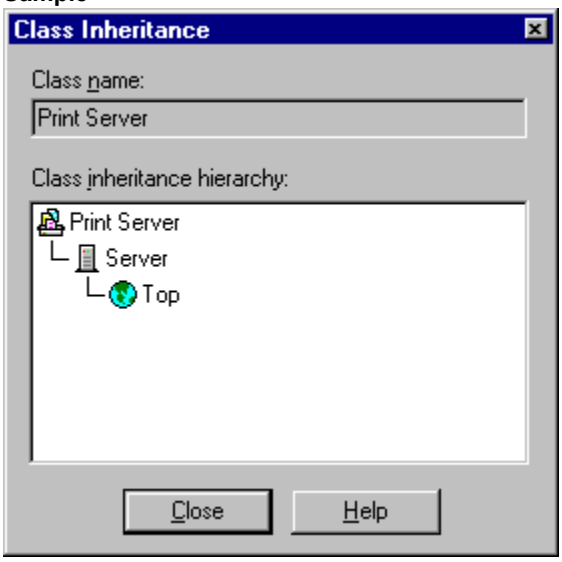
This displays an inverted class hierarchy. It can be used to determine from where a class is inheriting attributes.

If, during class creation, the class was specified to inherit attributes from another class, the parent class will display below your selected class; below the parent class is its parent class.

When no parent class exists for a class, the Top icon will display indicating that you have reached the top of the class hierarchy.

Note: All class inheritance hierarchies eventually end with the Top icon.

Sample



See also

Class Manager Dialog Box

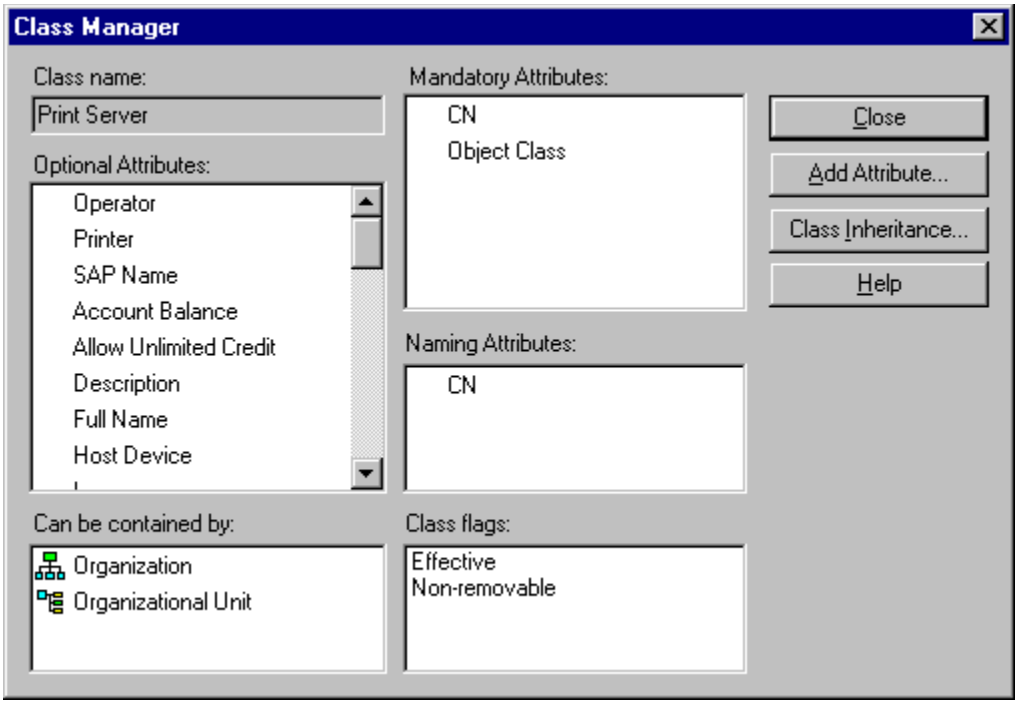
Purpose

Use this screen to view information on the selected class, or choose to add an attribute or view class inheritances. Most of the information displayed on this screen was specified when the class was created. Some of the optional attributes may have been added later.

If, during class creation, the class was specified to inherit attributes from another class, the inherited attributes will be classified as they were in the parent class. For instance, if Object Class was a mandatory attribute for the parent class, then it will display on this screen as a mandatory attribute for the selected class.

Options

For explanations of features, click where  *appears.*



See also

Compare Schemas

Purpose

You can compare the schemas of any two trees to identify the differences between their classes or attributes. This is helpful when you are preparing to merge two trees.

To Compare the Schemas of Two Trees

1. Select Object > Compare Schema.
2. Click the top tree icon, click a tree, and then click OK.
   Your current tree is the default, but you can choose another tree.
3. Click the bottom tree icon, choose a second tree, and then click OK.
4. Click OK.
5. If you have not logged in to the second tree, use the dialog box provided to do so now.
6. If you want to print the comparison, click Print, complete the Print dialog box, and then click OK.
7. When finished viewing the results, click Close.

Schema Manager Help Contents

See also

Create Attribute Wizard

Purpose

You can create a new attribute by completing each screen in this wizard. Help is available throughout the wizard. You can cancel at any time prior to clicking Finish on the Summary of New Attribute screen.

See also

Create Attribute Wizard - Set Attribute Flags

Purpose

Set attribute flags to control how this attribute is used. All of these flags are optional.

Attribute Flags

Single value
String
Synchronize immediately
Public read
Write managed
Per replica
Sized: Available only when a sizeable syntax is selected (such as Boolean or Case Exact String), and, when set, will prompt you to set Upper and Lower limits.

Note: You can set the Upper limit to -1 to specify that there is no upper limit, only a lower one.

See also

Create Attribute Wizard - Name the New Attribute

Purpose

Name the new attribute as you want it to appear in attribute lists.

The following rules apply:

- Spaces are allowed
- Uppercase and lowercase letters can be used
- The character limit is 32
- No leading or trailing spaces are allowed
- No leading or trailing underscores are allowed
- Underscores are converted to spaces
- Multiple spaces are converted to single spaces

See also

Create Attribute Wizard - Summary of New Attribute to Be Created

Purpose

This screen summarizes the choices you have made for this proposed new attribute.

Options

At this point you can do one of three things:

- Approve the new attribute by choosing Finish
- Modify the new attribute by choosing Back
- Cancel the new attribute by choosing Cancel

See also

Create Attribute Wizard - Select New Attribute's Syntax

Purpose

Choose a syntax that best meets your informational needs for this attribute. The syntax describes the data used to instantiate an object in the Directory tree.

Syntax Options

Back Link

The back link attribute uses this syntax to keep track of other servers referreing to an NDS object. It is used for internal management purposes.

Boolean

Attributes whose values are True represented as one (1) or False represented as zero (0) use this syntax. The single valued flag is set for this syntax type.

Case Exact String

Attributes whose values are Unicode strings that are case-sensitive in comparison operations use this syntax. Two Case Exact Strings match for quality when they are of the same length and their corresponding characters, including case, are identical.

Case Ignore List

Attributes whose values are ordered sequences of Unicode strings that are case-insensitive in comparisons operations use this syntax. Two Case Ignore List match for equality if the number of strings in each is the same and all corresponding strings match (that is, they are the same length and their corresponding characters are identical).

Case Ignore String

Attributes whose values are Unicode strings that are case-insensitive in comparison operations use this syntax. Two case ignore strings match for equality when they are of the same length and their corresponding characters are identical in all respects except that of case.

