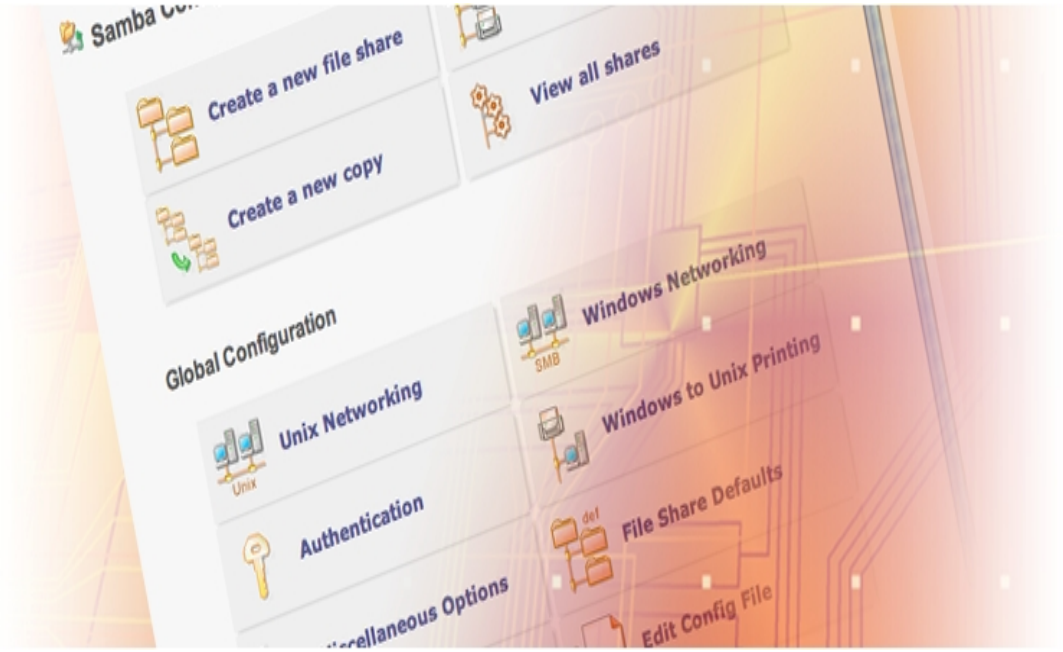
EmuSoftware

NetDirector Systems Management for Linux

Move Forward with Linux

NetDirector User's Guide
Version 1.0.0



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Introduction

Emu Software's NetDirector Configuration Manager is an open and extensible management framework for managing configurations of common open source network services. It offers both form driven and fine-grained control of server configuration files with many added benefits including rollback and policy-based access. NetDirector gives you the on-demand control you need to tune your Linux network in an ever-changing world.

Using NetDirector, servers can be grouped together according to organization, e.g. Finance; by geographic region, e.g. Southeast U.S.; or by server application, e.g. DNS, DHCP, Samba, etc. With NetDirector, you can apply policies to each and every server in the server groups that you have defined — and do it all at once!

The Emu client presents the administrator with a very simple, intuitive design. All communications between the server manager and the server agent are encrypted with SSL.

Key features of NetDirector

NetDirector supports configuration of common services on multiple *nix-type OSes:

Management Capabilities

- HTTP (Apache)
- DNS (BIND)
- DHCP
- File and Print Services (Samba, NFS)
- Email (Postfix, Sendmail)
- FTP (VSFTP)
- Users and Groups
- Database (MySQL)*
- Directory Services (LDAP)*
- Firewall (iptables)*

Platform Support

- Linux - Red Hat (RHEL and Fedora), Debian, SuSE, Mandriva, TurboLinux
- BSD
- Solaris (8, 9, 10 on Sparc and x86)

Hardware Support

- x86-based systems (Intel, AMD)
- IBM xSeries, pSeries, iSeries, zSeries
- Sun Sparc (Solaris)

**Features included in NetDirector Release 3.0*

Unique Features of NetDirector

- Multi-server configuration change capability speeds management of large and/or distributed networks
- Change scheduling applies changes immediately or schedules them to occur at a future time
- Tracking of past and scheduled changes, who made them, and what was changed

- Rollback to any previous state speeds recovery and reduces application downtime
- Role-based permissions provide security and regulatory compliance
- Server configuration cloning aids disaster recovery, migration and adding new servers

NetDirector provides IT professionals with an intuitive and powerful system for the administration of local and distributed Linux, Solaris and BSD servers, while ensuring that IT executives have an unparalleled level of visibility and control over these assets.

NetDirector, which is based on a highly scalable and secure client-server model, has three primary components: Server Agents that reside on each server under management and are responsible for receiving and implementing configuration changes, a Server Manager that maintains status of each Server Agent and receives and relays user commands for configuration changes, and a highly intuitive Web-based Graphical User Interface, or GUI, that allows the grouping of servers according to virtually any organizational criteria (e.g. geography, service, or workgroup) and the simultaneous editing of configurations across any number of servers and/or groups of servers. Communication between the Agent and Server Manger is secured by encrypting the conversations with SSL.

Additional Features

- See only the servers running the service you want to manage at a time - select a service, and the Server Tree automatically filters to show only the servers in your network that are running that service.
- Configure all your servers from a central console - no more need to connect to each box

individually

- Schedule changes for off hours, no need for inconvenient maintenance windows.
- You can go straight to the configuration flat files through NetDirector, thus allowing you to configure manually, while still providing the benefits of rollbacks, role-based access control and scheduled changes
- NetDirector's log browser lets you view server and service logs on a per day basis. Just select the server, click the day, and browse the log.
- Use NetDirector to easily manage remote and local servers at the same time
- NetDirector's open API lets you extend the tool to manage additional services
- NetDirector gives you one system for managing all of your Linux, Solaris ad BSD servers
- NetDirector's unique server cloning feature lets you quickly migrate workloads across platforms
- NetDirector gives you true on-the-fly application management, whether you have a Windows or a UNIX background
- Experienced System Administrators can go straight to the configuration flat files through NetDirector, thus allowing them to configure manually, while still providing the benefits of rollbacks, role-based access control and scheduled changes.

Benefits

The NetDirector advantage is in convenience which leads to better productivity and consequently a more productive staff. Besides the obvious advantages the auditing system built into NetDirector can provide an additional layer of security and tracking in cases where regulatory compliance is a concern.

Convenience

Manual approaches to configuration can be slow and scripts are notoriously brittle. NetDirector's intuitive Web GUI for the configuration management of multiple servers simultaneously, and the ability to schedule any change for later, allows Administrators to more efficiently manage corporate and ISP server networks. Consider the convenience of scheduling the creation of a new virtual server across all your corporate Apache servers for Sunday at midnight, and receiving an Email when it occurs.

Cost Reduction

When applications go down, money gets lost. NetDirector dramatically improves the server configuration process and enables the rapid recovery from misconfigurations when they do occur. And, when you simplify the ongoing configuration management of your Linux network, you can more rapidly embrace Linux and Open Source for additional services. NetDirector from Emu Software can help you move yet more applications to Linux – Email, Directory Services, Firewalls, Databases – by taking the concern about managing the new Linux servers off the table.

Compliance Through Security Policy Enforcement

NetDirector has strict role-based access controls, providing IT managers with an easy way to "lock-down" Administrators to only the services and servers for which they are responsible. And because NetDirector keeps track of all changes, producing audit reports is vastly simplified. Always important, these auditing and control capabilities have taken on greater urgency as IT departments conform to new regulatory mandates, such as Sarbanes-Oxley and HIPAA.

Chapter 1: NetDirector Installation

NetDirector runs from java serverlets served from a Tomcat application server; data is stored either in a MySQL database or a postgreSQL database. The interface can be accessed from any java-enabled browser. NetDirector works by installing the NetDirector server manager on a central host machine and then communicates securely with agents on the managed servers. There are multiple options for installing NetDirector, the first is to use our NetDirector installer which automates the install the second is the manual process which requires a more hands on install but offers greater customization.

Automated NetDirector Server Manager Installation

NetDirector comes in two parts - the Server Manager, which controls the configuration changes, and the Server Agent, which resides on each server you want to manage and does the actual work of making the configuration changes. Both parts are installed independently, using an intelligent installer which can automatically choose to run either graphically or via text mode. The installation instructions included here use the graphical mode example, but the text mode offers the same options. You can force the text mode by running the installer .bin file with the "--mode text" option.

NetDirector Server Manager Default Installation

To install the Server Manager on a remote server you want to manage you will need to obtain the installer and make it executable.

```
[root@Emu ~]# chmod +x netdirector-demo-2.8.d-server-manager.bin
```

Once made into an executable file you can now run the installer by typing:

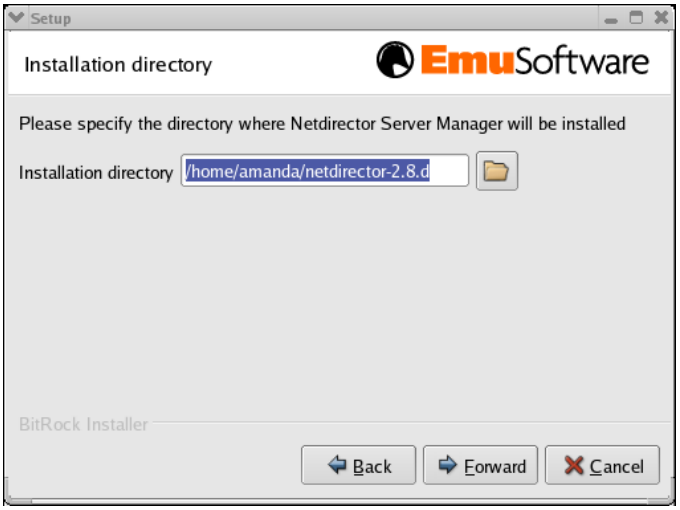
```
[root@Emu ~]# ./netdirector-demo-2.8.d-server-manager.bin
```

This will launch the Server Manager installer wizard and the welcome screen of NetDirector Server Manager Setup is displayed.

Click ***Forward*** to continue.

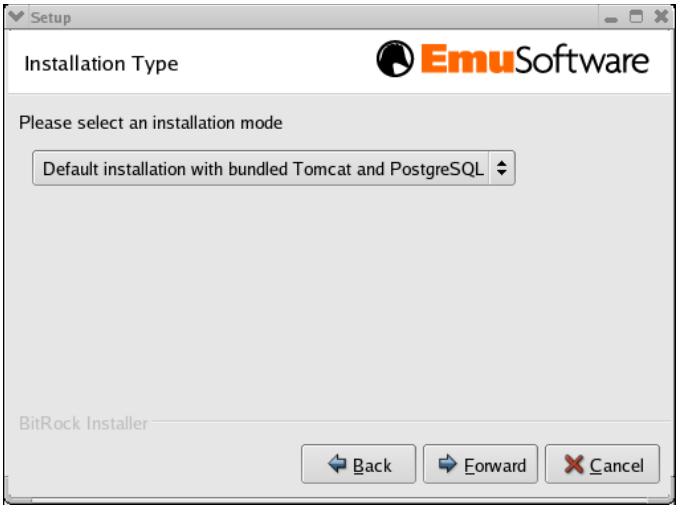
Next, you will need review the license agreement. You must accept the license agreement to continue the installation. Select "Yes" in response to the question "Do you accept this license?", then click ***Forward***.

On the next screen, specify what directory NetDirector Server Manager should install to. If you install as root, the default installation path is /opt/netdirector-2.8.d. If you install as non-root, the default installation path is $HOME/netdirector-2.8.d. If you wish to change the default, enter an installation directory. Click ***Forward*** to continue.



Next, select an installation type. Choose "Default installation with bundled Tomcat and PostgreSQL" or "Custom installation with existing Tomcat and PostgreSQL."

These instructions will assume a bundled installation. For custom installation instructions, see the next section: Instructions for Custom Installation. After selecting "Default installation with bundled Tomcat and PostgreSQL", click ***Forward***.

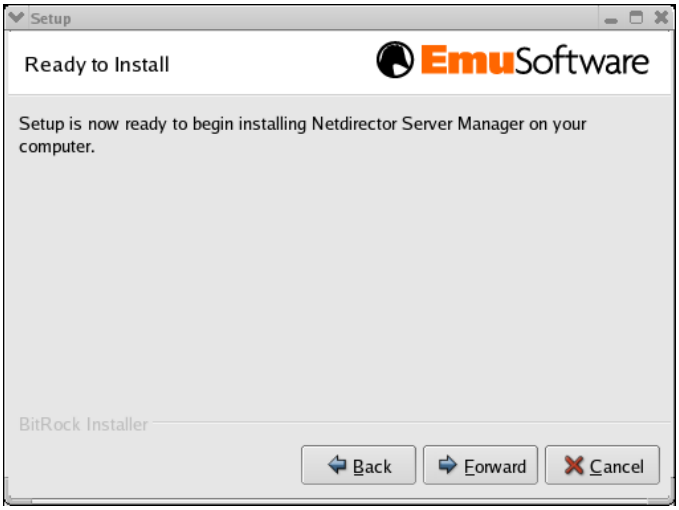


Bundled Installation	Custom Installation
This is the default installation choice. With this option, the Tomcat web server and the PostgreSQL database are installed from the NetDirector installation file. You will not be prompted for additional Tomcat or PostgreSQL configurations. Choose this option if you do not have an existing Tomcat or PostgreSQL installation.	If you have an existing Tomcat web server or PostgreSQL or MySQL database installation, choose custom to use the existing installation. The installer will prompt you for the existing configuration settings. For each component installation, you can choose to install the bundled component, or you can choose to use an existing component installation.

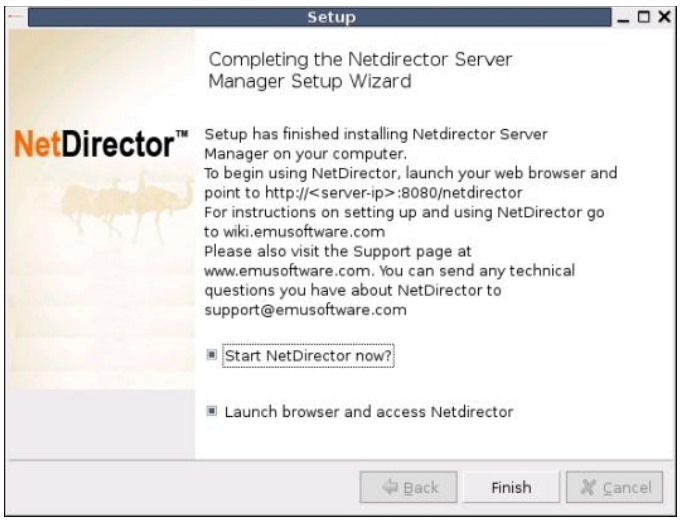
Be sure to run the installer as a user that has access to the tomcat directory files and has permissions to restart Tomcat or else the installer will fail.

The next screen asks if you would like to register NetDirector Server Manager as a service. It is recommended you select "Yes" so that the NetDirector Server Manager will be started every time the computer starts. Click ***Forward***.

At this point, NetDirector Server Manager is ready to install. You can click Back to go back and change any of the options you selected. To install NetDirector server Manager, click ***Forward***.



Once the files have completed installation, the installation wizard completion screen will appear. You have the option at this point to "Start NetDirector now?" - leave this option checked to start the NetDirector Server Manager service. Click ***Finish*** to complete the installation.



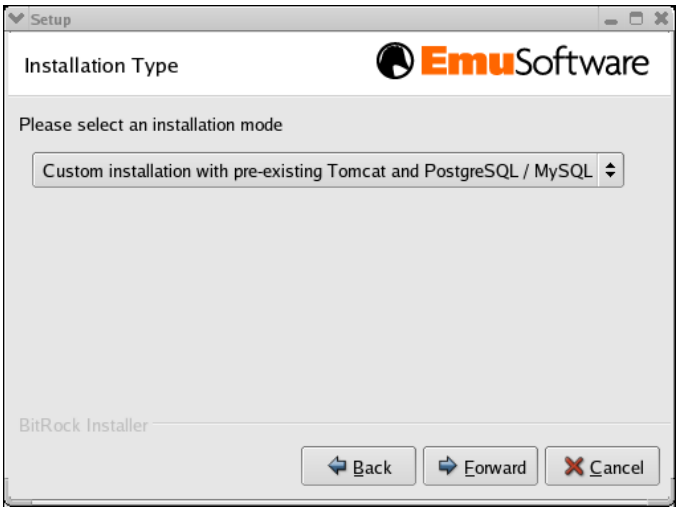
After installation the NetDirector application can be reached at its default URL: **http://servername:8080/netdirector**. Once you go to the URL you will see the login screen.

There is only one user in the NetDirector system at this point - the administrator of the management system. To setup the system you'll need to login to the Administrator section of NetDirector. The default username for the administrator account is 'admin' and the default password is 'admin'. Once logged in you can change the administrator's password in the Manage Users screen.

NetDirector Server Manager Custom Installation

NetDirector does not have to install its own tomcat and postgreSQL instances - it can use pre-existing installations of either or both, or use an existing MySQL as the database instead. This is considered a custom installation of NetDirector Server Manager.

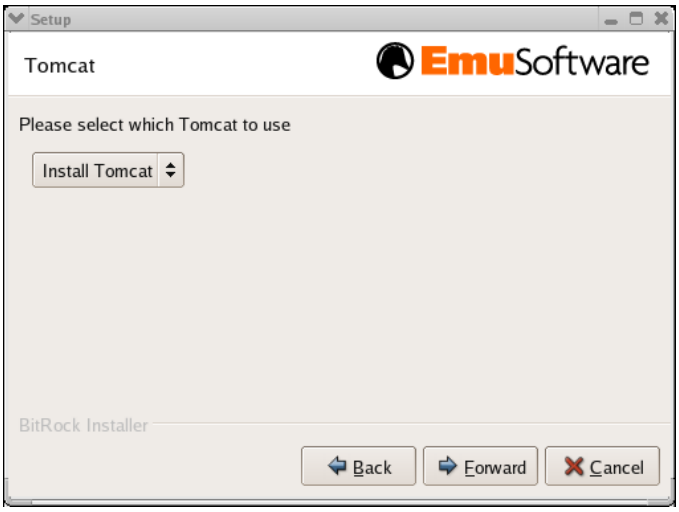
To perform the custom installation, follow the same steps as the default bundled installation until you get to selecting the installation type. At this point, select "Custom installation with existing Tomcat and PostgreSQL" and click ***Forward***.



The next screen will ask if you want to install Tomcat or use a pre-existing installation.

Select the desired option, and click ***Forward***.

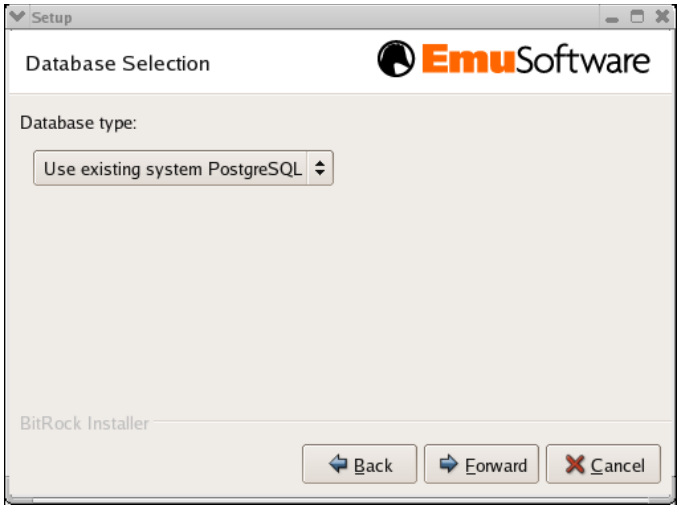
If you chose to use a pre-existing Tomcat installation, the next screen will ask what directory Tomcat can be found in. Enter the directory and click ***Forward***.