Class Name

Attributes whose values are NDS object class names use this syntax. The matching rule for values of Class Name are the same as those for Case Ignore String.

Counter

Attributes whose values are incrementally modified numeric signed integers use this syntax. Any attribute definded using Counter is single-valued attribute. This syntax differs from Integer in that any value added to an attribute of this syntax is arithmetically added to the total, and any value deleted is arithmetically subtracted from the total.

Distinguished Name

Attributes whose values are the names of objects in the Directory tree use this syntax. Distinguished Names (DN) are not case-sensitive,even if one of the naming attributes is case-sensitive.

Email Address

Attributes whose values are strings of binary information use this syntax. NDS makes no assumption about the internal structure of the content of this syntax.

Facsimile Telephone Number

This syntax specifies a string that complies with the format agreed upon for storing international telephone numbers, E.123, and an optional bit string formatted according to recommendations T.20. Facsimile Telephone Number values are matched based on the telephone number field. The rules for matching fax telephone numbers are identical to those for the Case Exact String syntax except that all spade and hyphen (-) characters are ignored during the comparison.

Hold

Attributes that are accounting quantifies, whose values are signed integers, use this syntax. This syntax is an accounting quantity, which is an amount tentatively held against a subject's credit limit, pending completion of a transaction. The Hold amount is treated similar to the Counter syntax, with new values added to or subtracted from the base total. If the evaluated Hold amount goes to zero (0), the Hold record is deleted.

Integer

Attributes represented as signed numeric values use this syntax. Two Integer values attributes match for equality if they are identical. The comparison for ordering uses signed integer rules.

Interval

Attributes whose values are signed numeric integers and represent intervals of time use this suntax. The Interval syntax uses the same representation as the Integer. The Interval value is the number of seconds in a time interval.

Net Address

This syntax represents a network layer address in the NetWare environment. The address is in a binary format. For two values of Net Address to match, the type , length and value of the address must match.

Numeric String

Attributes whose values are numerical strings as defined in the CCITT X.208 definition of Numeric String use this syntax. For two Numeric Strings to match for equality, the string must be the same length and their corresponding characters must be identical. Digits (0...9) and space characters are the only valid characters in the numeric string character set.

Object ACL

Attributes whose values represent Access Control List (ACL) entries use this syntax. An Object ACL value can protect either an object or an attribute.

Octet List

This syntax describes an ordered sequence of strings of binary information or Octet String. A presented Octet List matches a stored list if the presented list is a subset of the stored list. For two Octet Lists to match, they are compared using the same methods as Octet Strings.

Octet String

Attributes whose values are strings of binary information not interpreted by the Directory use this syntax. These Octet Strings are non-Unicode strings. For two Octet Strings to match, they must be the same length, and the corresponding bit sequence (octet) must be identical.

Path

Attributes that represent a file system path, containing complete information to locate a file on a NetWare server, use this syntax. The string represented by Path is compared for equality using the same rules as Case Exact Strings.

Postal Address

Attributes whose values are Unicode strings of Postal Addresses use this syntax. An attribute value for Postal Address is typically composed of selected attributes from the MHS "Unformatted Postal O/R Address" Specification Version 1 according to recommendation f.401. The value is limited to 6 lines of 30 characters each, including a Postal Country Name. Matching rules for values of this type are the same as those for Case Ignore List.

Printable String

Attributes whose values are printable strings, as defined in CCITT X.208, use this syntax. The printable character set is

- upper and lower case alphabetic characters
- digits (0...9)
- space character
- apostrophe
- left and right parenthesis
- plus sign
- comma
- hyphen
- full stop (period)
- solidus (forward slash)
- colon
- equal sign


question mark

Two Printable Strings are equal when they are the same length and their corresponding characters (upper or lower case is significant) are identical.

Replica Pointer

Attributes whose values represent partition replicas use this syntax. A partition of an NDS tree can have replicas on different servers. The syntax has six components:

1. Server Name
2. Replica Type (Master, Secondary, Read-only, Subordinate Reference)
3. Replica Number
4. Replica Root ID
5. Number of Address
6. Address Record

Stream

This syntax represents arbitrary binary information. The Stream syntax provides a way to make an NDS attribute out of a file on a file server. Login scripts and other stream attributes use this syntax. The data stored in a stream file has no syntax enforcement of any kind. It is purely arbitrary data, defined by the application that created and uses it.

Telephone Number

Attributes whose values are telephone numbers use this syntax. The length of Telephone Number strings must be between 1 and 32 characters. The rules for matching Telephone Numbers are identical to those for CaseExact String syntax, except that all spaces and hyphen characters are ignored during comparison.

Time

Attributes whose values are unsigned integers, and represent time expressed in seconds use this syntax. The Time syntax uses the same representation as Integer. Comparisons for ordering use unsigned integer rules.

Timestamp

Attributes whose values mark the time when a particular event occurred use this syntax. When a significant event occurs, an NDS server mints a new Timestamp value and associates the value with the event. Every Timestanp value is unique within an NDS partition. This provides a total ordering of events occurring on all servers holding replicas of a partition.

Typed Name

Attributes whose values represent a level and an interval associated with an object use this syntax. This syntax names an NDS object and attaches two numeric values to it:

1. Level of the attribute indicative of its priority
2. Interval representing the number of seconds between certain events or the frequency of reference

Unknown

This syntax represents strings of binary information. Attributes whose attribute definition has been deleted from the schema use this syntax.

See also

Create Class Wizard

Purpose

You can create a new class by completing each screen in this wizard.

Help is available throughout the wizard. You can cancel at any time prior to clicking Finish on the Summary of new class screen.

See also

Create Class Wizard - Set Class Flags

Purpose

Set class flags to control how this class is used. There are five class flags, but only two of them are user defined: Effective class and Container class. The other flags (such as non-removable for base classes) are set by NDS*.

Class Flags

Effective class

Check this flag when you want to create an effective class, which can be used to create objects.

Uncheck this flag when you want to create a non-effective class, which can be used as a place holder for a group of attributes. A non-effective class cannot be used to create objects, but can be specified as a class from which other classes can inherit attributes.

Container class

Check this flag when you want to make this a container class. When it is used to create objects, those objects will become container objects (such as "OU"). Do not check this flag for a leaf object.

See also

Create Class Wizard - Select Container Classes

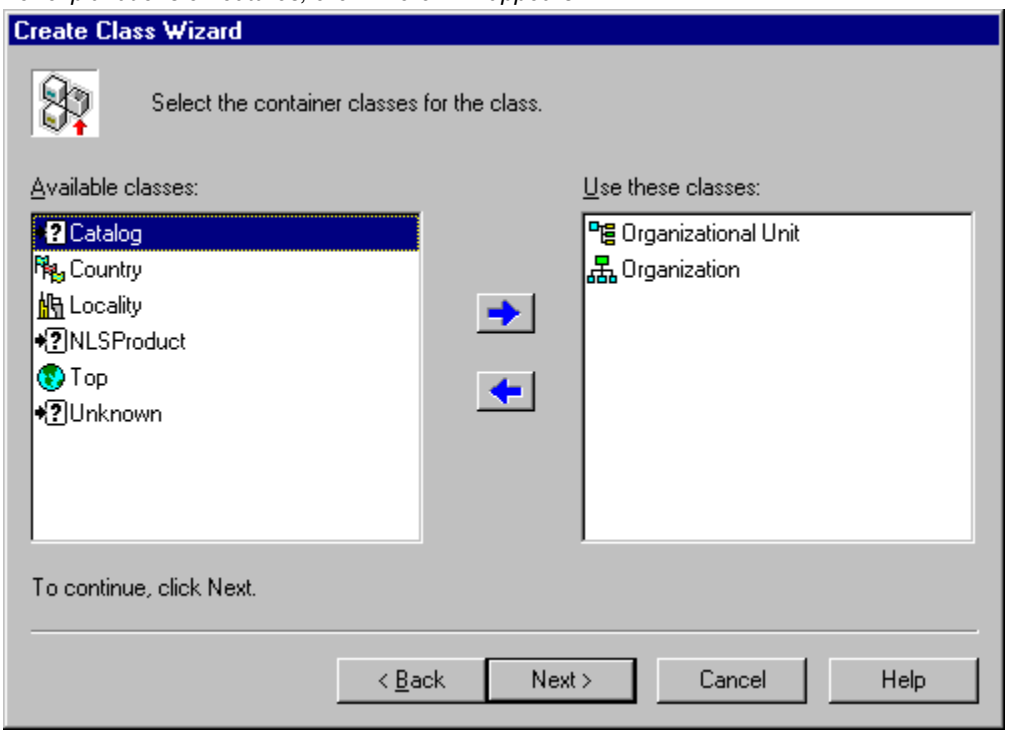
Purpose

Specify which classes in the schema are allowed to contain this new class.

Each object class specifies containment that characterizes where an object of the class definition may appear in the hierarchical structure of the Directory tree. The object can only be subordinate to those objects whose classes appear in the Use These Classes list.

Options

For explanations of features, click where *appears.*



See also

Create Class Wizard - Select Class Inheritance

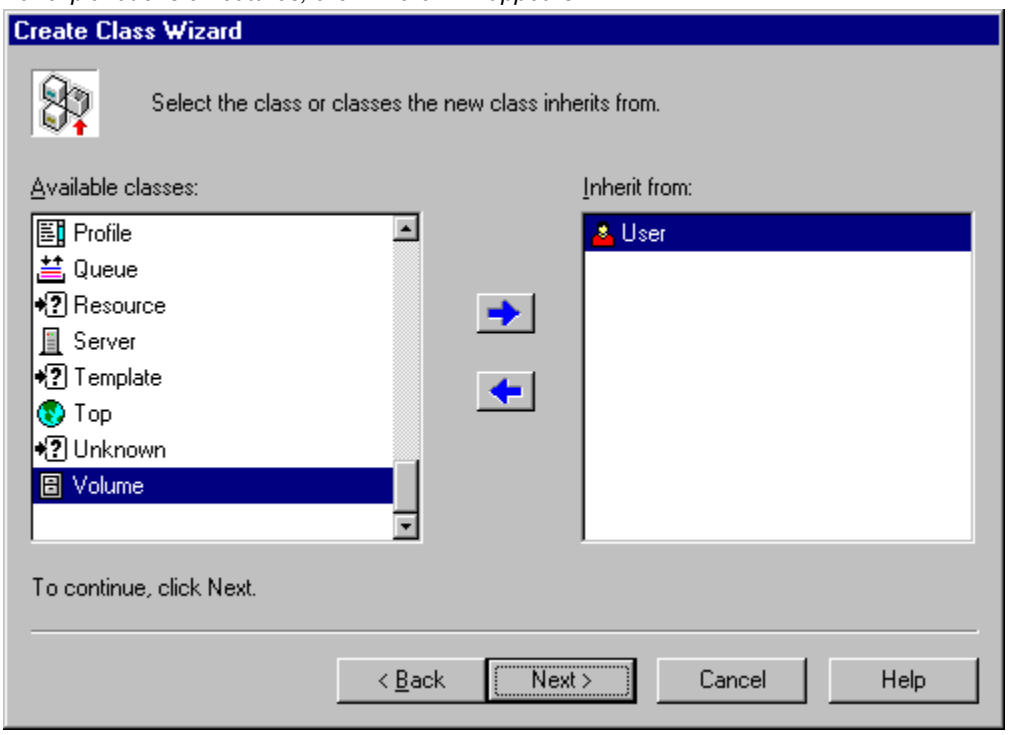
Purpose

You can save time and effort when creating classes by specifying inheritance from one or more classes when the new class will be similar to an existing class.

When you move a class into the Inherit From box, the new class will automatically be assigned the same attributes as the class specified. You can then add attributes as needed to customize the new class.

Options

For explanations of features, click where *appears.*



See also

Create Class Wizard - Select Mandatory Attributes

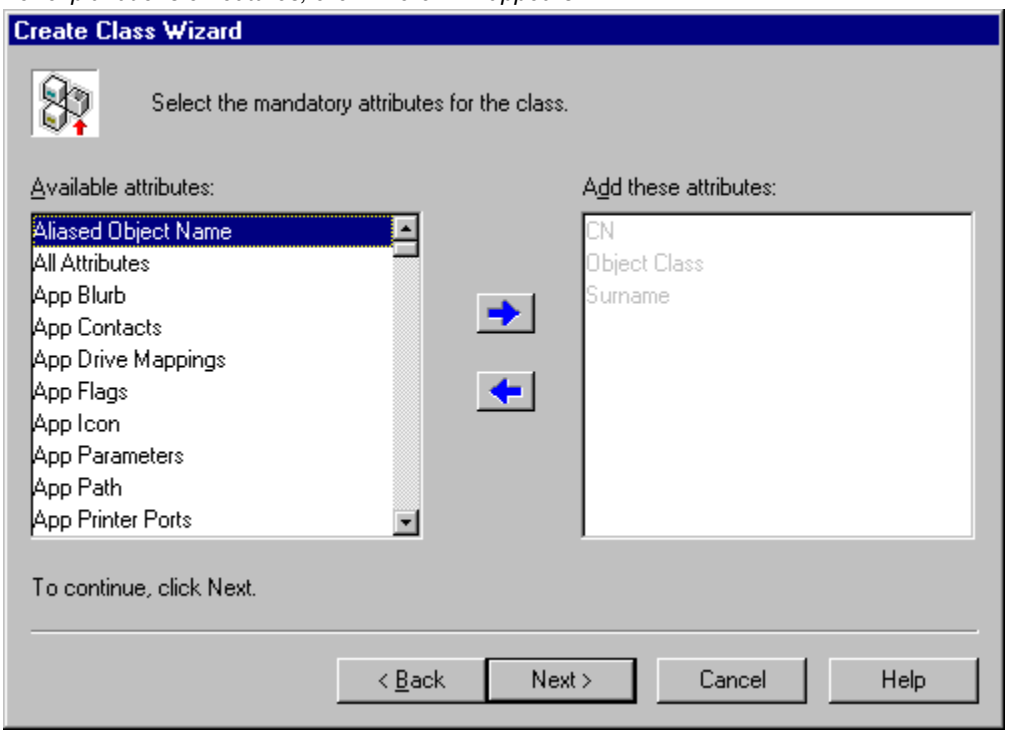
Purpose

You can specify the mandatory attributes for this class, which will later be required information when using this class to create an NDS object. For instance, you may choose to make Employee Number or Surname a mandatory attribute on some classes. Select as mandatory attributes only the minimum required information for each class.

Note: Mandatory attributes can only be specified during this creation process.

Options

For explanations of features, click where *appears.*



See also

Create Class Wizard - Name the New Class

Purpose

Name the new class as you want it to appear in class lists.