Be sure to run the installer as a user that has access to the tomcat directory files and has permissions to restart Tomcat or else the installer will fail.

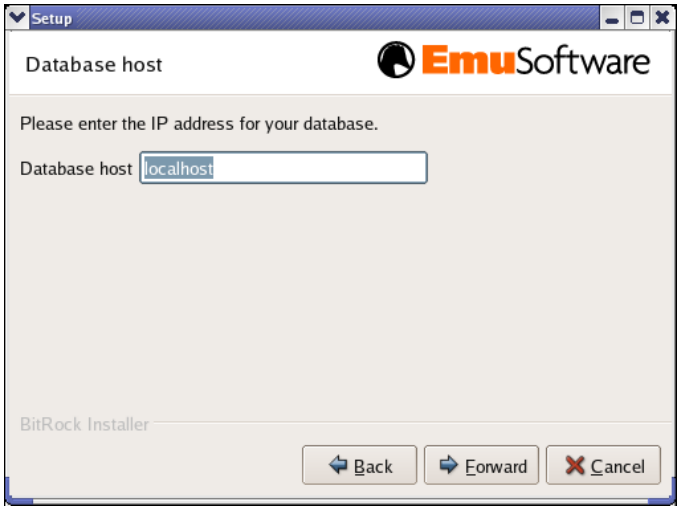
Next you will need to choose which database server you plan on using. Either MySQL version 4 or greater or PostgreSQL version 7.4 or greater can be used. If you chose PostgreSQL, you can either choose to install it with NetDirector, or use a pre-existing installation.

Make your selection, and click ***Forward***.



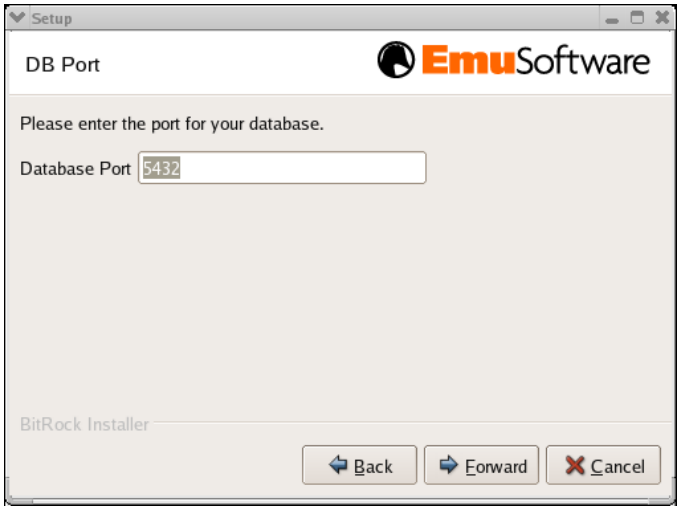
In this example we chose to use a pre-existing PostgreSQL. Then next screen asks for the IP address of the database server. Here we are installing both the database and Server Manager on the same Linux server so we can simply input 'localhost' as the IP address (NOTE: 127.0.0.1 will also work).

Click ***Forward***.

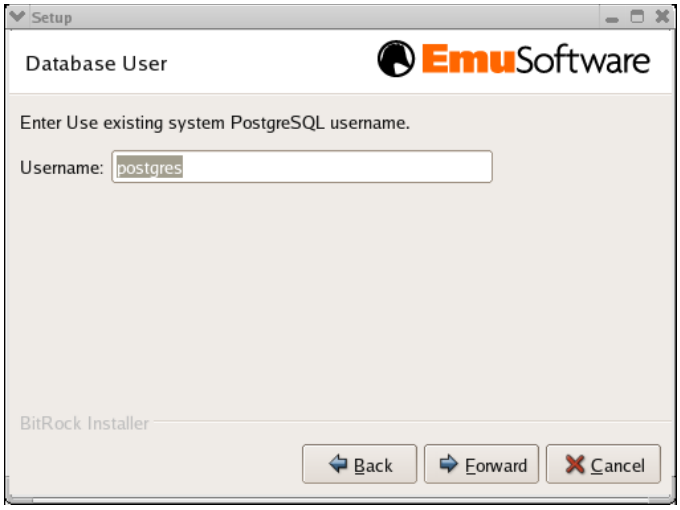


Then you will need to enter TCP/IP port address for the database server you are using. PostgresSQL uses 5432 by default so the installer will default to this port.

Click ***Forward***.



After entering in the network information for the database server you now need to tell the installer what user you want the installer and subsequently the Server Manager to communicate with the database as. For demo purposes in this example we are using root as the username, but this is NOT recommended in a live network install of a non-demo version of Server Manager.



Click ***Forward***.

Now you need to enter the password for the username entered in the last screen. Enter the password twice, and click ***Forward.***

Now, the installer will check the information provided by attempting to contact the database with the username and password given. If the information was entered with correct credentials you'll be asked to verify the installation info. If you are happy with the settings select ***Yes*** to install the Server Manager.

If you are reinstalling the NetDirector Server Manager you will see a screen (not shown) asking if you want to install a new demo database or upgrade the current installation.

NOTE: The installer will automatically ask you if you want to restart Tomcat. In order to successfully run the NetDirector Server Manager you should answer yes and let the installer restart Tomcat.

At this point, the rest of the installation should follow the same steps as in the bundled/default installation, for starting the service and completing the installation.

NetDirector Server Agent Installation

To in stall the Server Agent on a server you want to manage you will need to obtain the installer on your target server and make it executable.

```
[root@Emu ~]# chmod +x netdirector-2.8.d-agent-linux-installer.bin
```

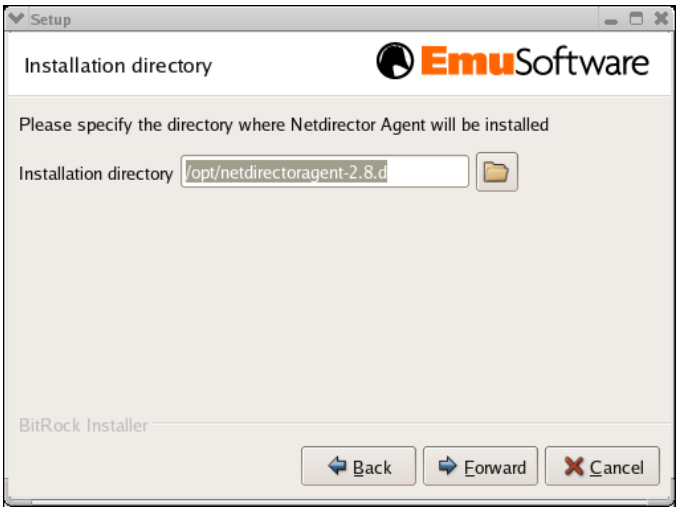
Once made into an executable file you can now run the installer by typing:

```
[root@Emu ~]# ./netdirector-2.8.d-agent-linux-installer.bin
```

This should launch the installer wizard and you should see a welcome screen.

Click ***Forward*** to start the installation setup.

The next screen asks what the installation directory is for the agent. If you install as root, the default installation path is /opt/netdirectoragent-2.8.d. If you install as non-root, the default installation path is $HOME/netdirectoragent-2.8.d. Select an installation directory, or enter a different directory, and click ***Forward.***



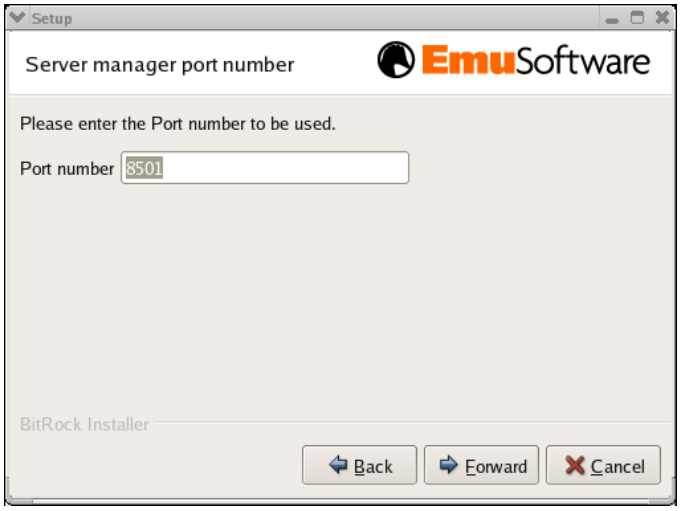
NOTE: the installer will create a directory inside the one entered here called ndagent and place all necessary files there.

Next you will need to enter the IP address for the server on which NetDirector Server Manager is installed.

Click ***Forward***.

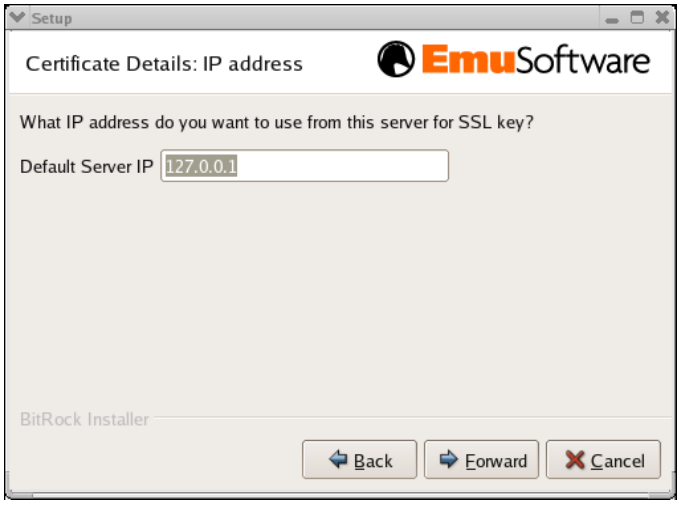
Next, you will need to enter the NetDirector Server Manager port number. This is the port number that the agent will use to communicate with the NetDirector Server Manager. Make sure that this port is not blocked by firewalls or other security products. The default port is 8501.

Click ***Forward***.



Now you will need to enter SSL Certificate details. On the first screen, you will need to enter the IP address you want to use for the SSL key.

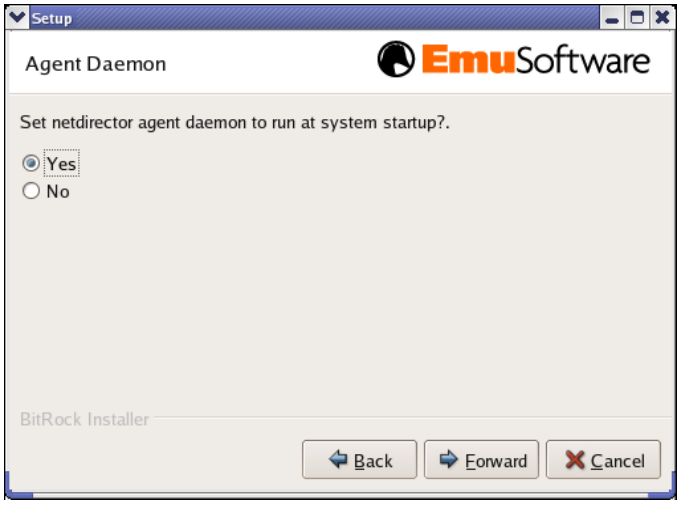
Click ***Forward***.



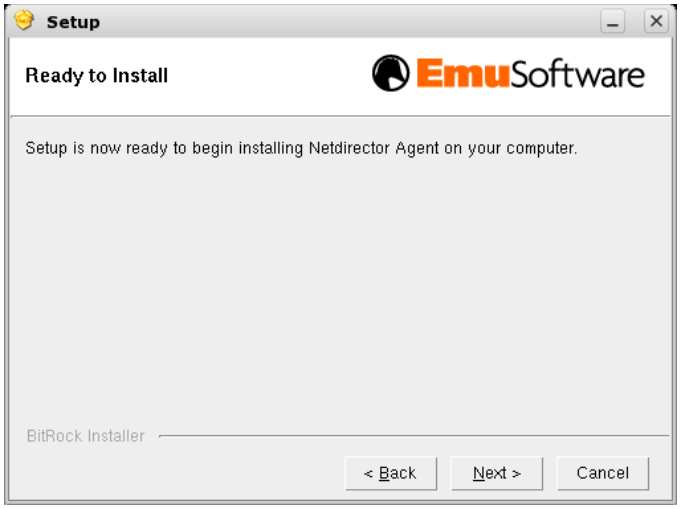
After entering in the SSL IP address information, you need to tell the local agent you are installing what port you are going to use to talk to Server Manager on, it will default to port 8500. This should be fine for most installs but can be changed if preferred. This the Port number to be used for the local SSL server. The default port is 8500. Enter the desired port, and click ***Forward***.

If you decide to change the default port here you need to be sure to change the default port when when you add this sever to the Server Manager.

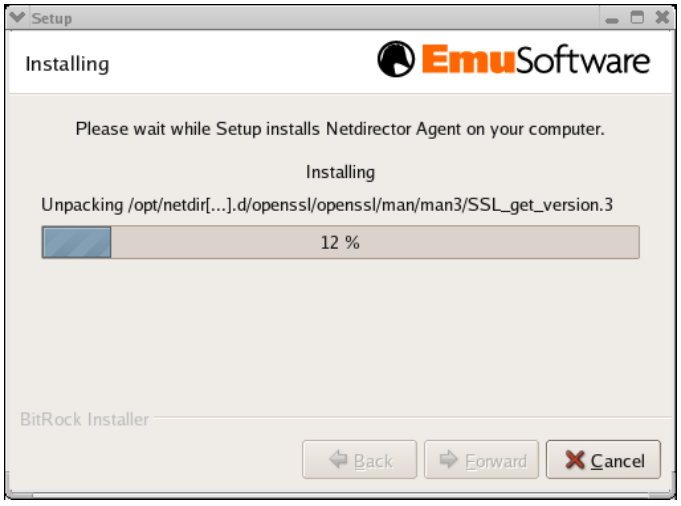
Next, you'll be asked if you want to have the agent automatically start on system startup. It is highly recommended that you select yes here. Click ***Forward***.



That's it, you are now done with your install setup. To install the Server Agent, click ***Forward***.



Please wait while setup installs NetDirector Agent on your computer.



Once finished, the installation is complete. Select the option to "Start agent now?" and click ***Finish***.

You can now manage your servers by connecting to NetDirector Server Manager.

Chapter 2: NetDirector Administration

Administrative tasks such as adding servers, adding users and configuring roles that facilitate the permission based access to various servers and services.

Setting up NetDirector Using the Administrator Functionality

When logged in to the Administrator section of NetDirector, you cannot use the system to manage servers. Rather, the Administrator section is specifically and exclusively for the purpose of adding users to the NetDirector system, and assigning the users to roles. How you choose to assign users to roles is entirely up to you.

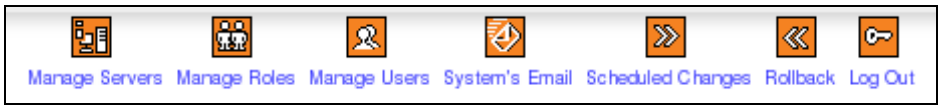
You may decide to make just one role and place all servers and all services running on those servers in that role. Further, you may decide to assign all users to this role. This configuration would result in all users of the NetDirector system having access to all servers and all services. We can call this the Permissive, or Open, configuration.

Alternatively, you may choose to create multiple highly specialized roles. For example, you may decide to create a role called Email, into which you place only your Email servers, and another role called Web into which you place your Apache, Bind and DHCP servers, and so forth. It would then be logical to assign your Email Administrators to the Email role, your Web Admins to the Web role, and so on. We can call this the Restrictive, or Closed, configuration.

There can be any number of shades of gray between these two extremes. The point is that NetDirector is designed to be as flexible as possible so that you can set it up to match the way you organize your IT department. And this customization starts with the Administrator capabilities of the tool.

Administrator Screen

Once logged in as the administrator, the tool bar at the top of the screen allows access to the various management setup screens.



Here are explanations of each button, from left to right:

- Manage Servers - Displays the Server Administration screen, where all servers under management are added, edited, or deleted.
- Manage Roles - Displays the Role Administration screen where groups of users are assigned to

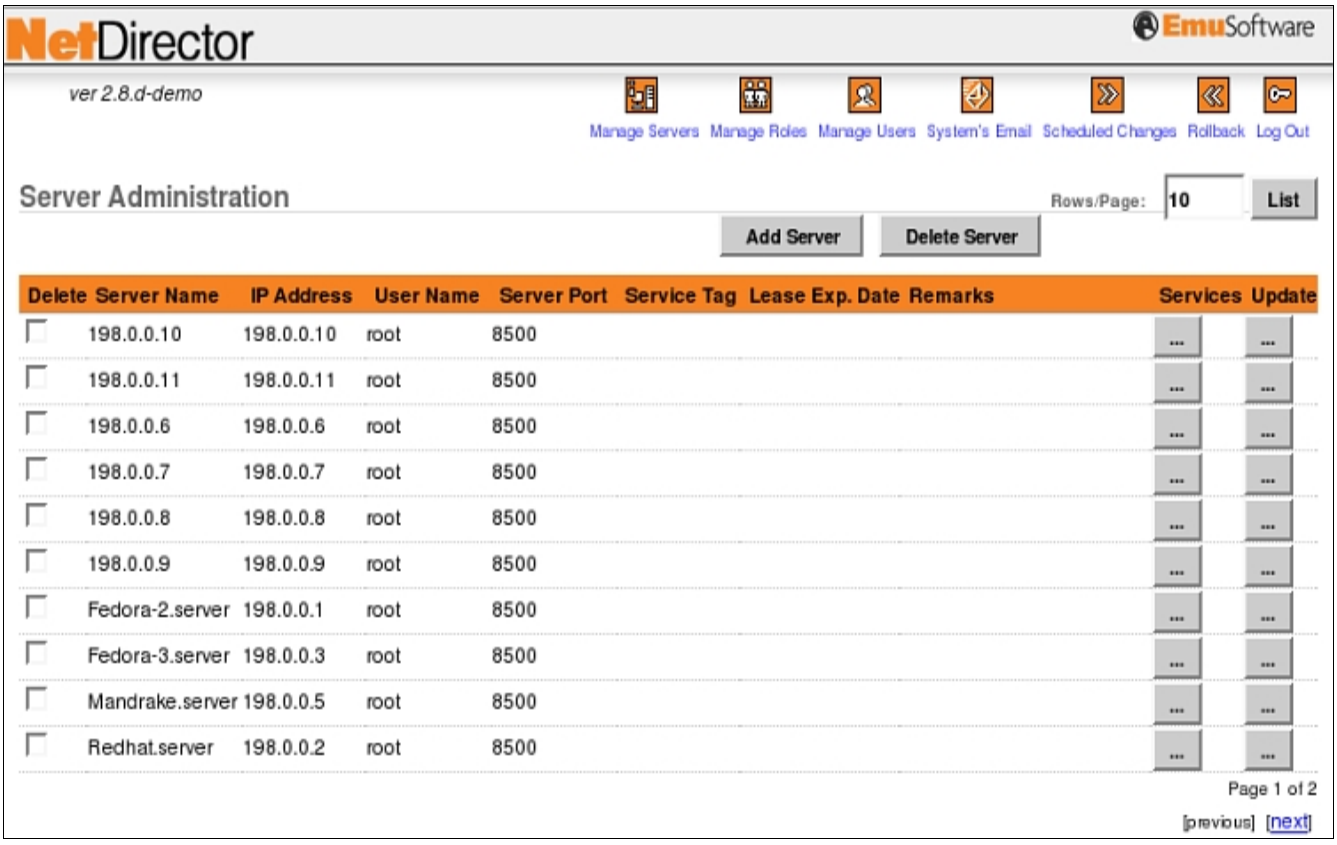
for management of the servers and services assigned to the role.