Schema class definitions possess structure rules that determine how objects of the class are named. The following rules apply:

- Spaces are allowed
- Uppercase and lowercase letters can be used
- The character limit is 32
- No leading or trailing spaces are allowed
- No leading or trailing underscores are allowed
- Underscores are converted to spaces

See also

Create Class Wizard - Select Naming Attributes

Purpose

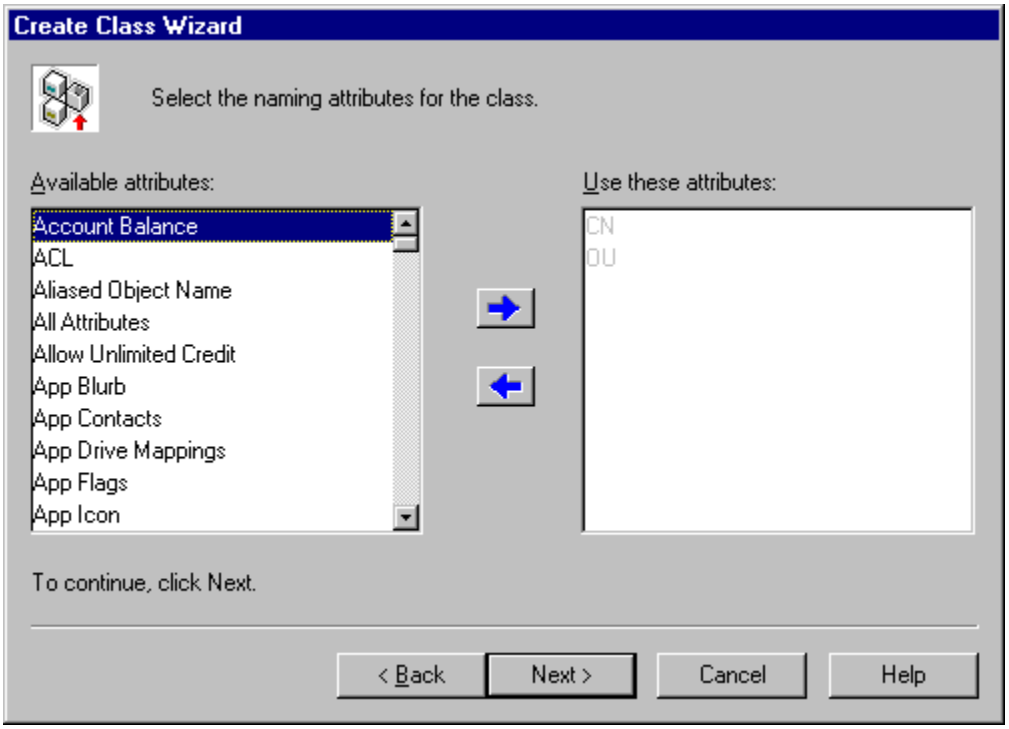
You can specify the naming attributes for this class. Naming attributes determine how the object is named.

The Available attributes list on this screen is made up of the mandatory and optional attributes that are being inherited by or explicitely assigned to this new class. If the attribute you want to select is not in the list, add it to either the mandatory or optional attributes lists and then return to this screen.

Note: If you select an optional attribute as a naming attribute, the optional attribute becomes mandatory.

Options

For explanations of features, click where *appears.*



See also

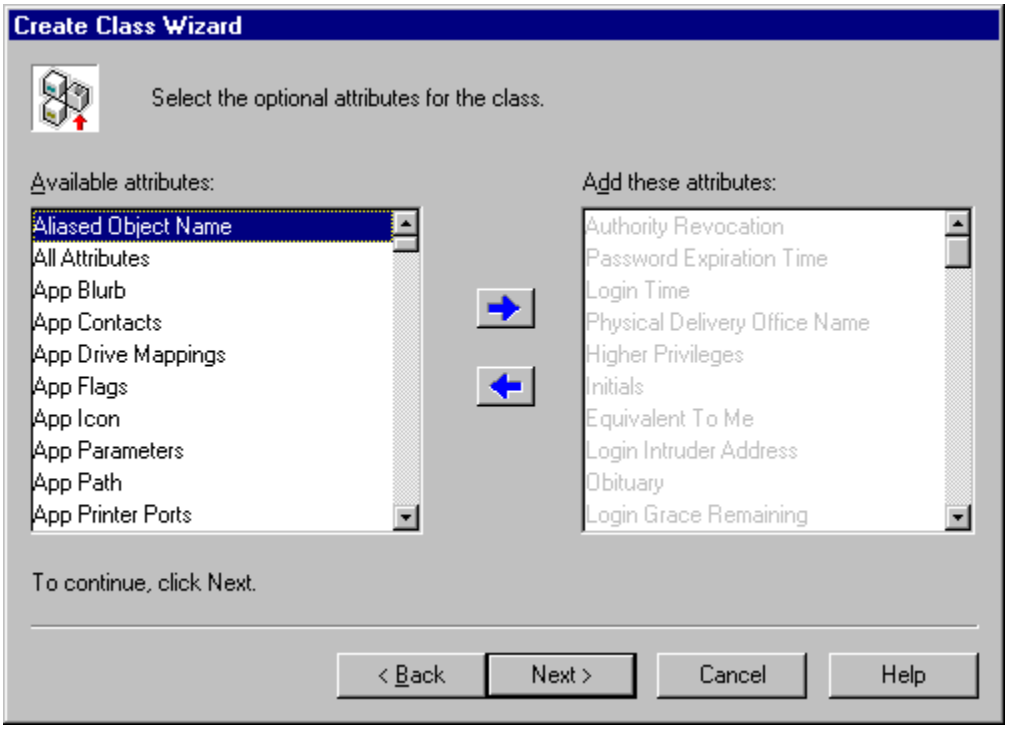
Create Class Wizard - Select Optional Attributes

Purpose

You can specify the optional attributes for this class.

Options

For explanations of features, click where *appears.*



See also

Create Class Wizard - Summary of New Class to Be Created

Purpose

This screen summarizes of the choices you have made for this proposed new class.

Options

At this point you can do one of three things:

- Approve the new class by choosing Finish
- Modify the new class by choosing Back
- Cancel the new class by choosing Cancel

See also

Create a Class

Purpose

You can add a class to your existing schema as your organizational needs change. The Create Class Wizard helps you accomplish this task correctly.

To Create a Class

1. Select Object > Create New Class
2. Follow the steps outlined in the Create a Class Wizard.

   Help is available throughout the wizard. You can cancel or back up at any time prior to clicking Finish found on the last screen.

See also

Create an Attribute

Purpose

You can create a new attribute for your existing schema as your organization's informational needs change. The Create an Attribute Wizard helps you accomplish this task correctly.

To Create an Attribute

1. Select Object > Create New Attribute.
2. Follow the steps outlined in the Create an Attribute Wizard.

   Help is available throughout the wizard. You can cancel or back up at any time prior to clicking Finish found on the last screen.

See also

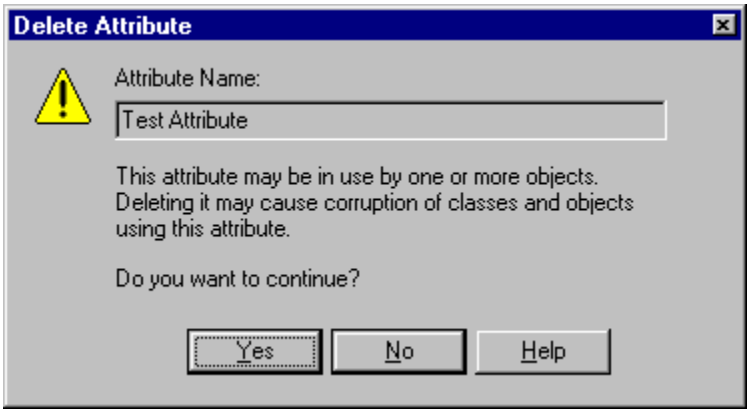
Delete Attribute Dialog Box

Purpose

This screen confirms your action to delete the attribute name listed.