- Manage Users - Allows you to add and delete users, and assign them to specific Roles.
- System's Email button - Allows you to configure the email server information to allow NetDirector to send information to users via email.
- Scheduled Changes - Allows you to view all scheduled changes
- Rollback Changes - Allows you to view all rollbacks for any changes that have already taken effect.
- Log Out - Logs out the Administrator login and takes you back to the NetDirector login screen.

Manage Servers 

Manage Servers

Use the Manage Servers functionality to add servers to the NetDirector system. This must be done before any server can be managed by the system. The only prerequisites are that the server be running a version of Linux that NetDirector manages, that it have an Emu Software Server Agent installed, and that it be connected to the Server Manager by a network.



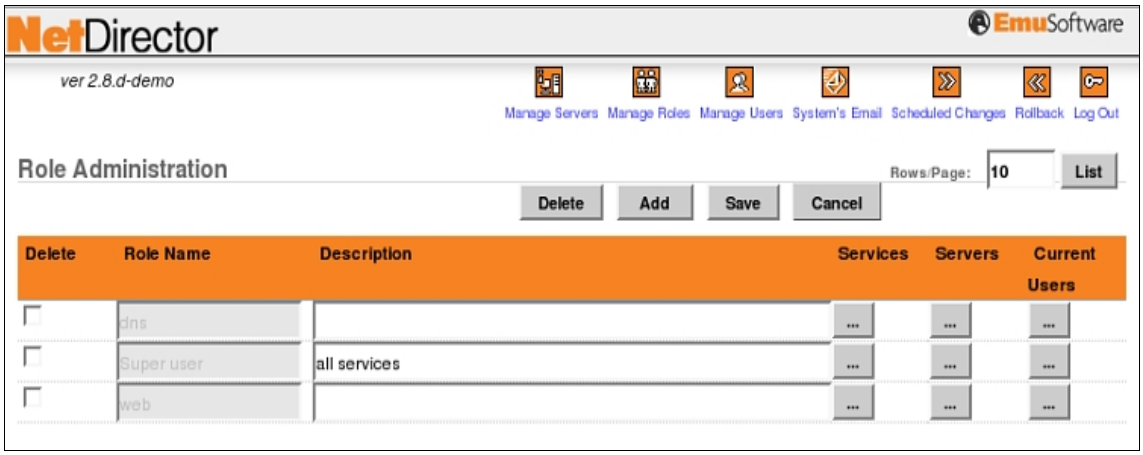
Manage Roles 

Manage Roles

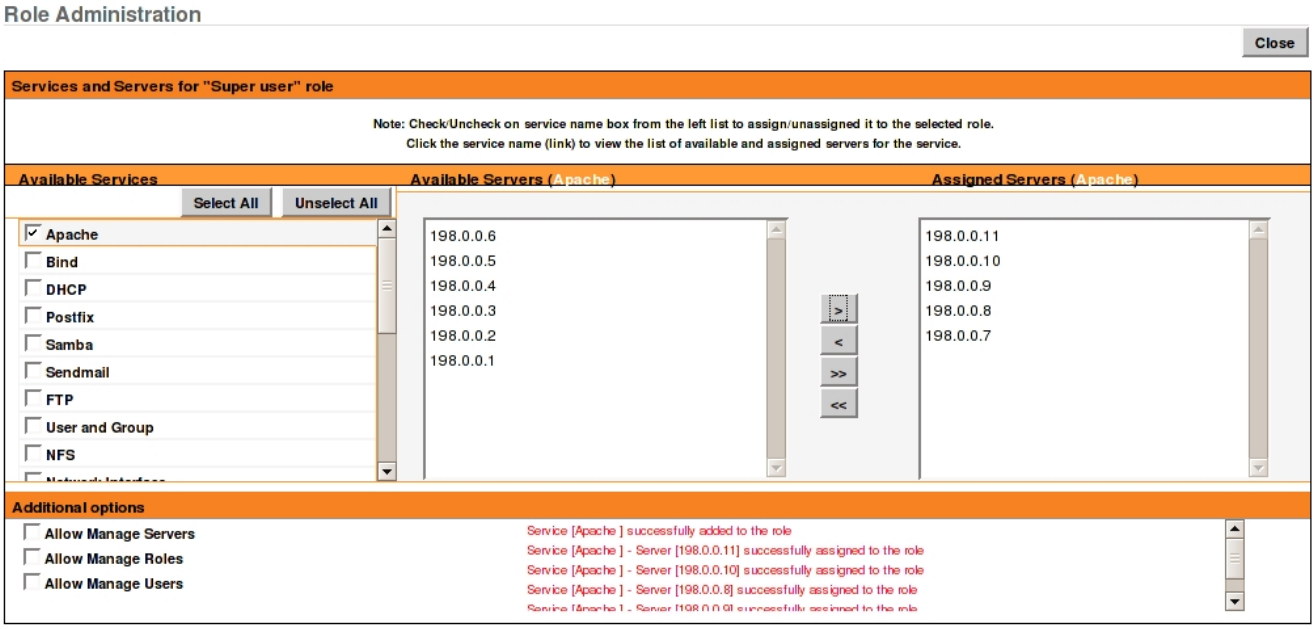
In order to manage the servers that you have added, you'll need to create a Role. Think of a Role the combination of the system user, the services the user or users will manage and the servers the services are running on.

To create a role, do the following:

1. Selecting the Manage Roles icon in the tool bar. You will see the Role Administration screen:



2. Next, click Add to add a new Role to the list. A blank line will be added - fill in the text boxes for Role Name and Description and then select Save.
3. After clicking Save, there will be two buttons in a row next to the new Role Name, under the headings Services & Servers and Current Users. Click on Services & Servers, and you will see the following Role Administration screen:



4. Select each service you want to manage from the Available Services field, then select the servers you want to assign to the role and and hit the right arrow to move them to the Assigned Servers field. On the bottom part of the screen you will see the services and servers add in real-time - there's no need to save the profile. Once you have all of the servers and services configured, select ***Close***.

   Note: You must move servers from the Available field to the Assigned field **for each service** from the drop down list. For example, if you are managing Apache and BIND on two servers, call them server1 and server2, you must move each server from Available to Assigned for Apache, and then select Bind from the Service drop down list and move the two servers from Available to Assigned again.

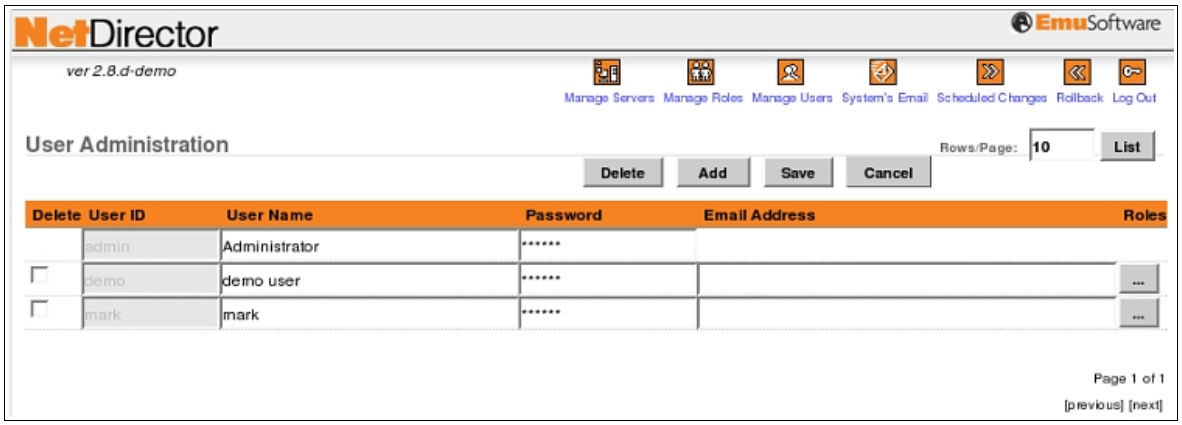
Once closed, the basic role is set up and you can proceed to the final step in setting up NetDirector, which is Managing users.

Manage Users 

Manage Users

You can add, remove and change Roles for users in the User Administration screen. To do this:

1. Select the Manage Users button on tool bar to get the User Administration screen:

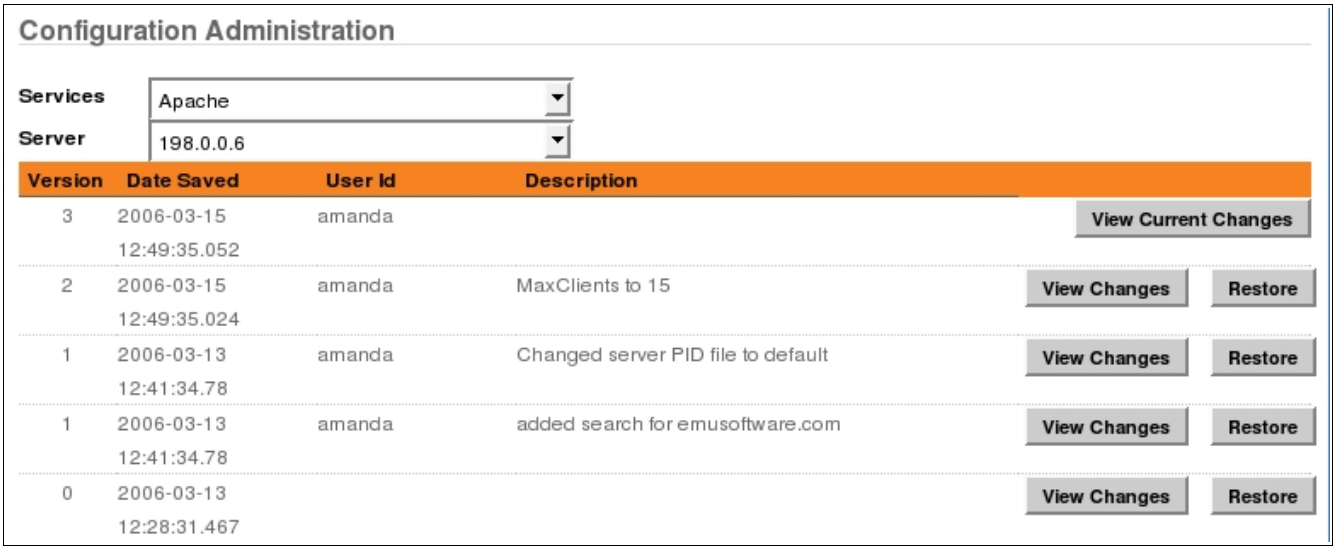


2. Select ***Add*** to create a new account with user ID, username and password, and then click ***Save.***
3. After saving the user, you can add the user to your current Roles by selecting the Role button to the right of the new User accounts. Here you add the new User to the Role or Roles you created.
4. You will see the Role listed in the Available Roles field. Move it to the Assigned Roles field, then click ***Save*** and C***lose***.

Rollback 

Rollback

The admin user can view all rollback information, and can rollback any change made by any user. To view all the changes made by all users per Service and server, select the Rollback icon on the tool bar. You will see the main Rollback screen. To view changes, select the desired service from the Services drop-down menu, and then the desired Server from the Server drop-down menu. You will see something similar to the following:

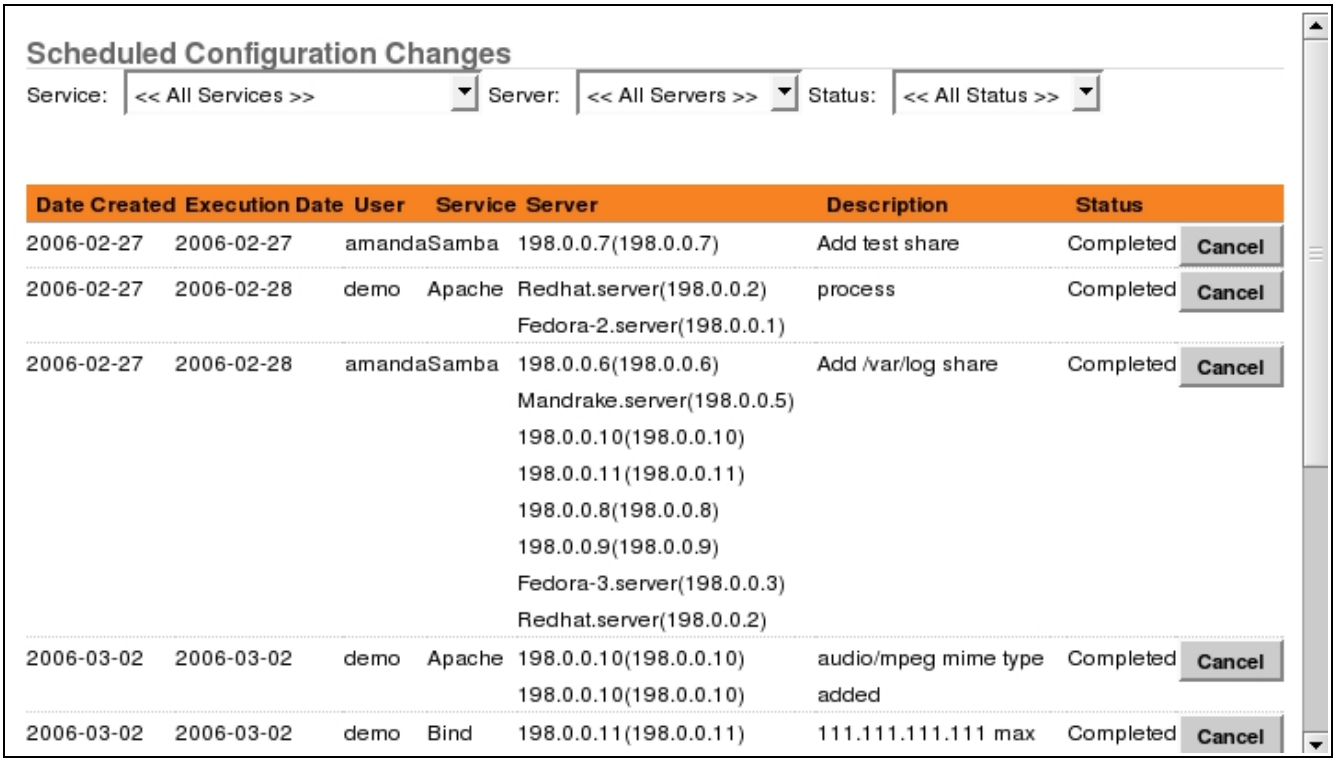


As you can see, for each change you can view what changed, and you can restore the server to the configuration as it was prior to that change.

Scheduled Changes 

Scheduled Changes

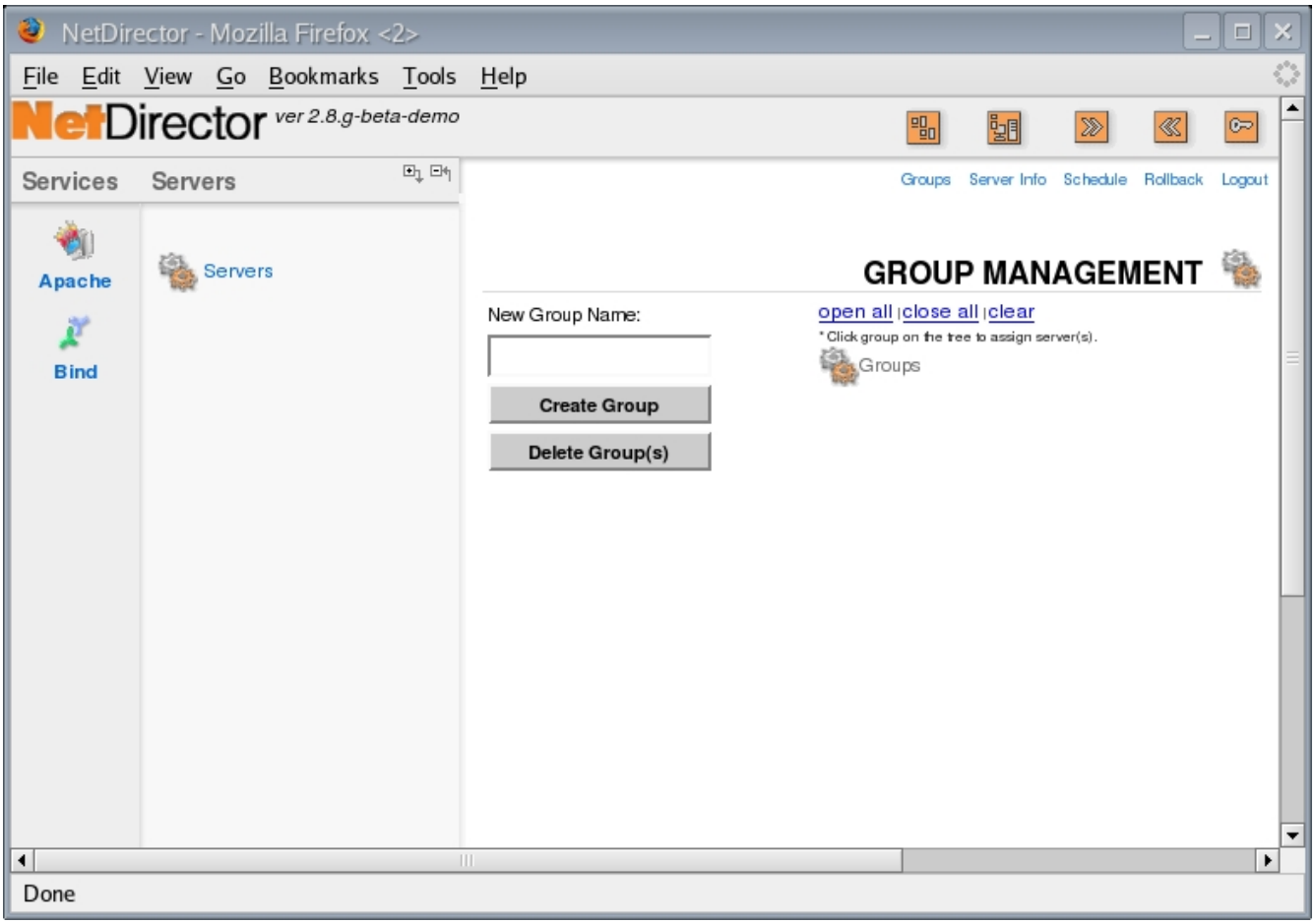
All changes pending implementation can be seen from the scheduled changes screen from the admin's login. You can view this by clicking the Scheduled Changes icon in the tool bar. This brings up the Scheduled Configuration Changes screen:

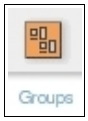


The administrator can see and cancel all changes done and scheduled to be done on any server for any service regardless which user made them.

Initial User Configuration

NetDirector allows each individual user to setup an environment that conforms to the way they view the network. When a new user logs in to the system for the first time, the Service bar shows the services the user can manage, but there are no servers or groups defined.



Manage Groups 

In order to manage servers, a minimum of one server group needs to be created. These groups act as containers for the servers in your network. NetDirector offers you extreme flexibility in how you choose to group your servers - and the choices you make will not affect any other users, as groups are user-specific.

For example, your servers may be distributed regionally and managed regionally. In this case, you can create server groups for each region and populate each regional server group with the servers running in each respective region. In this way, if users on the Western Region's Apache servers are complaining

of slow response time, you can select Apache, then select the Western Region, and make the appropriate tuning adjustments.

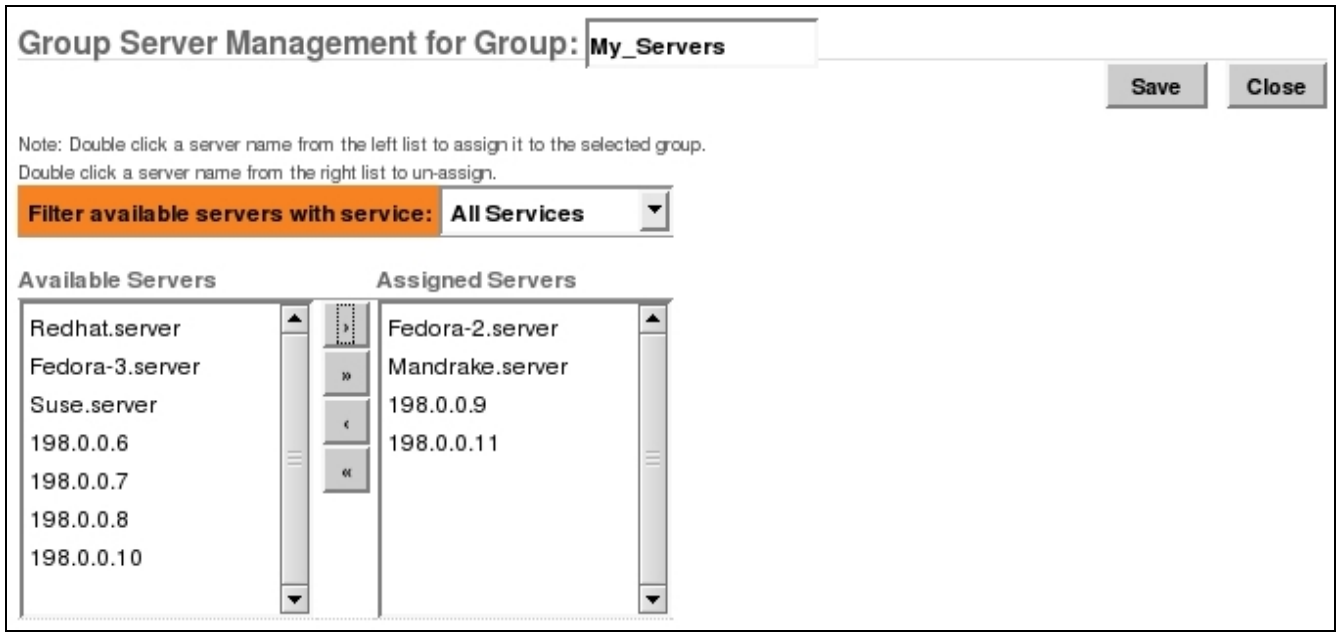
To add a group, enter the name of the group you want to create in the text box and click the ***Create Group*** button.

Notice that the group will not show up in the server tree until actual servers have been added to the group.

To delete a group simply put a check each group you want to delete then click the ***Delete Group*** button.

Add Servers to Groups

To add a server to the group you have just created click on the name of the group to see the server management screen. You will see two columns; the one on the left displays the servers available to be placed into the group, and the column on the right show the servers (if any) already assigned to the group.



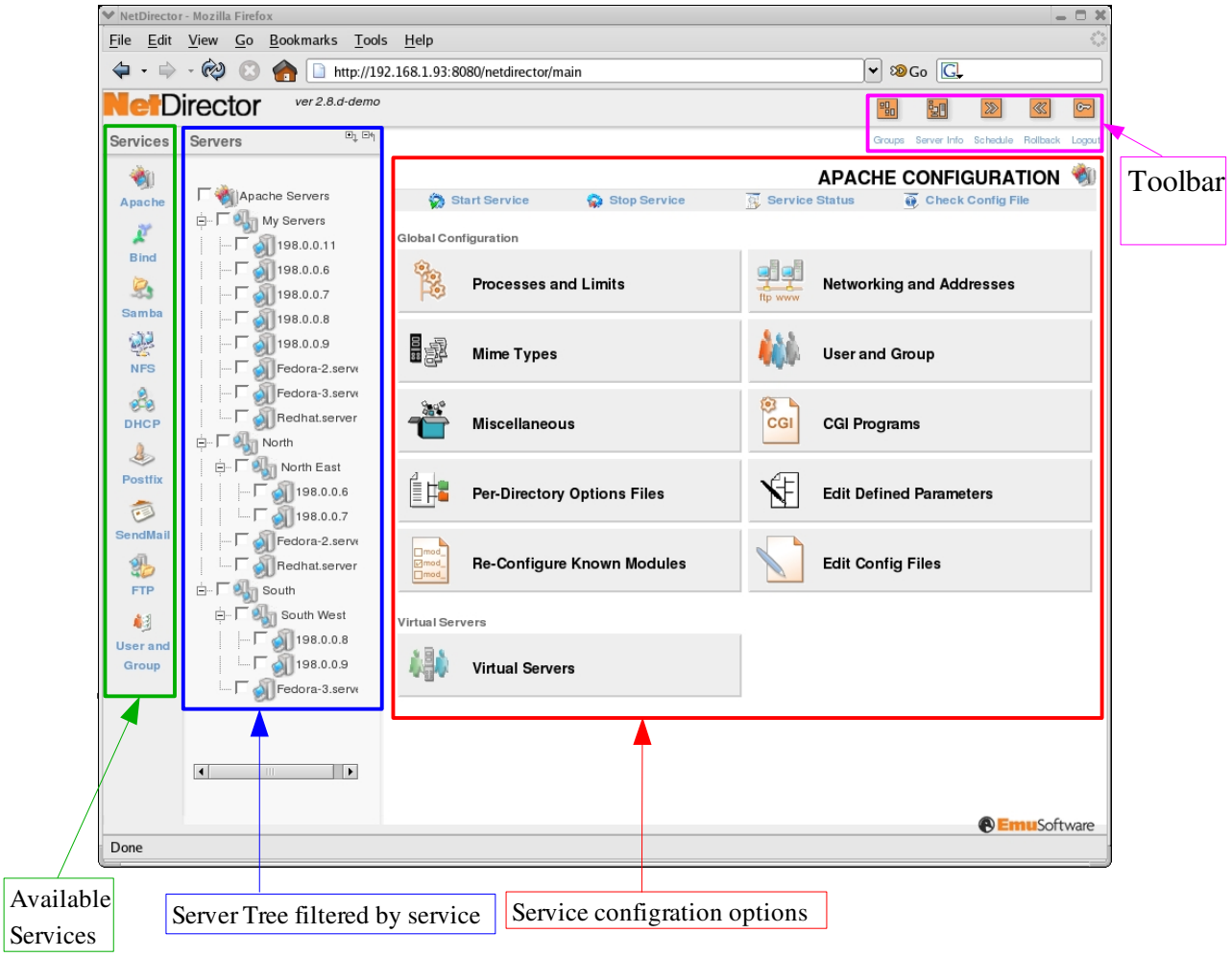
Servers are added by selecting one or multiple servers. The available servers can be filtered to show only the servers available for a particular service. In order to see the filtered server list available for management for a particular service, you need to select the service from the service drop down list. To select multiple servers hold the control key while clicking on the servers you want to add to the group.

When you are done adding servers to the group, click ***Save***. The group will now appear in the Server Tree, and if you expand the group in the tree, all selected servers should be listed.

Chapter 3: Basic Usage

Creating a configuration change in NetDirector is a multi-step process, but NetDirector makes it easy with an easy-to-use graphical interface.

Navigating the NetDirector GUI



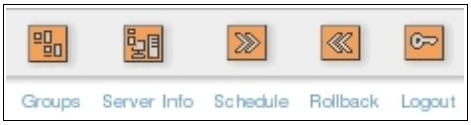
NetDirector manages individual services modularly, each service is broken out on the left-hand side of the NetDirector panel.

Once a service is clicked, the Server Tree will filter to only show servers that support the selected service, and the main pane will show the top-level configuration options for the selected service. Some services have options that go fairly deep.

The services listed in the Service list, and the servers listed in the Server Tree are dependant on the role

or roles your user is in. You will only see the combination of the services and servers assigned to all roles that your user account is a member of.

At the top right of the Service Configuration pane, you will see a tool bar with some icons, similar to that in the Administration screen:



These links will take you to:

- Groups - the Manage Groups screen, where you can add, delete and modify the groups in your Server Tree.
- Server Info - the Server Configuration screen, with options to manage servers individually or in groups. More information on the Server Configuration screen will be included later in this chapter.
- Schedule - the Scheduled Changes screen, where you can view changes scheduled within your role.
- Rollback - the Rollback Changes screen, where you can view past changes and restore services to previous configurations.
- Logout - Log out of the NetDirector Server Manager.

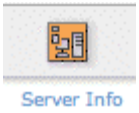
Below these icons, you will see a menu bar that offers some options for managing the service itself:

which offers the following options:

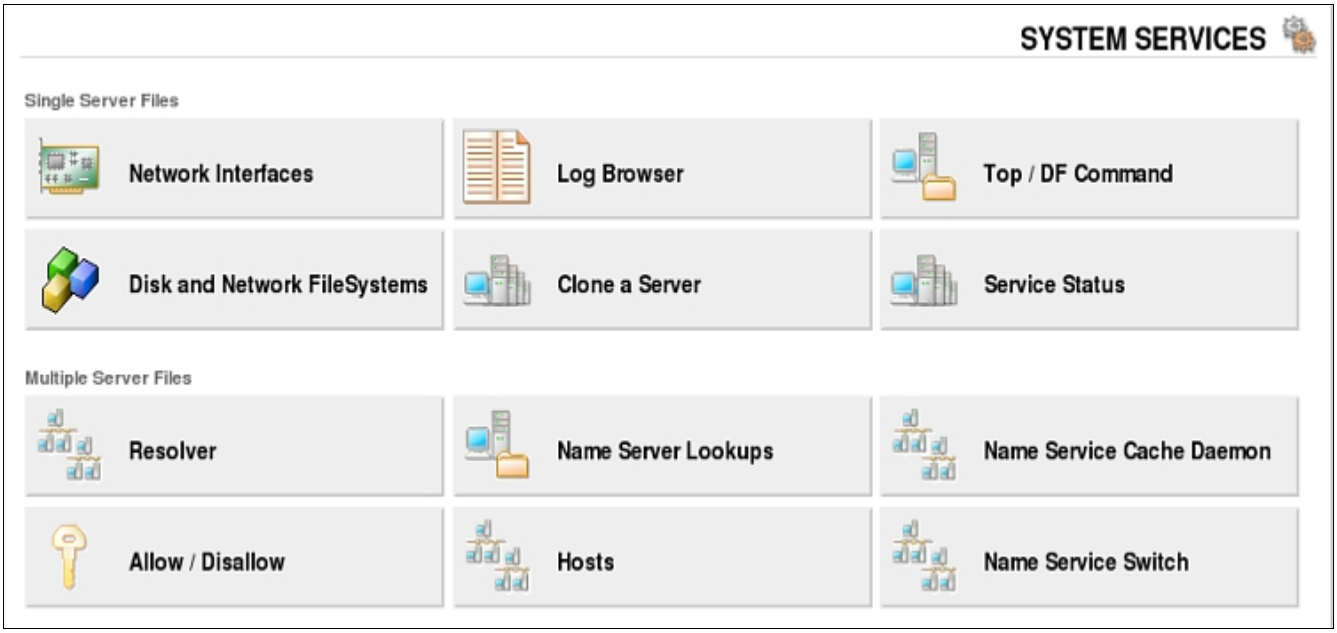
- Start Service - start the selected service
- Stop Service - stop the selected service
- Service Status - check the status of the selected service (active, inactive, etc.)
- Check Config File - checks the configuration file for the service.

Server Configuration via the Server Info Screen

While logged in as a user of the NetDirector Configuration Management System you can modify server specific files and troubleshoot server issues by clicking on the "Server Info" button on the top right of the screen.

Server Info 

If you click the Server Info button , you will see a screen showing the available preferences that can be selected.



The System Services screen offers two types of services: Single Server Files and Multiple Server Files. The Single Server Files options will only work with a single server selected in the Server Tree. The Multiple Server Files options will work for one or more servers selected in the Server Tree.

These options are:

Single Server Files

- Network Interfaces
- Log Browser
- Top / DF Command
- Disk and Network FileSystems
- Clone a Server
- Service Status

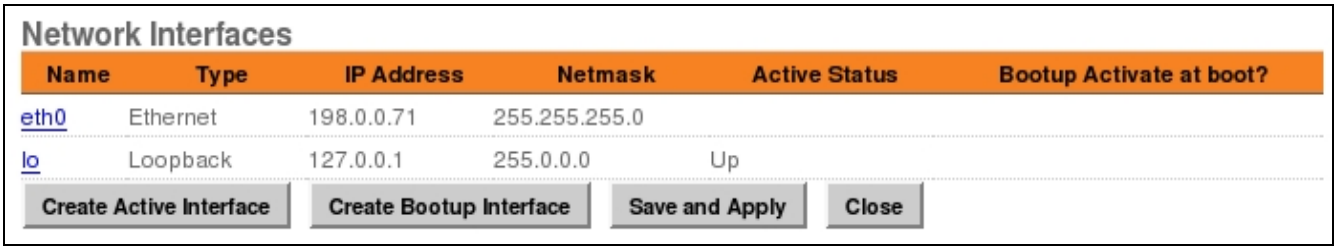
Multiple Server Files

- Resolver
- Name Server Lookups
- Name Service Cache Daemon
- Allow / Disallow
- Hosts
- Name Service Switch

Network Interfaces

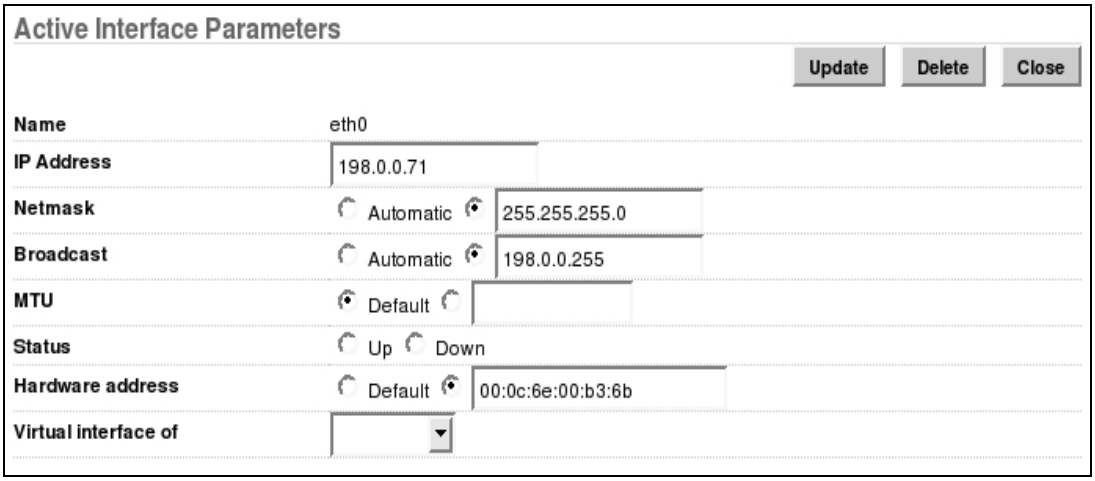
To modify the network interface settings on a server you need to select the ***Server Info*** button at the top right of the screen. Then select the server you want to modify and then click the ***Network Interfaces*** button.

This will launch the Network Interfaces screen:

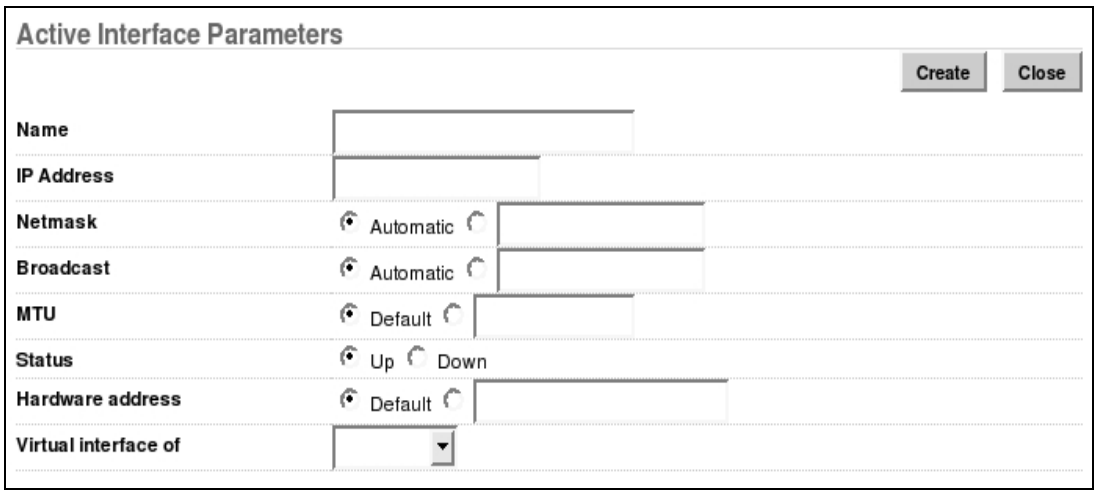


From this screen you can choose the network interface that you want to modify or create a new interface.

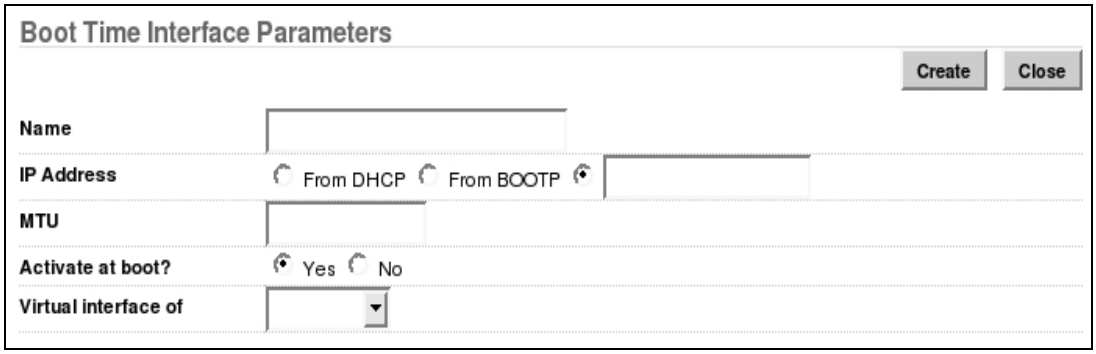
1. To modify the IP address of an interface - for example, eth0 - simply select the interface from the list and change the address on the next screen. When finished, click the ***Update*** button to return to the interface list screen.



2. To create a new interface, click the ***Create Active Interface*** button. This will bring you to the screen to create a new active interface. Enter the interface information, then click ***Create*** to return to the interface list screen.



3. To create a bootup interface, click the Create Bootup Interface button. This will bring you to the screen to create a bootup interface. Enter the interface information, then click ***Create*** to return to the interface list screen.