Options

For explanations of features, click where *appears.*



See also

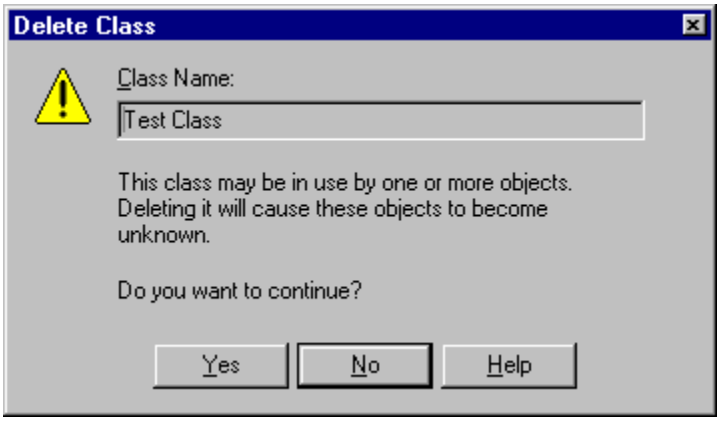
Delete Class Dialog Box

Purpose

This screen confirms your action to delete the class name listed.

Options

For explanations of features, click where  *appears.*



See also

Delete a Class

Purpose

You might want to delete a class from the schema

- After merging two trees and resolving class differences
- Any time a class has become obsolete

To Delete a Class

1. Ensure that the class you want to delete is not in use by any object.

   Since determining where a class is in use is tricky (you must check this on the local servers), we recommend you only delete classes that you have created and that you are relatively certain that no one has used.

   Note: You cannot delete a base schema class because a non-removable flag is set by NDS*.

   Note: You cannot delete a class until all instantiated objects using the class have been deleted.
2. From the NDS Schema Manager window, highlight the class.
3. Select Object > Delete Class.
4. Verify that the class you want to delete appears in the Delete Class window, and then click Yes.

See also

Delete an Attribute

Purpose

You might want to delete an attribute from the schema

- After merging two trees and resolving attribute differences
- Any time an attribute has become obsolete

Note: You cannot remove an attribute from an existing class. You can remove an attribute only if, while adding optional attributes, you make a mistake and you have not yet clicked OK to save your changes.

Delete an Attribute

1. Ensure that the attribute you want to delete is not in use by any object.

   Note: NDS* Schema Manager will not allow you to delete an attribute that is in use by any class.

   a. From the NDS Schema Manager window, double-click the attribute.
   b. In the Attribute Information window, view the Classes using attribute list..
   c. When you are finished viewing the attribute information, choose Close.
2. From the NDS Schema Manager window, highlight the attribute.
3. Select Object > Delete Attribute.
4. Verify that the attribute you want to delete appears in the Delete Attribute window, and then click Yes.

Designing the Schema

Designing your schema initially can save you time and effort in the long run. You can view the base schema and determine if it will meet your needs or if modifications are required. If changes are needed, use this utility to complete the following tasks.

Understanding class inheritance hierarchy

Determining required changes

Extending the schema

Managing the schema

See also

Determining Required Changes

Review the existing classes and attributes, and determine what, if any, changes you need to make to your existing schema. Ensure that the existing classes and their associated attributes meet your informational needs.

Planning Schema Extensions

We recommend that you review the existing class hierarchy and determine what, if any, changes need to be made to your existing schema. A class hierarchy will help identify where you can make use of the inheritance feature found in the Create Class Wizard.

See also

Extending the Schema Overview

You can extend the schema of a tree by creating a new class or attribute.

You don't need to extend the schema, but you now have the ability to do so with Schema Manager. You can extend the schema as needed to meet organizational needs. For example, you may want to extend your schema if your organization required special footwear for employees and you needed to keep track of employee shoe sizes. You might want to create a new attribute called Shoe Size and then add it to the User class.

Creating a Class

The "Create Class Wizard" helps you create new classes quickly and accurately. The wizard prompts you to

- Name the new class
- Specify the class inheritance--if you want the new class to inherit class flags and attributes from one or more classes.
- Set class flags
- Select mandatory attributes
- Select optional attributes
- Select naming attributes
- Select container classes

Creating an Attribute

The "Create Attribute Wizard" helps you create new attributes quickly and accurately. The wizard prompts you to

- Name the new attribute
- Select the attribute's syntax
- Set attribute flags

Managing the Schema Overview

You might need to make changes to your schema as your organization's informational needs change. For instance, if you never required a FAX number before on your User object, but now you need to, you can create a new User class that has FAX Number as a mandatory attribute, and then begin using the new User class to create User objects.

You can modify an existing class by adding one or more optional attributes. You can modify an existing schema by either extending the schema or by deleting classes or attributes.

Adding an Attribute to a Class

You can add mandatory attributes to a class only while creating a new class.

You can add optional attributes to existing classes any time your organization's informational needs change, or when you are preparing to merge trees.

Extending the Schema

You can extend the schema of a tree by creating a new class or attribute.

You don't need to extend the schema, but you now have the ability to do so with Schema Manager. You can extend the schema as needed to meet organizational needs. For example, you may want to extend your schema if your organization required special footwear for employees and you needed to keep track of employee shoe sizes. You might want to create a new attribute called Shoe Size and then add it to the User class.

Deleting a Class

You can delete a class any time a class has become obsolete, but, prior to deleting it, you should first make sure the class is not being used by any Directory object. You cannot delete a class until all instantiated objects using the class have been deleted

Deleting an Attribute

You can delete an attribute any time an attribute has become obsolete, but you should make sure the class is not being used by any NDS object. You cannot delete an attribute that is in use by any class.