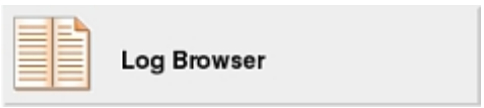


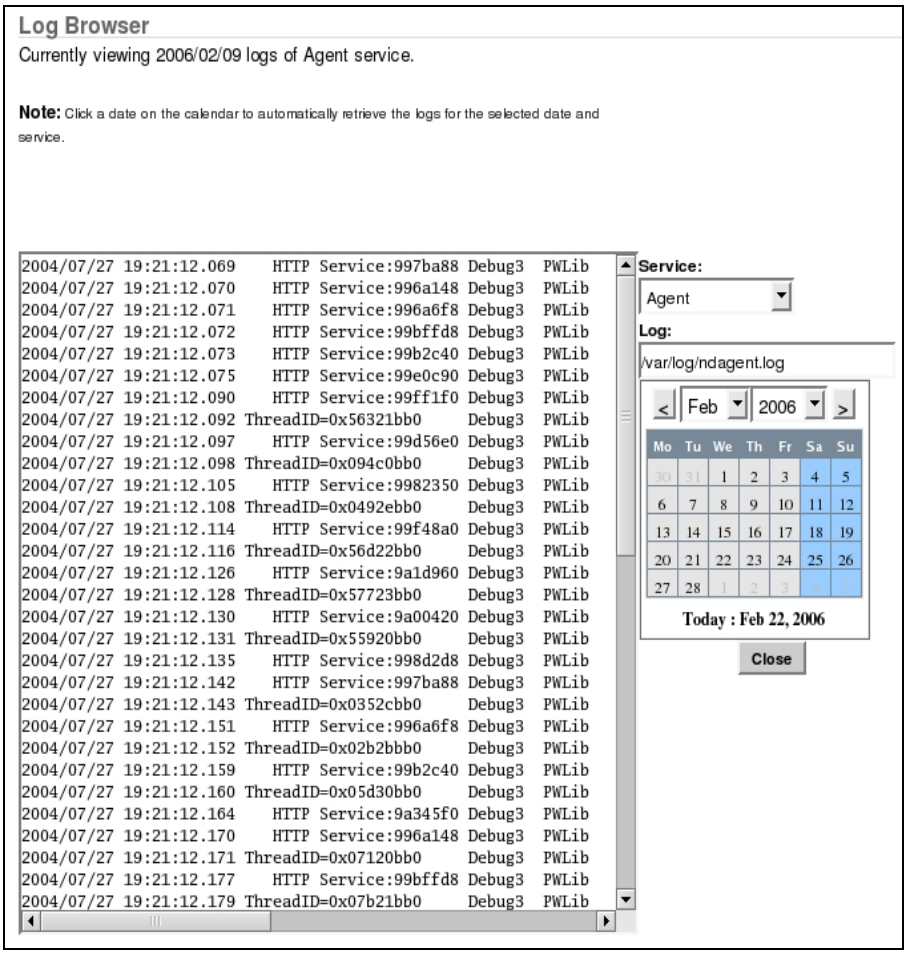
4. **NOTE:** The changes have not been saved yet. To save changes made according to the steps above, click the ***Save & Apply*** button.

Viewing Service Logs

The Log Browser button is for viewing the servers' daily logs. To see the log for a server for a particular date:

1. Click the server that you want to examine in the Server panel.
2. Click **"Log Browser**". That opens the Log Browser for this server.
3. Select the Service that you want to view logs for from the Service drop-down menu.





4. On the calendar, click the date for the log. This opens the log in the text area.
   The Log Browser is designed to show the user log entries for multiple services for a particular day.

Top & DF Commands

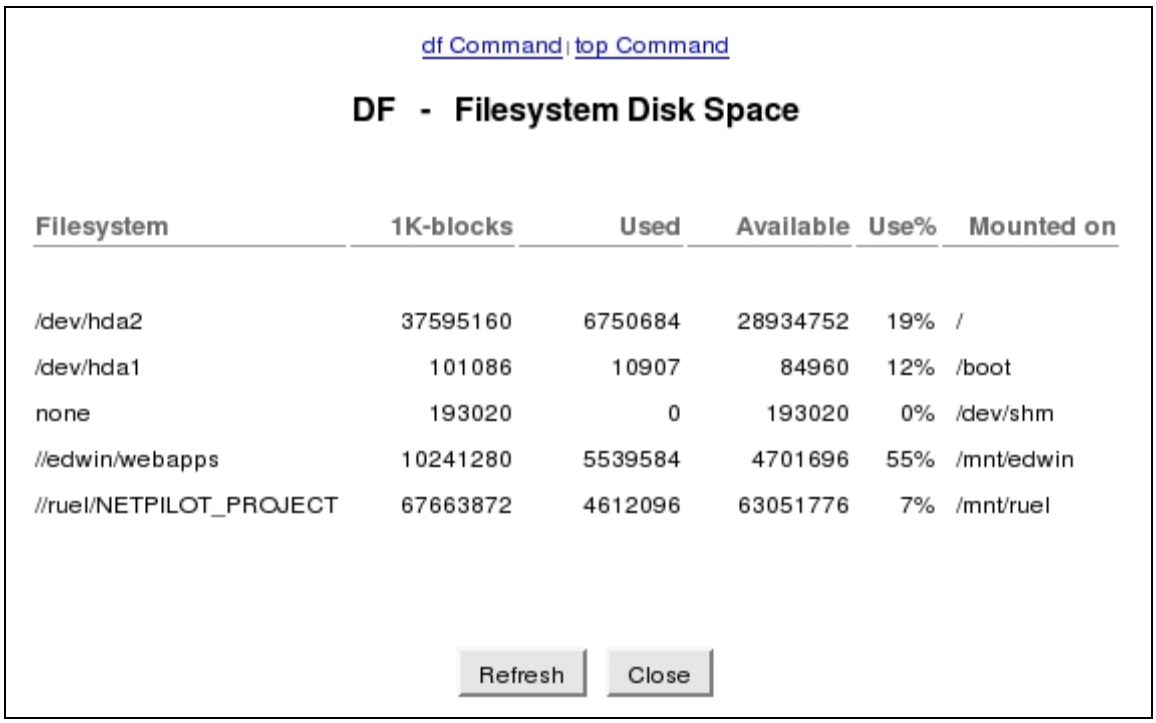
NetDirector offers the ability to see output of some specific commands in real-time directly from a chosen server. Currently supported commands are top and df - more commands may be supported in future releases.

To view the current usage and tasks on any server in the NetDirector system:

1. Click the server that you want to examine in the Server panel.

2. Click ***TOP / DF Command***. This opens the File System Disk Space page for this server, which displays the output of the "df" on the system, giving current disk space usage details.

3. To view the tasks currently executing on a server, click the ***top Command*** link at the top of the page. This opens the System Tasks page, which displays the currently executing processes. You may need to scroll to see the whole list of processes.

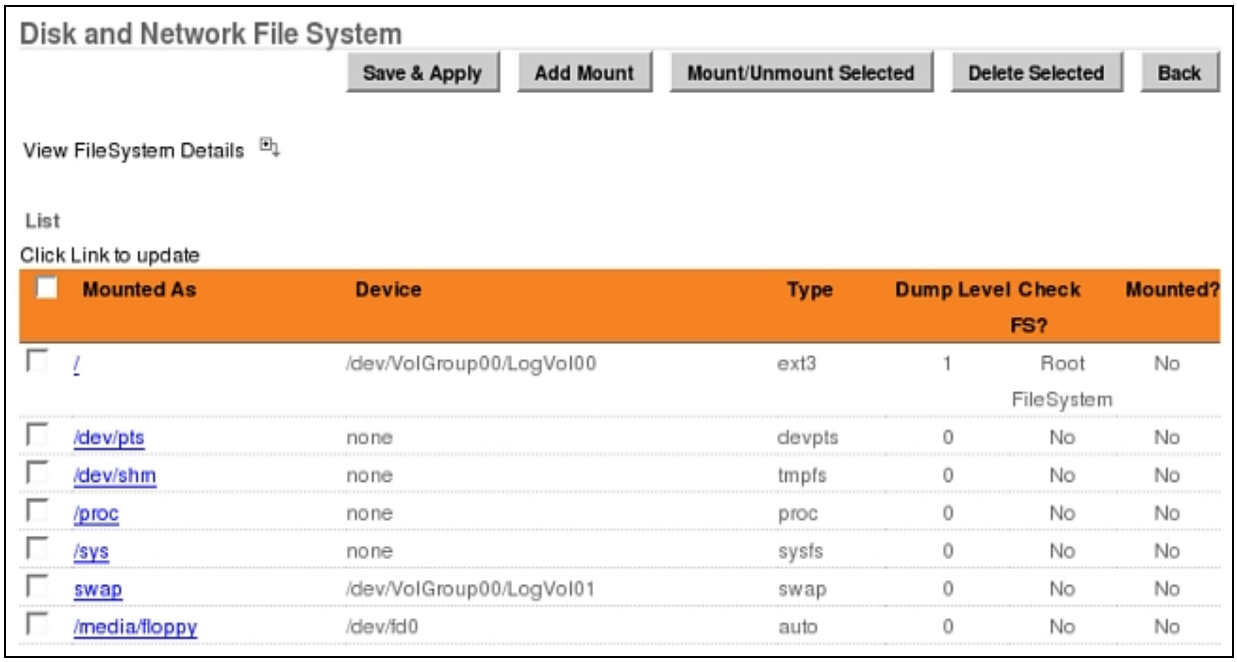


On both screens, click ***Refresh*** to refresh the command, and ***Close*** to go back to the System Services screen.

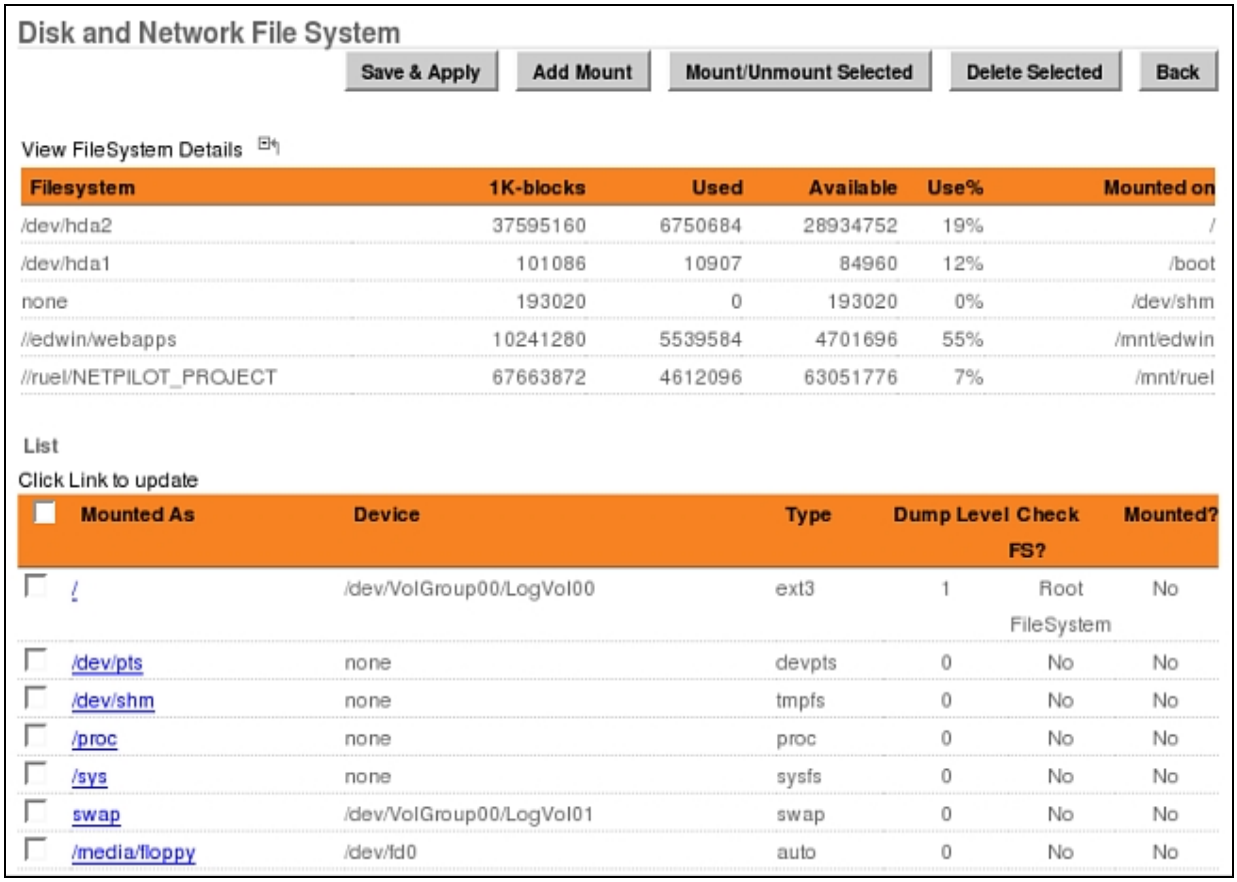
Disk and Network FileSystems

NetDirector can manage the file systems that are mounted on a Server Agent system - both local drives and network shares. You can do this by following these steps:

1. Click the ***System Info*** button.
2. Select the server you want to manage from the Server Tree. Note: Disk and Network Filesystems is a Single Server task, and can only be performed on one server at a time.
3. Click the ***Disk and Network FileSystems*** button:
4. The Disk and Network Filesystems screen will display:



5. You can view current file system details - the df information on a Linux system - by clicking the "+" on the "View FileSystem Details" link. This view can be collapsed again by clicking on the "-".



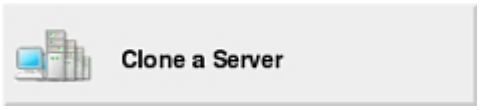
6. To add a mount to the system, click *Add Mount*. Enter the mount data, and click Save.
7. To Mount or Unmount an existing file system, select the file system and click **Mount/Unmount Selected**.
8. To Delete a file system from being able to be mounted, select the file system and click **Delete FileSystem.** This will delete the entry from the /etc/fstab file for the selected server - it will not delete the file system itself from the system it exists on.

Clone a Server

Cloning can be very useful in server migrations, whether migrating from an older server to a newer one, or migrating OS as well as hardware. Cloning can also be useful in a tiered web development setup. You can use cloning to change the configuration of one server - say a Production Apache server - to the same configuration tested on a Staging system. This will ensure that the exact configuration tested in Staging will be applied to Production - and if there are any problems, you can use the NetDirector Rollback function to roll back the change.

To clone a server:

1. In the System Info screen, select the server you wish to clone, then click the ***Clone a Server*** button.
   You will see the following screen:



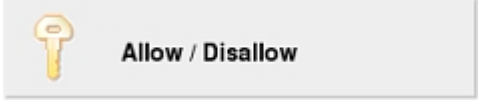
2. Select the server you wish to be the clone.
3. Select the services you wish to clone. It can be as few as one or as many as all services provided on the source Server.
4. Click the "Clone" button.

When processing is complete, you should see a success message. Click "Close" to go back to the System Info screen.

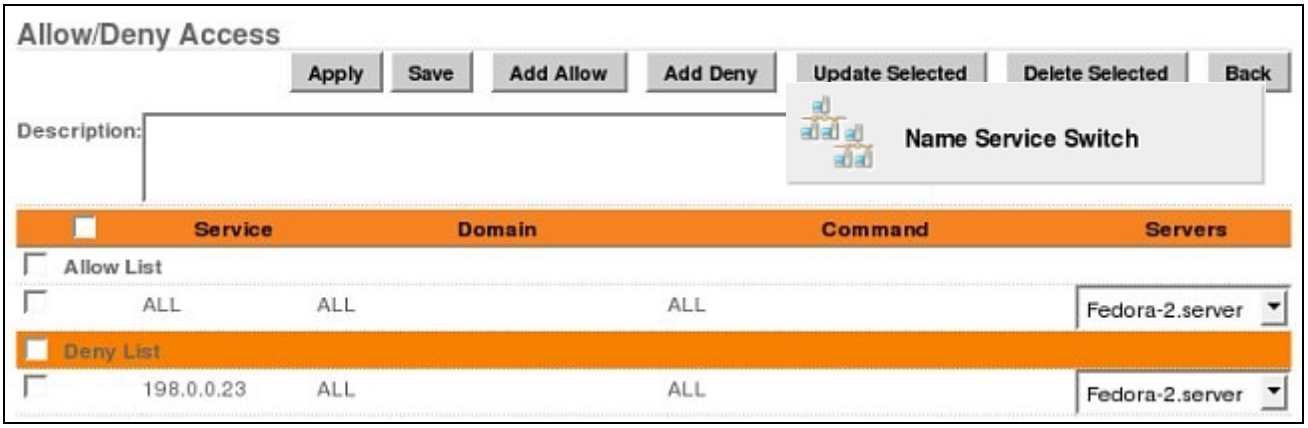
Allowing and disallowing services

You can use NetDirector to allow or disallow commands for services on a server. To allow or disallow commands for services on a server:

1. Click the Server Info button
2. Click on the server that you want to manage in the Server panel.
3. Click ***Allow/Disallow*** in the System Services panel. That opens a page for viewing and setting service allows/disallows.



4. To allow a service command, click ***Add Allow***. Enter the Service, Domain, and Command to allow, and then click ***Save***.
5. To deny a service command, click ***Add Deny***. Enter the Service, Domain, and Command to allow, and then click **Save**.
6. To apply the changes, click ***Apply***.



The table at the bottom part of the window lists the services for which allow or disallow has been set on this server.

Hosts

NetDirector allows you to manage the hosts file on your systems. One of the Multiple Server Files is the Hosts option. This allows you to manage your hosts file (/etc/hosts) on one or more systems.

To manage your hosts:

1. Select the ***System Info*** button on the top right-hand menu.
2. Select the servers you want to manage.
3. Click ***Hosts***. You will see a hosts pane that lists the hosts on the servers:

From here you can do the following: Add a new entry, update a selected entry or delete a selected entry.

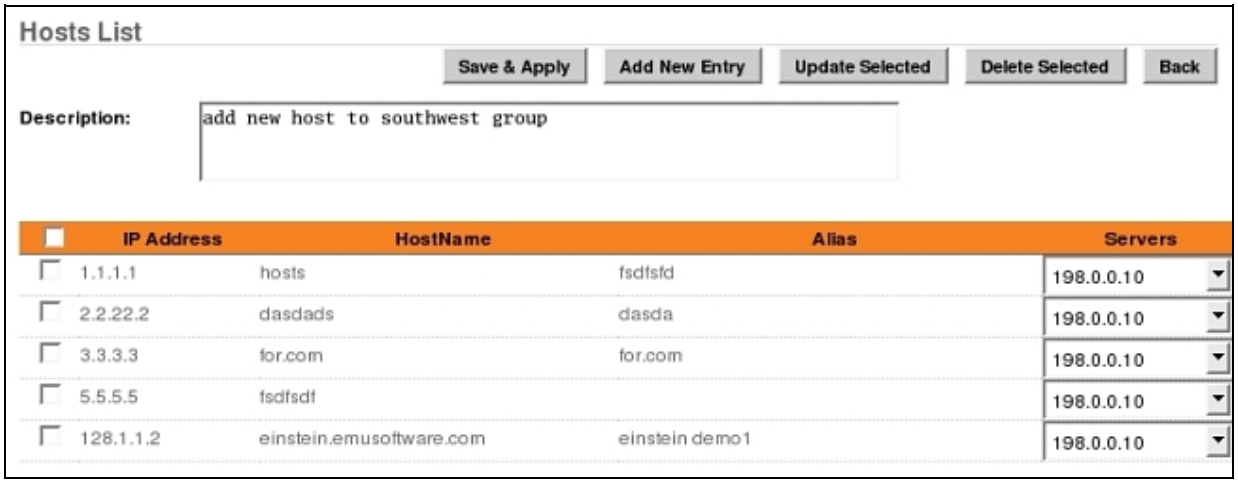
To Add or Update an entry:

1. If you click ***Add New Entry*** or ***Update Selected***, you will see similar screens with the same configuration parameters. Here we will add a new entry by clicking on ***Add New Entry:***

Configuration options for new hosts or updates to current entries are IP address, hostname and aliases. In a typical /etc/hosts file, you will find the same information - an IP address, then a hostname and aliases separated by spaces or tabs:

```
[root@RHEL4-AS ~]# cat /etc/hosts
# Do not remove the following line, or various programs
# that require network functionality will fail.
127.0.0.1 RHEL4-AS  localhost.localdomain    localhost
192.168.1.91   emu1.emusoftware.com     emu1
[root@RHEL4-AS ~]#
```

2. Configure the hosts information for your new entry.
3. Once the entry is configured, click ***Save***, then click ***Back*** to go back to the main Hosts screen.
4. The screen will look a little different:



You will see the new entry in the list, and an added Description text box on the screen.

5. If you wish, enter descriptive text about the change. Then, click ***Save & Apply*** to apply the change to the servers selected. Once saved and applied, the Description field is no longer available.

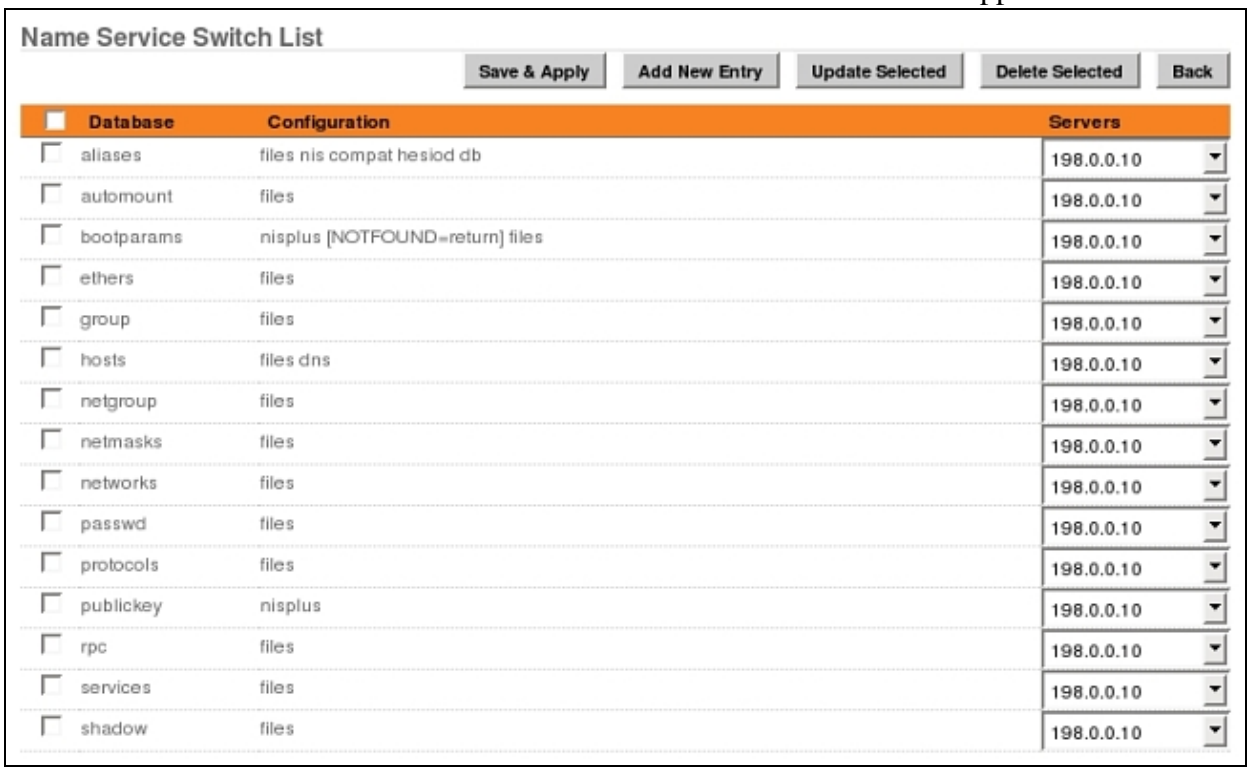
To delete an entry:

1. Select the check box for the entry you wish to delete
2. Click ***Delete Selected***
3. The entry will no longer appear in the list, and a Description text box will be added to the screen. Enter descriptive text on the change (e.g. "Deleted einstein server from southwest region") and click ***Save & Apply*** to apply the change to the servers selected. Once saved and applied, the Description field is no longer available.

Name Service Switch

Information on setting up the network service switch (nsswitch) list via NetDirector
To configure the Name Service Switch List,

1. Click on ***Server Info***
2. Select the servers you want to manage
3. Click on ***Name Service Switch***. The Name Service Switch List screen will appear:



Here you can perform three main tasks - Add New Entry, Update Selected or Delete Selected.

To add a new entry:

1. Click ***Add New Entry***

2. Select a database
3. Select a source
4. Select the actions for the listed statuses (if desired).
5. Click ***Save***, then ***Back*** to return to the Name Service Switch List screen.
6. Enter a description for the change if desired, then click ***Save & Apply***.

To update an entry:

1. Click the check box for the entry you wish to update
2. Click ***Update Selected***
3. Update the entry as desired (database, source, actions and statuses, etc).
4. Click ***Save***, then ***Back*** to return to the Name Service Switch List screen.
5. Enter a description for the change if desired, then click ***Save & Apply***.

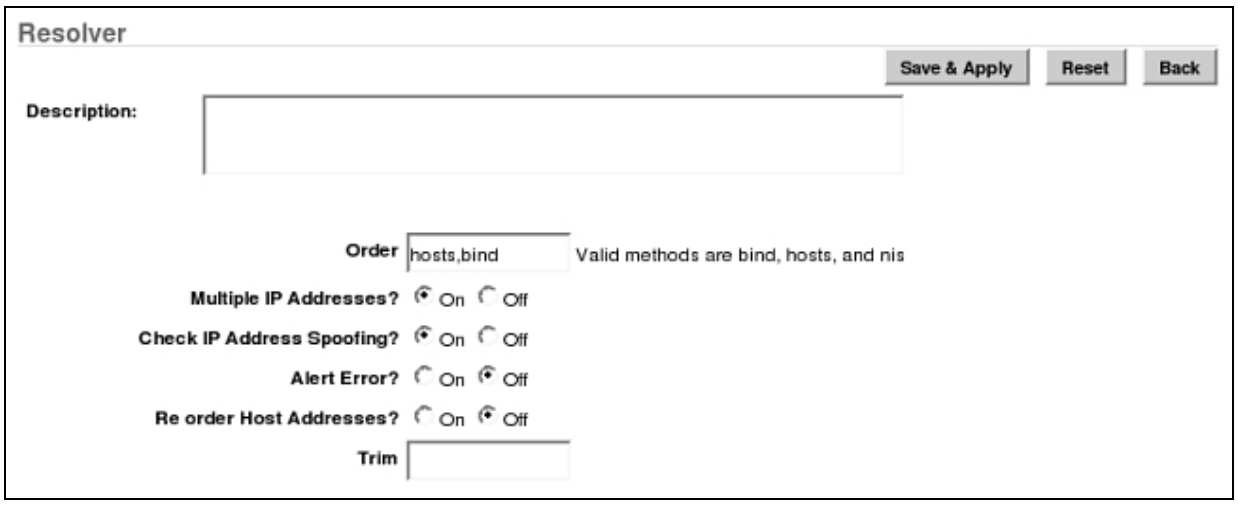
To delete an entry:

1. Click the check box for the entry you wish to update
2. Click ***Delete Selected***
3. Enter a description for the change if desired, then click ***Save & Apply***.

Resolver

You can set the name resolution information for your server through NetDirector. To do so, do the following:

1. Click the ***Server Info*** button
2. Select the servers you want to manage
3. Click ***Resolver***. The Resolver screen will appear:

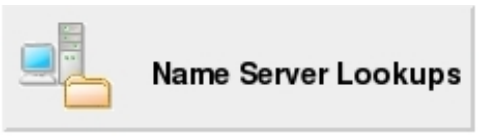


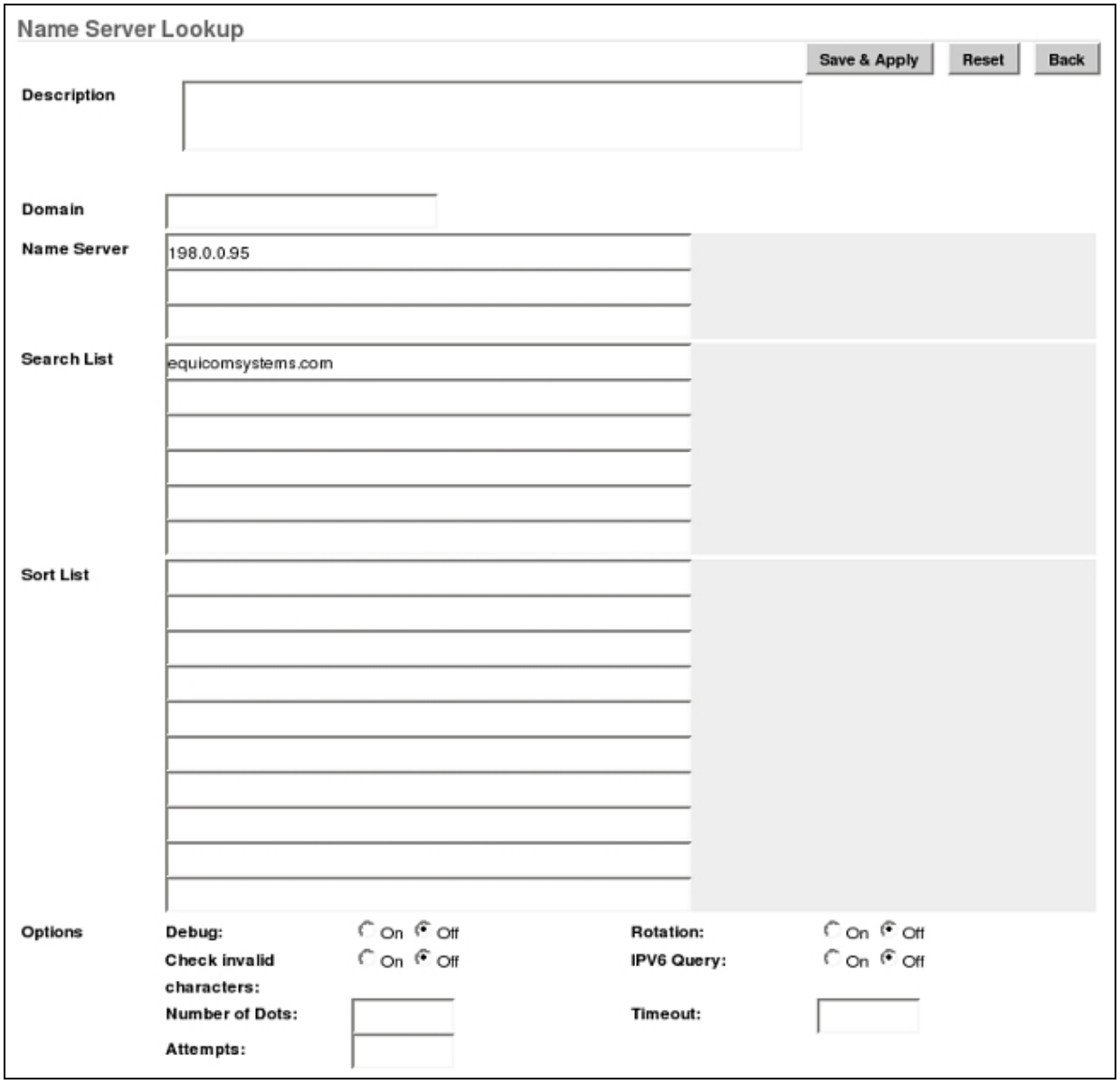
4. Configure the resolver settings.
5. The Description field is to provide optional details about the change. Enter a description of your changes if you wish.
6. Click ***Save & Apply***

Name Server Lookups

To modify Name Server Lookup information:

1. Click on ***Server Info***
2. Select the servers you wish to manage from the Server Tree
3. Click on ***Name Server Lookups***. You will get the Name Server Lookup screen:

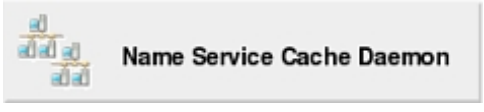




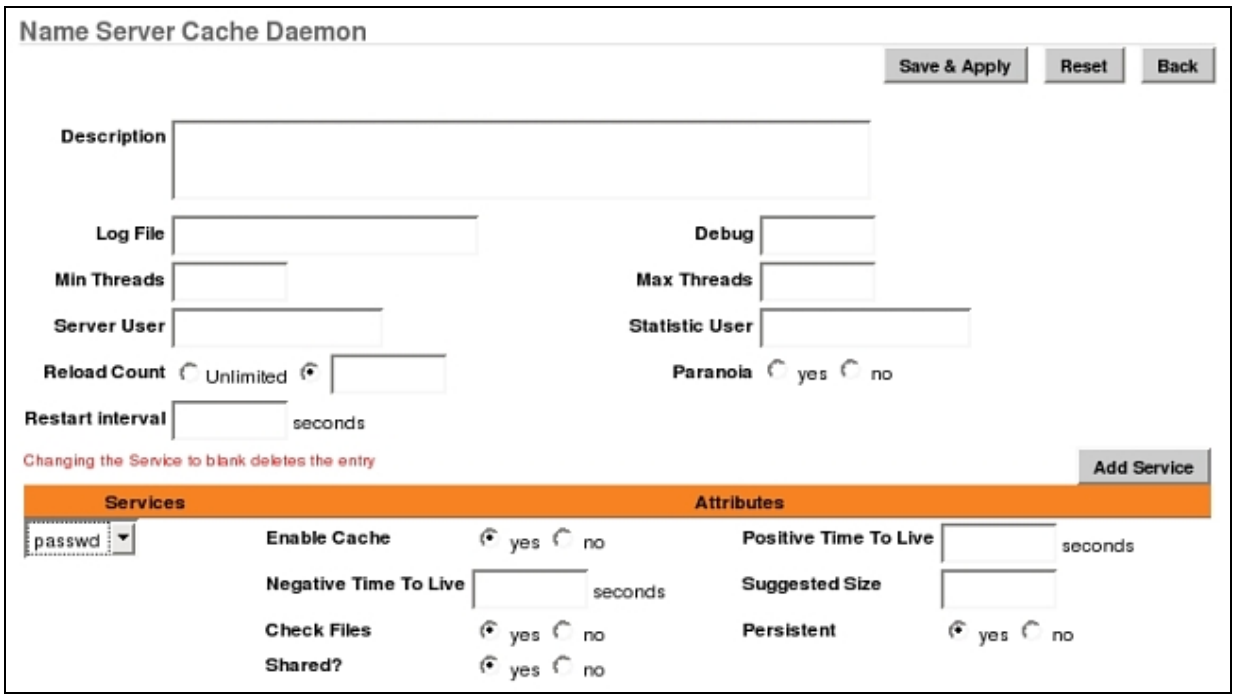
4. Configure the Name Server Lookup information
5. Enter a description in the Description text box (if desired). This is for change tracking purposes.
6. Once you are satisfied with your change, click ***Save & Apply***

Name Server Cache Daemon

To modify Name Server Cache Daemon information:



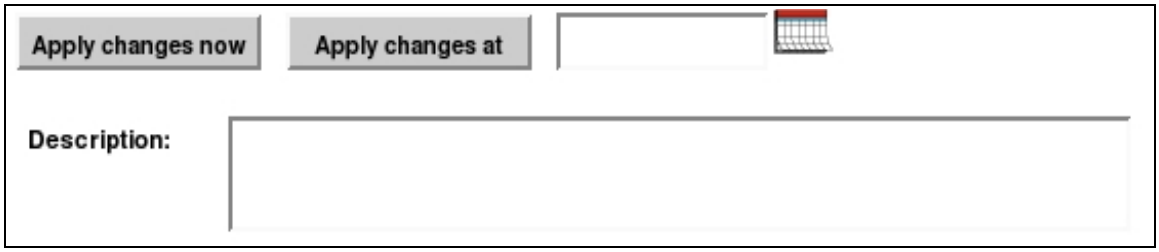
1. Click on ***Server Info***
2. Select the servers you wish to manage from the Server Tree
3. Click on ***Name Server Cache Daemon***. You will get the Name Server Cache Daemon screen:



4. Configure the Name Server Cache Daemon (ncsd) information. This configuration usually resides in /etc/ncsd.conf
5. Enter a description in the Description text box (if desired). This is for change tracking purposes.
6. Once you are satisfied with your change, click ***Save & Apply***

Scheduling and Rollback

Once you configure a change to any service, or to the system services listed above, you will have the options of applying the change immediately, or scheduling it for a later date. Once you complete the configuration of the change, you will see the following added to the main service pane:

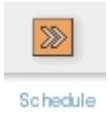


1. To apply the change immediately, click the ***Apply changes now*** button. The Server Manager will send the configuration changes directly to the Server Agent on the server or servers the change is configured for. The Server Agents will make the change, and, if necessary, restart the service in question.

2. To schedule a change to be performed at a later date, click on the calendar icon. A calendar will pop up. First, enter the time you wish

the change to occur in 24 hour format. The time entered is for the time zone of the Server Manager, not the Server Agents, so be sure to take time zone differences into account if necessary. Once time time is entered, click on the date in the calendar to have the time scheduled in the ***Apply changes at*** text box Click the ***Apply changes at*** button to schedule the change at that time and date.

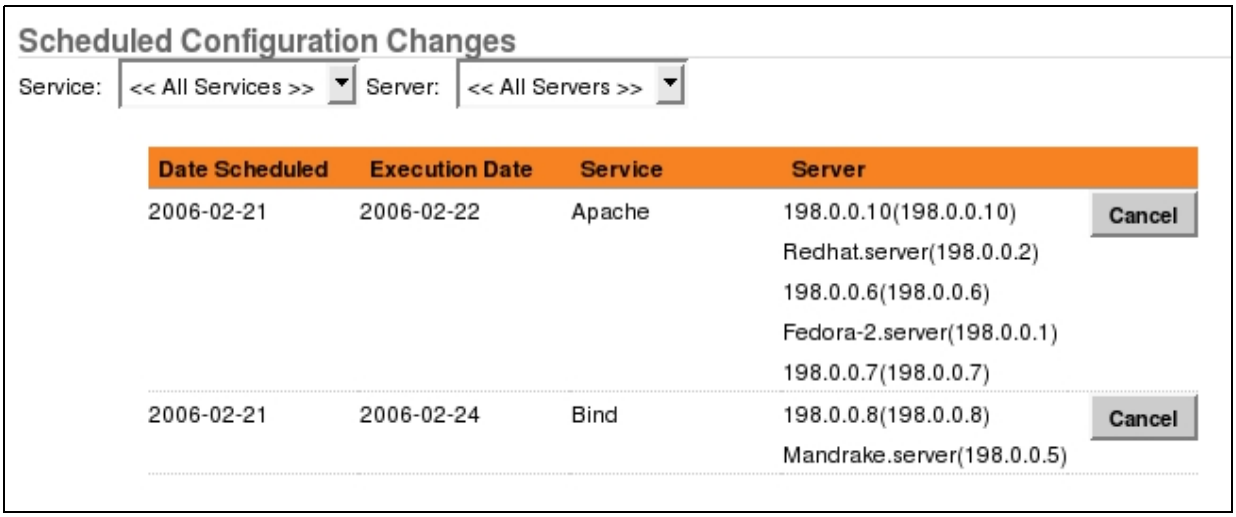
3. The Description field allows you to enter a short description of the change. This description text will be listed in both the Schedule/Scheduled Changes and Rollback views for easier change tracking. If you wish to enter a description, be sure to do so before clicking either of the ***Apply*** buttons.

Schedule 

Unlike in the admin login view, a user login can only see changes scheduled within the role or roles of which he is a member.

To see the scheduled changes within your role(s):

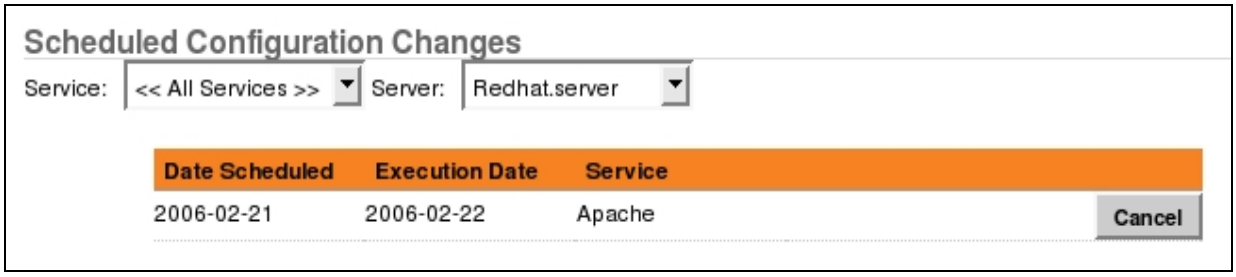
1. Click the *Schedule* button at the top of the Tasks panel. This opens the Scheduled Configuration Changes screen. By default, changes for all services and all servers are shown.