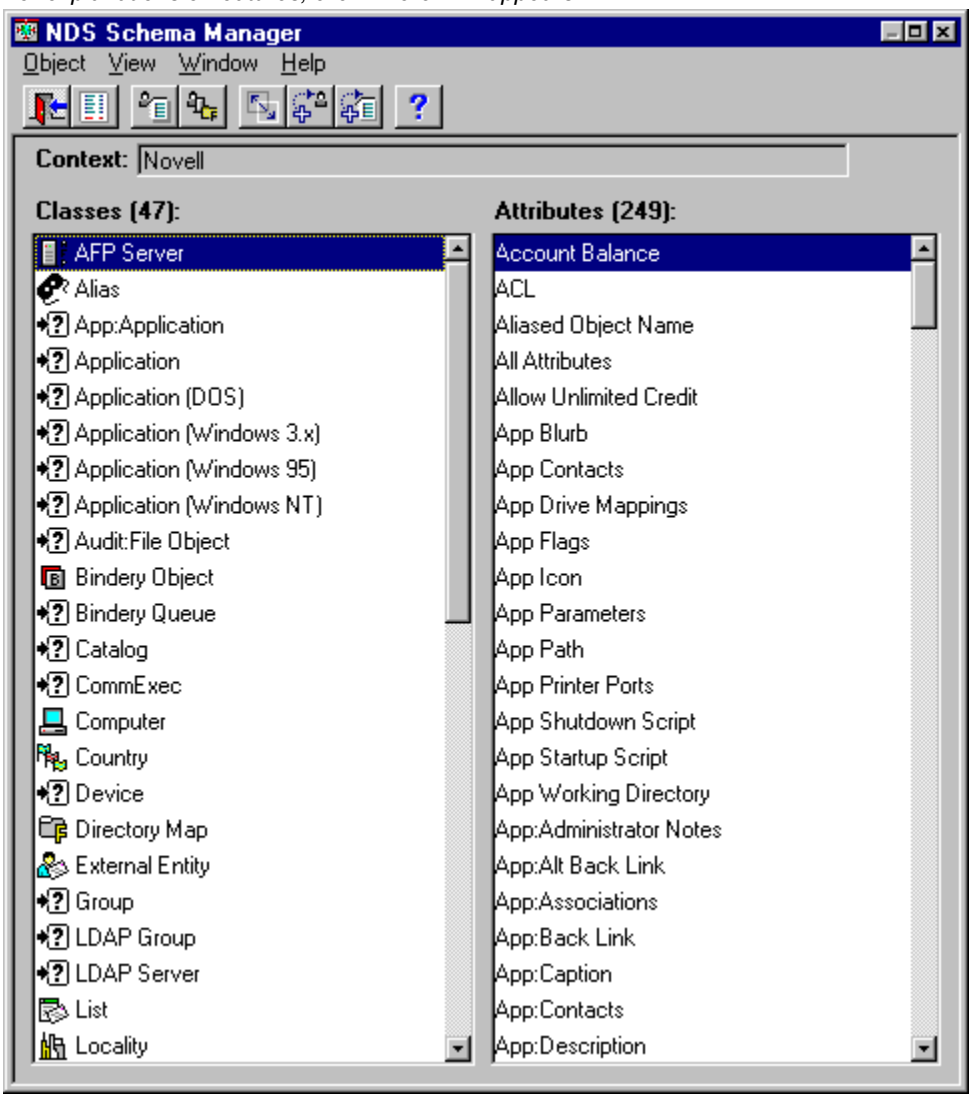
Sample Schema

Purpose

The following screen is provided as a sample of part of a schema. Your base schema may appear similar, with the exception of the classes with the icon. This icon is assigned to all classes which are extensions to the base schema.

Options

For explanations of features, click where appears.



See also

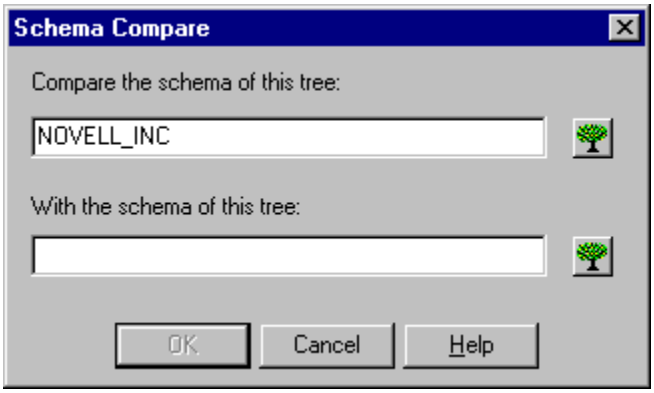
Schema Compare Dialog Box

Purpose

You can compare the schemas of two trees to discover their discrepancies before merging the trees, or anytime you want two trees to be parallel. You are required to log in as ADMIN to both trees before completing the comparison. If you haven't already logged in before you choose a tree, a dialog box will be provided.

Options

For explanations of features, click where *appears.*



See also

Schema Compare Results Dialog Box

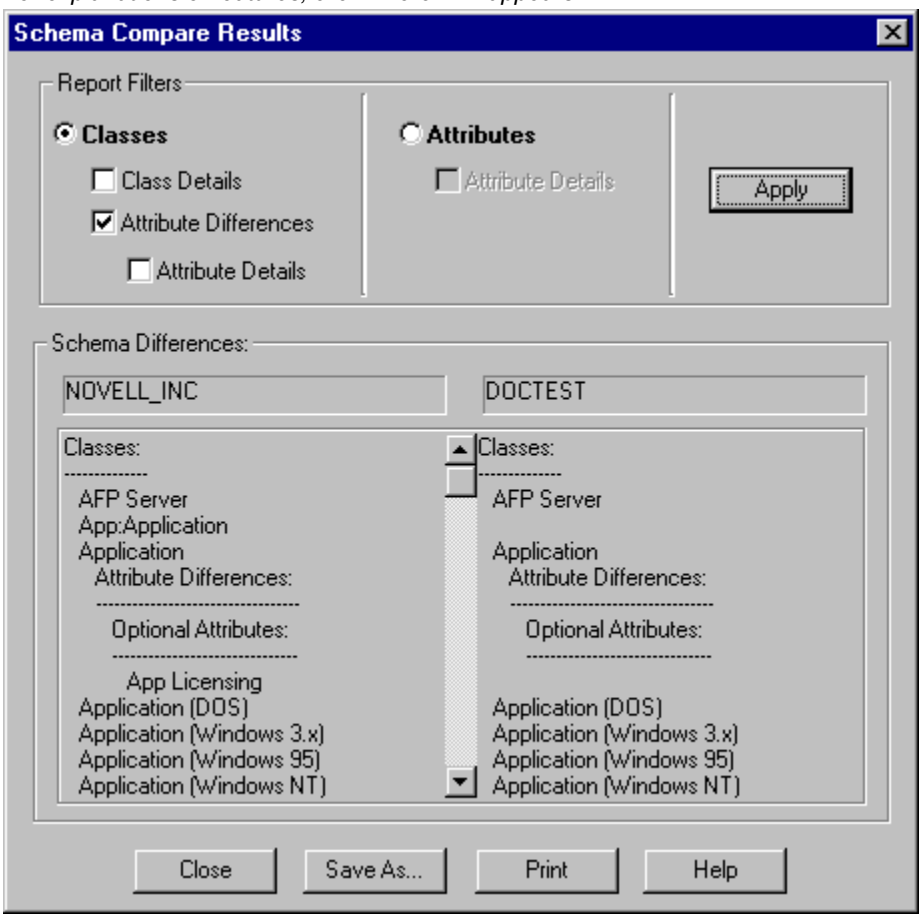
Purpose

You can view the results of the schema comparison you requested on the previous screen. In the sample below the App:Application class in the NOVELL_INC tree is paired with a blank space in the DOCTEST tree. This indicates that there is no matching class in the DOCTEST tree for the App:Application class.

Note: To resolve discrepancies, use the DS Repair utility to revert to the base schema.

Options

For explanations of features, click where *appears.*



See also

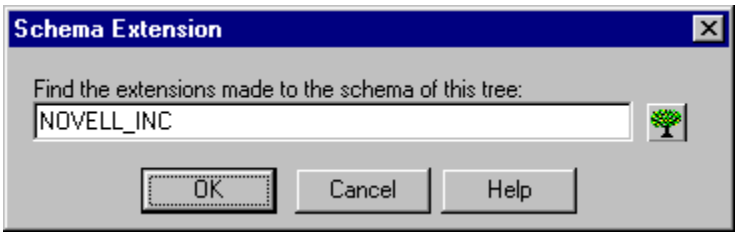
Schema Extension Dialog Box

Purpose

You can choose to view the extensions to the schema only, which includes all classes and attributes added to the base schema (the schema that shipped with the product).

Options

For explanations of features, click where *appears.*



See also

Schema Extensions Report Dialog Box

Purpose

This screen summarizes all the schema extensions to the selected tree. Schema extensions are any modification to the original schema (the base schema) of this tree.

Contents

This summary should contain the following information:

- Total number of classes
- Total number of attributes
- Total number of new or modified classes added
- Total number of new or modified attributes added
- A list of all new or modified classes
- A list of all new or modified attributes
- Classes using attributes

After viewing the report, you can choose to save it to a file or print it.

See also

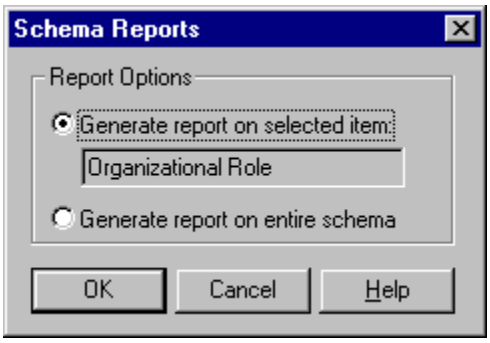
Schema Reports Dialog Box

Purpose

You can generate a report on a selected class, on a selected attribute, or on the entire schema. You must generate a report on one of these items before you will be able to print the information.

Options

For explanations of features, click where appears.



Trademarks

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Understanding Class Inheritance Hierarchy

What Is Inheritance Hierarchy

A class hierarchy shows how a class is associated with a parent class. This is a way of associating similar classes and allowing attributes to be inherited. It also defines the types of containers in which the class is valid.

The schema has several attributes and classes and a fundamental class hierarchy. (To view the current class hierarchy, from the Object menu, choose Class Manager and see the Class Manager help screen.)

When creating a new class, the network supervisor can use the class hierarchy and the additional attributes available to customize each class. The supervisor can specify an inheritance class (which will allow the new class to inherit all of the attributes and flags of a class higher in the hierarchy), and can then customize the new class by selecting one or more attributes to add to those which were inherited. The additional attributes can be selected as mandatory, naming, or optional attributes.

Network supervisors can also modify existing classes by adding optional attributes.

Understanding Mandatory and Optional Attributes

Introduction

Every NDS object has a schema class that has been defined for that type of object, and a class is a group of attributes organized in a meaningful way. Some of these attributes are mandatory and some are optional.

Mandatory Attributes

A mandatory attribute is one that must be completed when an object is being created. For instance, if a new user is being created using the User class, which has the employee number as a mandatory attribute, then the new user object cannot be created without providing the employee number.

Optional Attributes

An optional attribute is one that can be completed if desired but can be left without content. For instance, if a new User object is being created using the User class, which has Other names as an optional attribute, then the new User object can be created with or without data provided for that attribute--depending on whether the new user is known by other names.

An exception to the rule is when an optional attribute is used for naming, the attribute then becomes mandatory.

Understanding Schema Classes, Attributes, and Syntaxes

Classes

A class is like a skeleton for a Directory object. A Directory object is a class that has been instantiated with data. In other words:

CLASS + DATA = DIRECTORY OBJECT

Network supervisors select a class as a starting point in defining a Directory object. The class is like a request form for a specific type of Directory object. Once the class is selected, the supervisor, in a sense, completes the "request form" in order to provide essential and specific information on the new Directory object.

The class has a class name, an inheritance class (unless it is at the top of the class hierarchy), class flags, and a group of attributes. Classes are named like Directory objects--User, Printer, Queue, Server--yet they are just structure, no content.

The inheritance class is a class that is used as a starting point. All of the attributes granted to the inheritance class are inherited by the classes that come below it in the class hierarchy.

Attributes

Attributes are the data fields in a database. If a class is like a form, then the attribute would be one question blank on the form. When an attribute is created, it is named (such as "surname" or "employee number") and given a syntax type (such as "string A-Z, 0-9" or "number -999 to 999"). From then on, it is available in the attribute list.

Syntaxes

There are 29 syntax options from which to choose (available through a drop down box provided), such as "Case Exact String" and "Alpha-numeric." These are used to specify how you want data entered for each attribute. The syntax can only be specified when an attribute is created. You cannot modify it later.

Available syntaxes include;

 Alpha-numeric

 Case Exact String

 Number -999 to 999

 String A-Z, 0-9

Understanding Schema Manager

Schema Manager is an enhancement to NDS Manager (a Windows**-based utility that allows for partition management). It allows those with supervisor rights to a tree to customize the schema of that tree. Schema Manager is available from the Object menu in NDS Manager after you select a partition.

Use Schema Manager to:

- View a list of all classes and attributes in the schema.
- View information on an attribute such as its syntax and flags.
- Extend the schema by adding a class or an attribute to the existing schema.
- Create a class by naming it and specifying applicable attributes, flags, containers to which it can be added, and parent classes from which it can inherit attributes.
- Create an attribute by naming it and specifying its syntax and flags.
- Add an attribute to an existing class.
- Compare the schemas of two trees and print the results.
- View or print a report on a selected class or an attribute, or on the entire schema.
- View or print the extensions to the schema.
- Delete a class that is not in use or that has become obsolete.
- Delete an attribute that is not in use or that has become obsolete.
- Identify and resolve potential problems.

Understanding the Schema

What is the Schema?

The schema defines what will become an NDS object (such as users, printers and groups) and which information is required or optional at the time that NDS object is created. Every NDS object has a schema class that has been defined for that type of object.

Base Schema

The schema that originally shipped with the product is called the base schema.

Extended Schema

The difference between the base schema and the extended schema is simple. Once the base schema has been modified in any way--such as adding a new class or a new attribute, then it is considered the extended schema.

You don't need to extend the schema, but you now have the ability to do so. Novell has created the Schema Manager utility, which allows the schema to be extended as needed to meet organizational needs. For example, you may want to extend your schema if your organization required special footwear for employees and you needed to keep track of employee shoe sizes. You might want to create a new attribute called Shoe Size and then add it to the User class.

Schema Manager Utility

Use this utility to extend the schema. It is available from the Object menu in the NDS Manager utility after you select a partition.

For more information on Schema Manager, see Understanding Schema Manager.

See also

View Schema Report Dialog Box

Purpose

The report you chose to generate should be displayed. Below is a list of the type of information you can expect to see on each type of report.

Report of a Selected Class

- Mandatory, naming, and optional attributes
- Containment
- Inheritance
- Class flags

Report of a Selected Attribute

- Syntax
- Attribute flags
- Classes using attribute

Report of the Entire Schema

- Number of classes
- Number of attributes
- Classes (listed)
- Attributes (listed)

After viewing the report, you can choose to save or print this report.

See also

View a Class

Purpose

You can see which attributes have been specified as mandatory, naming, and optional attributes for each class by viewing the class. You can also see

- Class inheritance hierarchy
- What types of container objects can contain this class
- Which class flags have been set

To View a Class

1. From the NDS Schema Manager window, double-click a class.
   The Class Manager window displays.
2. To view the inheritance hierarchy for this class, click Class Inheritance, view it, and then click Close.
3. When you are finished viewing the class information, click Close.

See also

View an Attribute

Purpose

You can view information about a selected attribute, including

- The specified syntax
- Which attribute flags are set
- Which classes are currently using the attribute

Note: You cannot modify an attribute once it has been created, but you may want to delete it and recreate it. However, if you do so, the classes in the Classes using this attribute list will become unknown until you recreate the attribute.