2. To cancel a change on all affected servers, click ***Cancel*** for that change in this menu.
3. Choose filter by Service, select the service you want to see from the Service menu.

To see changes to an individual server:

1. Select the server you want to see from the Server menu.



You can cancel any individual change for this server only by clicking ***Cancel*** for that change in this view.

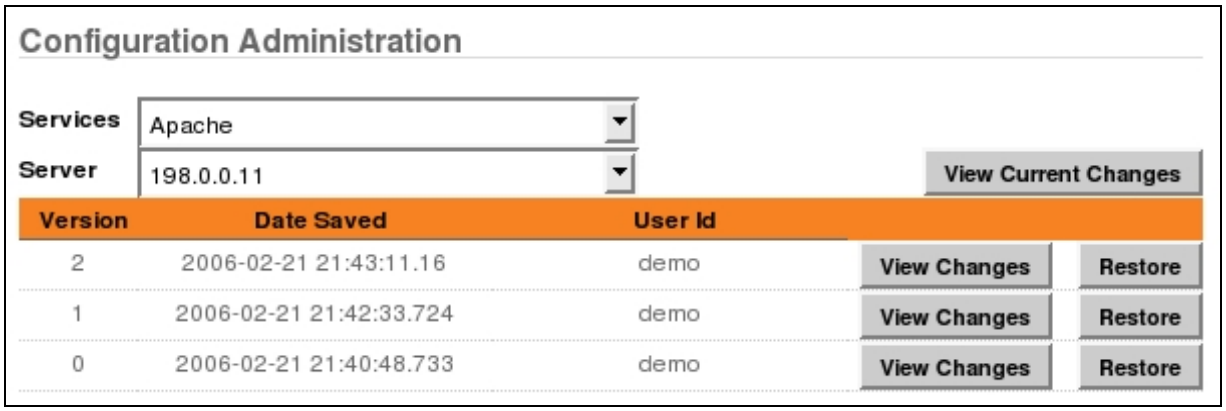
Rollback 

All changes to a service in the Service Pane can be rolled back whenever necessary. To restore to the last known good configuration select the restore button of the date needed to return to.

NOTE When you restore a configuration, you rollback to the exact configuration that was in place on the date that you rollback too.

To rollback a service change:

1. Click the ***Rollback*** button at the top of the Tasks panel. This opens the Configuration Administration screen.



2. In the drop-down menus, select the service for the rollback, and the server you wish to roll back.
3. This opens a list showing the configuration changes. Each item in the list has a version number and a date. You can view the changes in any version by clicking the ***View Changes*** button. Click ***Restore*** for the version you want to rollback to.

Chapter 4: Managing Services

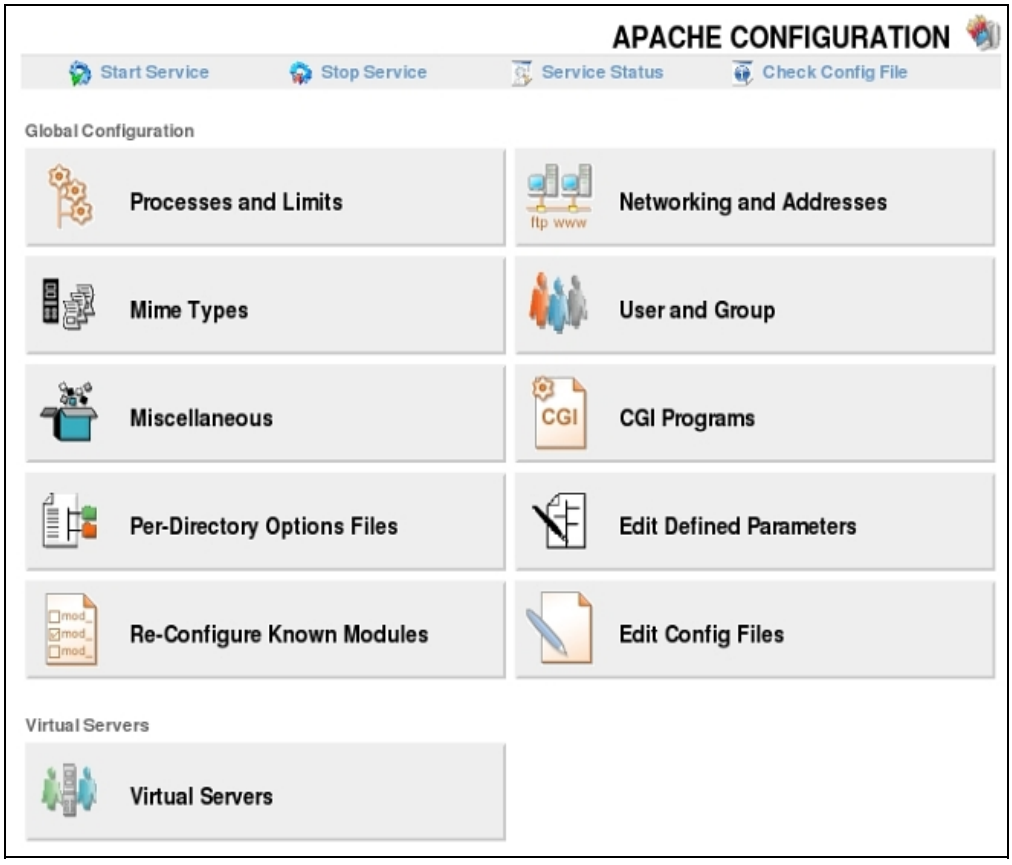
NetDirector 2.8 can manage the following services:

- Apache
- BIND
- Samba
- NFS
- DHCP
- Postfix
- Sendmail
- FTP
- User & Group

Each supported service will be discussed in this chapter in more depth. For more detail on any single service, please see our online documentation. For details on specific configuration options for any service, please see the service documentation.

Apache

Configuring The Apache Web Server



NetDirector offers HTTP management via the Apache service. To manage your Apache servers, click the Apache button in the Services panel. This will filter the Server Tree to show only the Apache Web Servers you have defined in the server group area and open a page with the Apache options.

Apache Configuration Options

In order to make changes to Apache on multiple servers at the same time, you to select the check boxes of the servers you want to make a change to or select the group name to select all servers in a group. There are two major groups of configuration options: Global Configurations and Virtual Servers.

The top of the Apache Configuration page has buttons for global configuration options of the web server and at the bottom are virtual server buttons. Virtual Servers can be created on either one or many servers at the same time. In order to create and manage a virtual server you will need to go into the sub menu for Virtual Servers. See below for more details on how to manage virtual servers.

Virtual Servers

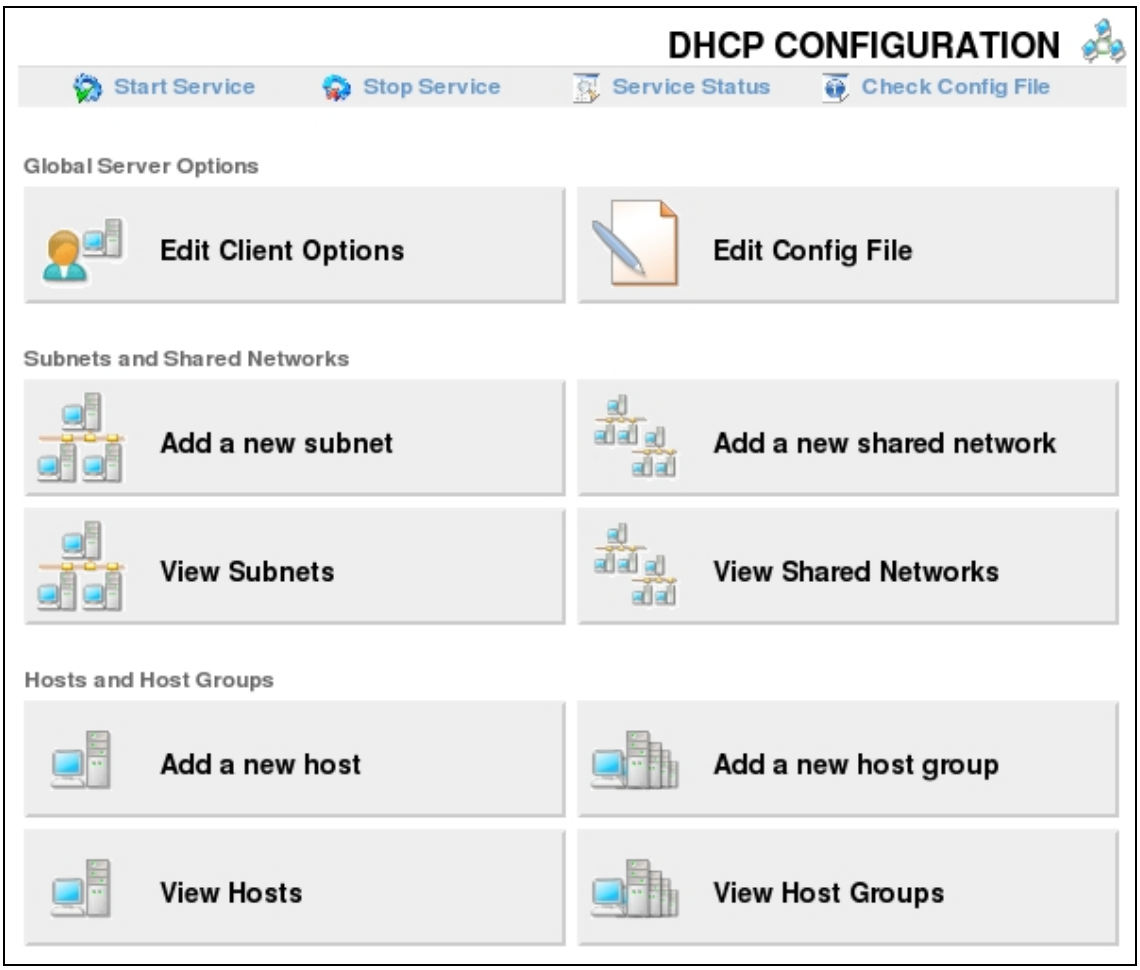
When a web server is supporting multiple domains, e.g. sample.com and example.com at the same time, each domain on the same web server is called a virtual server. Essentially virtual servers allow a single web server to answer for multiple domains at the same time instead of having a single web server dedicated for a single website domain.

See Appendix A for a list of configuration file option mappings.

DHCP 

DHCP (Dynamic Host Configuration Protocol) enables computers on an IP network to extract their IP configurations from a DHCP server. This reduces the work necessary to administer a large IP network by allowing administrators to conserve their IP addresses by delegating the assignment of the addresses to the DHCP server thus removing the need for an administrator to have to assign a static IP address for each computer on the network.

To edit DHCP click the DHCP button in the Services panel to manage DHCP on servers. This causes the server tree to filter itself to show only the DHCP servers and opens the DHCP options in the configuration frame.



Individual changes

You can change DHCP on an individual server by working with the options collections. Or you can choose the server and click Edit Config File to edit its dhcpd.conf file directly.

Multiple Server Changes

You can only make changes to the DHCP Options on multiple servers at the same time, for the DHCP Client Options. Subnet Creation and Modification can only be done on one server at a time.

DHCP Configuration:

- Create a new subnet
- Create a new shared subnet
- Add a new host - Use DHCP to assign a static IP address to a host.
- Add a new host group
- View existing static hosts
- View existing host groups
- Edit Client options

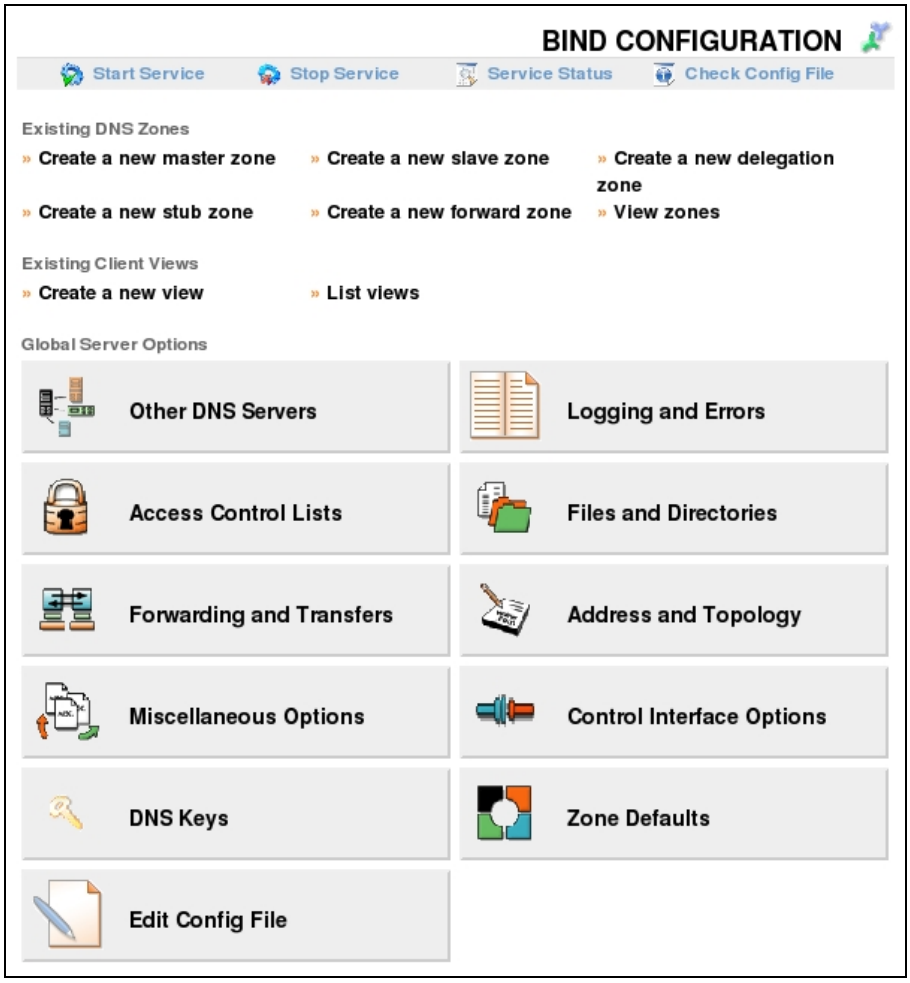
DNS/BIND

NetDirector Manages the ISC BIND 9 DNS server. This is standard on most supported OSes, or can be installed either with the OS installation media, or via download from the Internet Systems Consortium (ISC - http://www.isc.org).

The main BIND configuration pane in NetDirector appears as follows:

There are three sections to the pane:

- Existing DNS Zones
- Existing Client Views
- Global Server Options

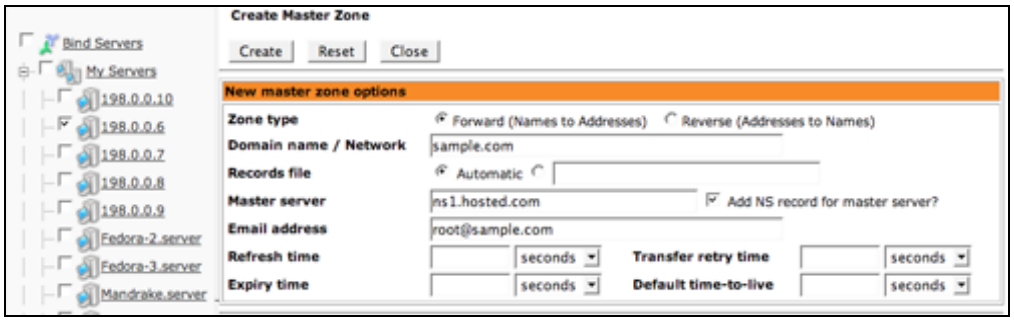


Existing DNS Zones

Domain names such as example.com are translated by DNS servers into network reachable IP addresses by DNS (Domain Name System) servers. In order for a DNS server to start answering requests from DNS clients it must be told which domains it is answering for. You can create a new master zone easily by following the following steps.

Creating a New DNS Master Zone

1. Log into NetDirector and select the Bind DNS service from the Service Bar.
2. Once the Server Tree has automatically filtered itself to show only the DNS servers you have access to manage select the server or servers you wish to create the new zone on.
3. Select the ***Create a new master zone*** Link
4. On the next page enter the information about the new zone.



There are several fields to be filled out to create the master zone.

- **Zone Type** - choose whether you are creating either a Forward or Reverse Zone.
- **Domain Name or Network** - Enter the domain name of the zone you are creating. In our example we entered "sample.com"
- **Records File** - choose whether to have NetDirector automatically create the appropriate zone file or define your own. In most cases you should leave this at "Automatic".
- **Master Server** - define the master name server for this domain. you can add additional name servers for this domain later in the zone options for this domain. The ***Add NS record for master server?*** option will allow NetDirector to automatically create a name server record for this domain.
- **Email address** - enter the email address where someone responsible for this domain can be reached.
- **Timers** - The timer options allow you to override the default timers with your own.

5. Save your edits now by clicking the ***Create*** button. The changes will be processed and you now have the decision to either apply the change now or later. Or optionally you can continue to edit the DNS settings.

6. Once you are happy with the changes for DNS select either the ***Apply Now*** or ***Apply Changes Later***. If making the change to several servers at once this may take a few seconds to complete.

Note: If you are going to schedule the changes to occur later you will need to select the calender icon to choose the date and time you want your change to happen.

Creating a New DNS Forward Zone

1. Log into NetDirector and select the Bind DNS service from the Service Bar.
2. Once the Server Tree has automatically filtered itself to show only the DNS servers you have access to manage select the server or servers you wish to create the new zone on.
3. On the next page enter the information about the new zone. There are several fields to be filled out to create the master zone.
    - **Zone Type** - choose whether you are creating either a Forward or Reverse Zone. In this case choose the Reverse Zone option.
    - **Domain Name or Network** - Enter the network of the zone you are creating.
    - **Master Server** - define the master name server for this domain.
4. Save your edits now by clicking the ***Create*** button. The changes will be processed and you now have the decision to either apply the change now or later. Or optionally you can continue to edit the DNS settings.
5. Once you are happy with the changes for DNS select either the ***Apply Now*** or ***Apply Changes Later***. If making the change to several servers at once this may take a few seconds to complete.

Creating a New DNS Reverse Zone

Normal domain name mapping maps the domain name to an IP address - for example, the domain name www.example.com to the IP address 10.0.0.1. There are times though when we need to know what domain has a certain IP address and this is what a reverse zone provides. In normal DNS mapping you specify the domain name and IP address. Reverse DNS is IP address to domain name mapping - the opposite of forward (normal) DNS which maps domain names to IP addresses.

Every normal DNS record should have a reverse zone as well. It is mostly used by humans for such things as tracking where a web-site visitor came from, or where an e-mail message originated, etc. Many e-mail servers on the Internet (including AOL's) are configured to reject incoming e-mails from any IP address which does not have reverse DNS.

In order to perform Reverse Mapping and to support normal recursive and Iterative (non-recursive) queries the DNS designers defined a special (reserved) Domain Name called IN-ADDR.ARPA. This domain allows for all supported Internet IPv4 addresses (and now IPv6).