To View an Attribute

1. From the NDS* Schema Manager window, double-click an attribute.
   The classes in the Classes using this attribute list will become unknown if you choose later to delete this attribute.
2. When you are finished viewing the attribute information, click Close.

See also

View and Print Schema Extensions

Purpose

You can view the extensions made to the schema of any tree, which includes all classes and attributes added to the base schema (the schema that shipped with the product). You might want to do this to determine what types of classes and attributes have been added. It might also be useful while troubleshoooting to help you narrow your focus to the extensions only.

To View or Print Schema Extensions

1. Select Object > Schema Extensions.
2. Click the tree icon, select a tree, and then click OK.

   Your current tree is the default, but you can select another tree.
3. Click OK.
4. If you want to print the results, click Print, complete the Print dialog box, and then click OK.
5. When finished viewing the results, click Close.

Another Method

Some schema extensions are made apparent when icons display next to class names in class lists: When a class is added to the schema, it is automatically assigned the Unknown class icon  .

Note: The Unknown class is part of the base schema. It is the only class with the  icon that is not an extension to the schema.

See also

View and Print a Schema Report

Purpose

You can view or print a schema report on a selected class, a selected attribute, or the entire schema. Each report has unique content.

- A report on a selected class includes a list of attributes for that class.
- A report on a selected attribute includes a list of classes using that attribute.
- A report on the entire schema includes lists of classes and attributes.

For a complete list of what is included in each report, see View Schema Reports Dialog Box.

To View or Print a Schema Report on a Selected Class or Attribute

1. From the NDS* Schema Manager window, highlight a class or an attribute.
2. Select Object > Schema Reports.
3. Click Generate report on selected item.
4. Ensure the class or attribute you selected appears in the window, and then click OK.
5. If you want to print the report, click Print, complete the Print dialog box, and then click OK.
6. When you are finished viewing the report, click Close.

To View or Print a Schema Report on the Entire Schema

1. Select Object > Schema Reports.
2. Click Generate report on entire schema.
   Note: The report will be generated by default on your current tree's schema.
3. If you want to print the report, click Print, complete the Print dialog box, and then click OK.
4. When you are finished viewing the report, click Close.

See also

Viewing and Printing the Schema Overview

You might want to view or print the schema to evaluate how well the schema meets your organization's informational needs. The larger and more complex your organization, the more likely it is that you will want to customize the schema, but even small organizations may have unique tracking needs. Viewing or printing the schema can help you determine what, if any, extensions you need to make to the base schema.

View a Class

You can see which attributes have been specified as mandatory, naming, and optional attributes for each class by viewing the class. You can also see what types of container objects may contain this class, and see which class flags have been set.

View an Attribute

You can view information about a selected attribute, including the specified syntax, which attribute flags are set, and which classes are currently using this attribute.

Note: You cannot modify an attribute once it has been created.

View and Print Schema Extensions

You can generate and view the extensions made to any tree. You can also print the results.

View and Print a Schema Report

You can generate and view a schema report on a selected class, a selected attribute, or on the entire schema. You can also print the report.

Compare Schemas

You can compare the schemas of any two trees to identify the differences between their classes or attributes. This is helpful when you are preparing to merge two trees.

Displays available attributes alphabetically.

Displays all attributes currently assigned to this class. The dimmed attributes are those inherited or previously assigned to this class, rather than those assigned this session. You can only remove attributes added to this list prior to saving the additions.

Removes the selected attribute from the Current attributes list.

Note: You cannot select a dimmed attribute.

Note: This doesn't affect the Available attributes list.

Displays the specified flags of the chosen attribute.

Displays all classes that are currently using this attribute. This list is updated when classes are modified.

Displays the specified syntax of the chosen attribute.

Opens the "Add Optional Attribute" dialog box.

Displays the flags which have been specified for this class.

Opens the "Class Inheritance Hierarchy" dialog box, which provides an inverted view of the class hierarchy. It is a view-only screen.

Displays which types of objects can contain this class.

Displays the mandatory attributes that have been specified for this class.

Displays the naming attributes which have been specified for this class.

Displays the optional attributes that have been specified for this class.

Displays the attributes previously assigned (those that are dimmed), as well as any additional ones you choose from the Available Attributes list.

Available attributes are listed alphabetically.

Available classes are displayed alphabetically.

Displays the classes you chose from the Available Classes list. The new class will inherit attributes from the classes in the Inherit From list.

Removes the selected attribute from the Add these attributes list.

Note: This has no effect on the Available attributes list.

Removes the selected class from the Inherit From list.
This doesn't affect the Available Classes list.

Removes the selected attribute from the Use these attributes list.

Note: This has no effect on the Available attributes list.

Removes the selected class from the Use these classes list.

Note: This has no effect on the Available classes list.

Copies the selected attribute from the Available Attributes list to the list on the right of the screen.

Copies the selected class from the Available Classes list to the list on the right of the screen.

Displays the naming attributes currently assigned (those that are dimmed), as well as any additional ones you choose from the Available Attributes list.

Displays the classes that are allowed to contain this new class.

Choosing No at this point cancels the delete process. No delete will occur.

Prior to deleting this attribute, ensure no classes are using it.

Choosing No at this point cancels the delete process. No delete will occur.

Prior to deleting this class, ensure no objects are using it.

Displays the name of the attribute you chose on the previous screen.

Displays the name of the class you chose on the previous screen.

Lists all of the attributes in this tree's schema.

Lists all of the classes in this tree's schema.

Displays the name of the tree whose schema is being read.

This button bar provides quick access to several Schema Manager functions.
When you point to one of these icons in the utility, its name or purpose will display.

Displays the first of the two trees whose schemas you are comparing.

Generates the schema differences.

Choosing this option will add a description of the differences between two attributes which are named the same but which are not identical.

Choosing this option will display attributes that differ side by side. Also, when no attribute with the same name can be found, an attribute will be paired with a blank space.

Choosing this option will add a description of the differences between two classes which are named the same but which are not identical.

Choosing this option will display classes that differ side by side. Also, when no class with the same name can be found, a class will be paired with a blank space.

Lists the classes and/or attributes of the first tree you chose.

Lists the classes and/or attributes of the second tree you chose.

Displays the second of the two trees whose schemas you are comparing.

An editable field which displays the name of the tree you type in or choose whose schema extensions you want to see.

Choose this option when you want to view a report on the entire schema of your current tree.

Choose this option when you want to view a report on the selected class or attribute.

Note: The class or attribute was selected on the previous page.

Displays the name of the item (a class or an attribute) you chose on the previous screen.

Note: If the item selected is not the item you want to view, you must back up to the previous screen and highlight the item of your choice.

Click this button to select a tree.

Related Topics

- Add Optional Attributes Dialog Box
- Understanding Mandatory and Optional Attributes
- Create an Attribute
- Create a Class
- Delete an Attribute

Related Topic

Add an Optional Attribute to a Class

Related Topic

View an Attribute

Related Topics

- Create a Class
- Add an Optional Attribute to a Class

Related Topics

- Understanding Schema Classes, Attributes, and Syntaxes
- Understanding the Schema
- Schema Compare Results Dialog Box

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- Extending the Schema Overview
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- Viewing and Printing the Schema Overview
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Related Topic

View and Print Schema Extensions

Related Topic

View and Print a Schema Report

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Related Topics

- Viewing and Printing the Schema Overview
- View and Print a Schema Report
- Schema Extensions Report Dialog Box

Related Topics

- Viewing and Printing the Schema Overview
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- View a Class
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