To create the DNS Reverse Zone:

1. Log into NetDirector and select the Bind DNS service from the Service Bar.
2. Once the Server Tree has automatically filtered itself to show only the DNS servers you have access to manage select the server or servers you wish to create the new zone on.
3. Select the ***Create New Master Zone*** option. On the next page enter the information about the new zone. There are several fields to be filled out to create the master zone.
    - **Zone Type** - choose whether you are creating either a Forward or Reverse Zone. In this case choose the Reverse Zone option.
    - **Domain Name or Network** - Enter the network of the zone you are creating. For example we entered "192.168.1"
    - **Records File** - choose whether to have NetDirector automatically create the appropriate zone file or define your own. In most cases you should leave this at "Automatic".
    - **Master Server** - define the master name server for this domain. you can add additional name servers for this domain later in the zone options for this domain. The ***Add NS record for master server?*** option will allow NetDirector to automatically create a name server record for this domain.
    - **Email address** - enter the email address where someone responsible for this domain can be reached.
    - **Timers** - The timer options allow you to override the default timers with your own. Typical values are:
      Refresh time: 10800
      Transfer retry time: 3600
      Expiry time: 604800
      Default time-to-live: 38400
4. Save your edits now by clicking the ***Create*** button. The changes will be processed and you now have the decision to either apply the change now or later. Or optionally you can continue to edit the DNS settings.
5. Once you are happy with the changes for DNS select either the ***Apply Now*** or ***Apply Changes Later***. If making the change to several servers at once this may take a few seconds to complete.

Create a new slave or stub zone

A slave or stub name server, also known as a secondary DNS server, gets zone data from another DNS server that is authoritative for the zone, called its master server. When a secondary name server starts up, it contacts its master server and requests a copy of the zone data for which it is responsible. This is called a zone transfer. The purpose of a slave or stub name server is to share the load with the master server, or handle the entire load if the master server is down.

Slave and Stub zones are created in exactly the same way, and are quite similar in some ways though their purposes are very different. Slave zones keep a complete copy in memory, and sometimes also on disk, of a zone that it receives via a zone transfer from a master zone. A slave zone can answer any queries for a zone, and as long as network connectivity remains intact between the master and slave, and the servers are configured correctly, it will stay in sync with the master server. A stub zone also syncs to a master server, however it only keeps NS and SOA record information from the master server. This allows BIND to keep up with delegation information automatically.

To create the new slave or stub zone:

1. Log into NetDirector and select the Bind DNS service from the Service Bar.
2. Once the Server Tree has automatically filtered itself to show only the DNS servers you have access to manage select the server or servers you wish to create the new zone on.
3. On the next page enter the information about the new Slave or Stub zone.

There are several fields to be filled out to create the slave/stub zone.

- **Zone Type** - choose whether you are creating either a Forward or Reverse Zone. In this case choose the Reverse Zone option.
- **Domain Name or Network** - Enter the network of the zone that the server will resolve for
- **Master Server** - define the master name server for this domain.

1. Save your edits now by clicking the "Create" button. The changes will be processed and you now have the decision to either apply the change now or later. Or optionally you can continue to edit the DNS settings.
2. Once you are happy with the changes for DNS select either the ***Apply Now*** or ***Apply Changes Later***. If making the change to several servers at once this may take a few seconds to complete.

Global Server Options

- Other DNS Servers
- Logging and Errors
- Access Control Lists
- Files and Directories
- Forwarding and Transfers
- Address and Topology
- Miscellaneous Options
- Control Interface Options
- DNS Keys
- Zone Defaults

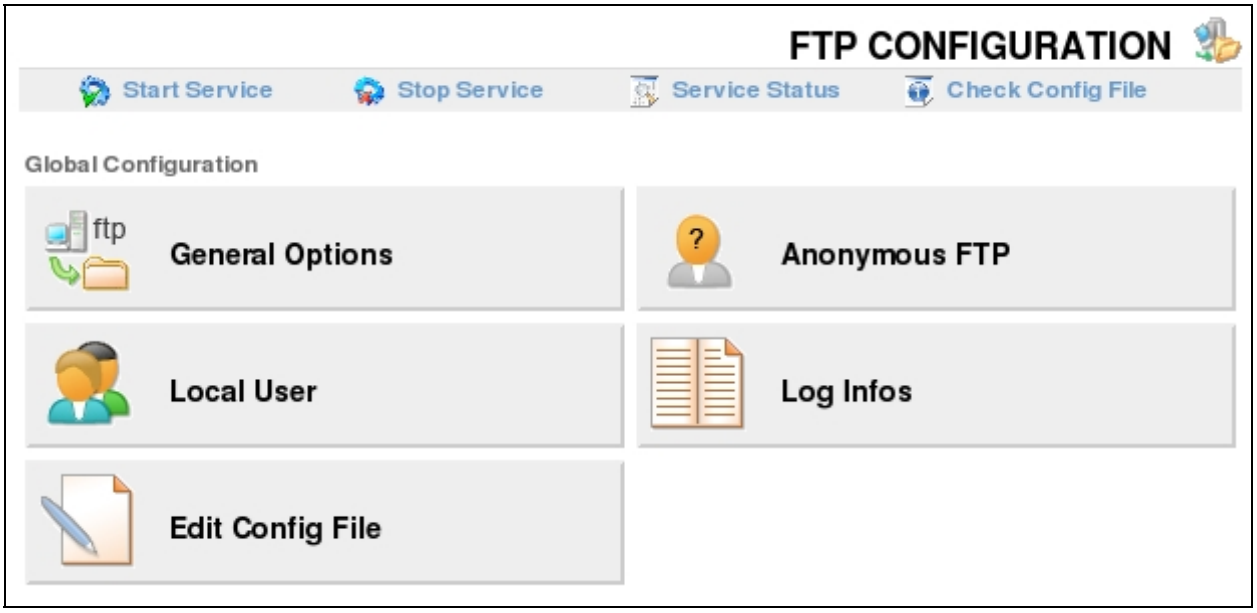
For details on what configuration file options the fields in NetDirector map to, please see the BIND section in Appendix A.

DNS Configuration & How-Tos

- Add records to a Master Zone
- DNS Security
- Modify DNS options
- Use Views

See our website (http://www.emusoftware.com/content/view/93/207/) for references and more information.

FTP



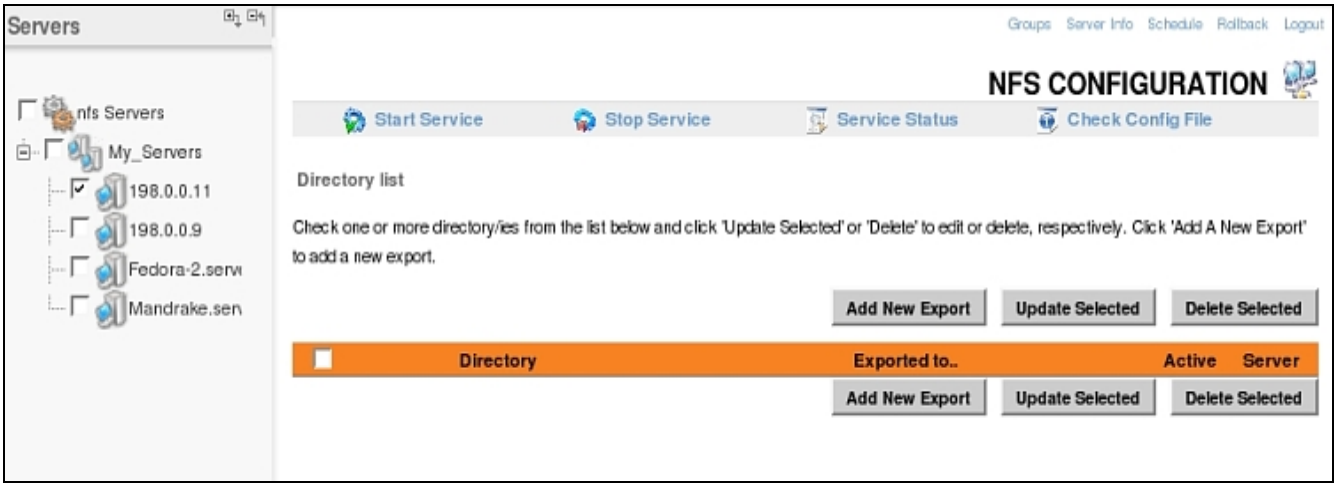
NetDirector administrators the vsFTP daemon. To manage FTP, click on the FTP option in the Services pane. This will bring up the FTP Configuration pageGlobal Configuration options include:

- General Options
- Anonymous FTP
- Local User
- Log Infos
- Edit Config FileSystems

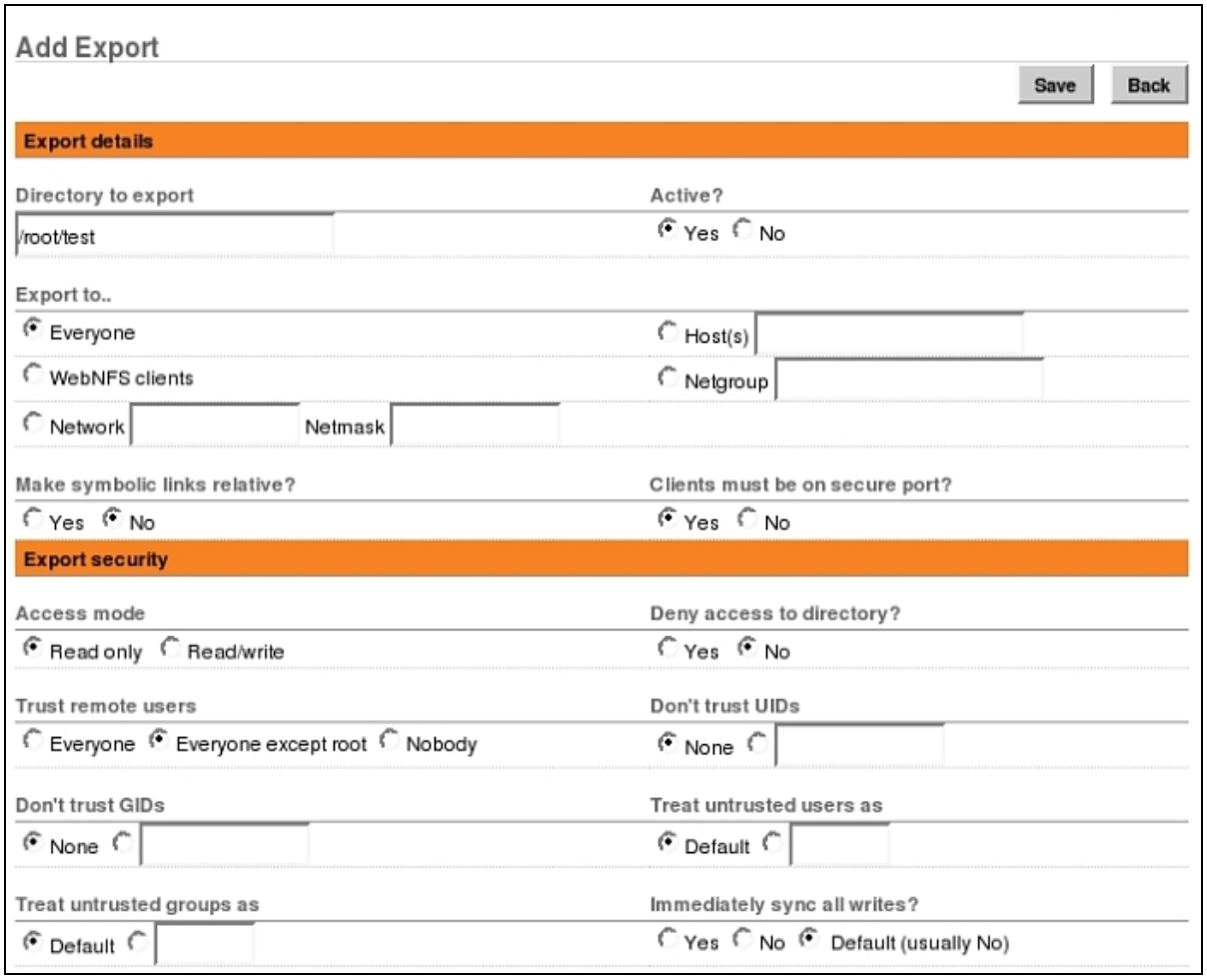
For more information on what ftp configuration file options are configured by the NetDirector fields, please see the FTP section of Appendix A.

NFS

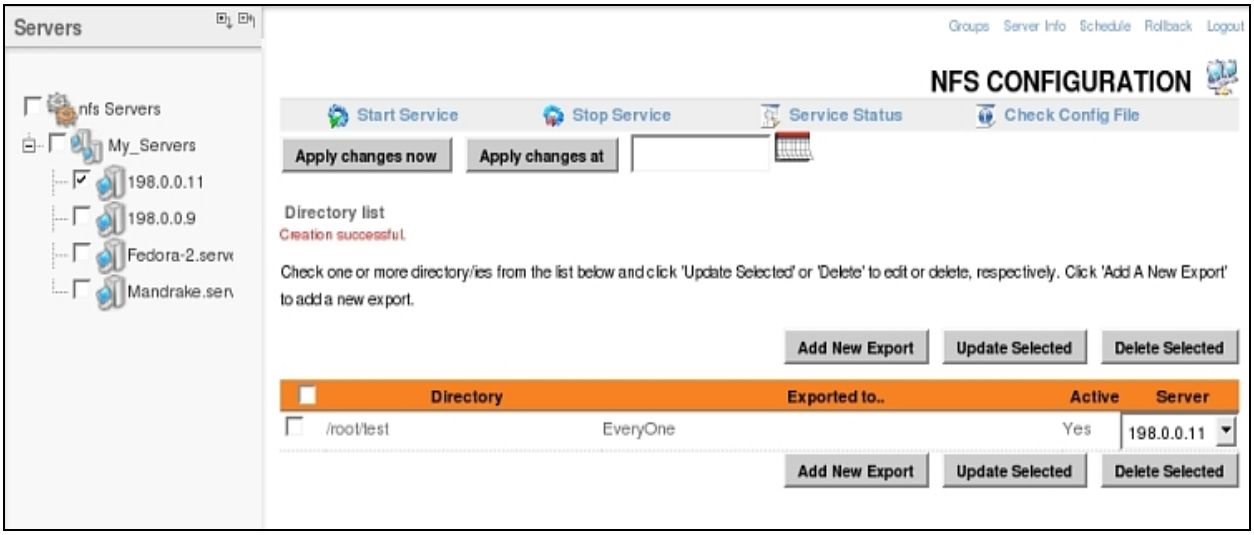
To manage NFS exports, first select the NFS service from the Services menu. You can then select the NFS servers you wish to manage from the Server tree. Any exports available should be listed in the main pane. If there are no exports, the main pane will look like this:



To add a new export, click the "Add new export" button. This will display the Add New Export screen:



Enter the directory on your server or servers you wish to export. Then, select the desired parameters. Once the export is configured, click the "Save" button. This should return you to the main Exports screen to apply your changes:



To apply the changes now, click the "Apply changes now" button. To schedule the change, click on the calendar icon to pull up a calendar to choose the date and time you wish the change to occur. You can do this by entering the time, then clicking on the appropriate date. Then, click the "Apply changes at" button to schedule the change.

Postfix 

Postfix is an open source mail transfer agent (MTA), a computer program for the routing and delivery of email, that is intended as a fast, easy to administer and secure alternative to the widely-used Sendmail. It attempts to be at least somewhat Sendmail-compatible in order to keep existing users happy. Configuration files are in /etc/postfix, most typically main.cf and master.cf. As these files must be owned by root, NetDirector makes it easy to change the configuration as any user who has postfix and postfix servers in their role can make changes without having to have root access to the system.

The NetDirector Postfix screen looks like:

Samba

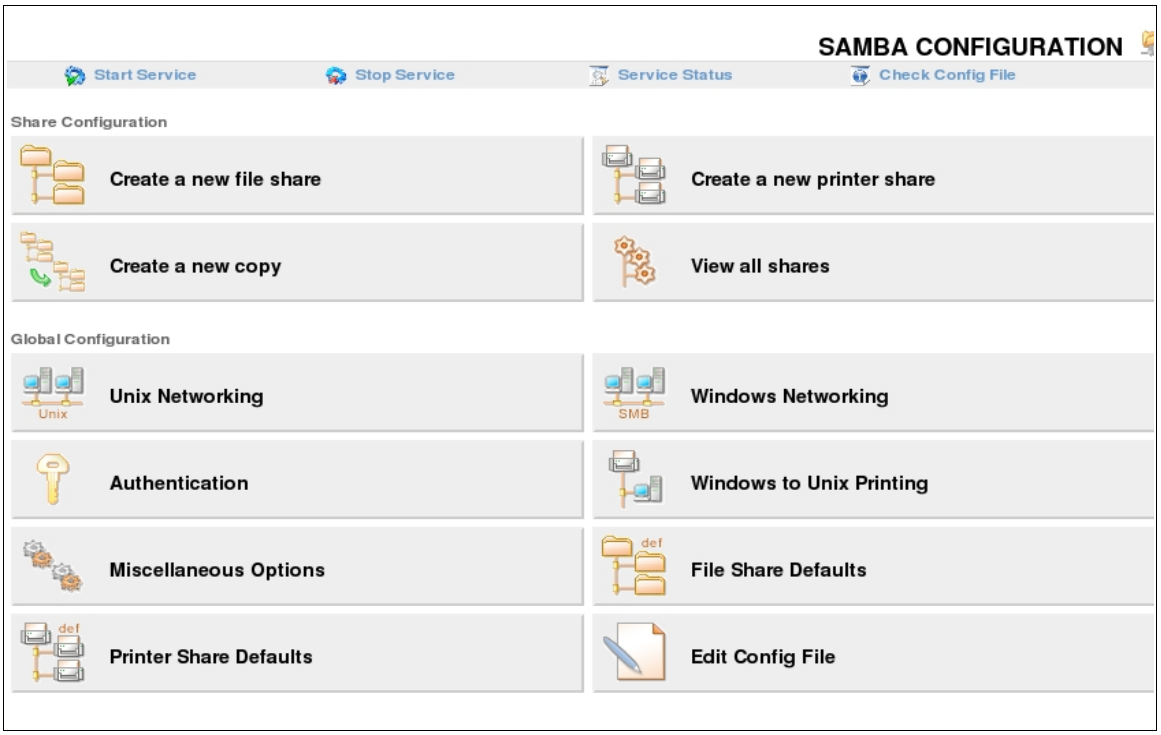
Samba allows a Linux server to become a file and print server to a Windows™ network. It can also be a WINs server, Primary Domain Controller (PDC), Backup Domain Controller (BDC). The current version is Samba 3 and can completely replace a Windows™ server in a network.

Samba can be used to replace or augment an existing Windows Network servers for

- Authentication
- Authorization
- File and Printer sharing
- Name Resolution
- Network Browsing
- Join a NT Domain

Client PC's can be either Linux or Windows(95,98,NT,2000) based.

Samba uses the Server message block (SMB) to communicate to Windows™ machines. Since it places the SMB protocol in TCP/IP all clients of a Samba server need to configured for TCP/IP also.

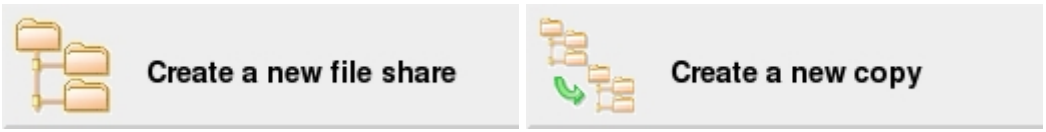


For details on the NetDirector configuration options and matching configuration file options, please see the Samba section of Appendix A.

Using NetDirector to create a new file share

To create a new file share for the network follow these steps.

1. Select Samba from the Service list
2. Select the server/servers you want to modify from the list of Samba servers in the Server Tree
3. Choose to either ***Create a new share*** or to ***Create a new copy***.



- If you choose to create a copy you will need to choose and existing share in which you want to use as a template for creating a new share. Once copied you need to select view all shares to change the directory being shared and any other options you choose.

- To create a share from scratch choose "Create a new share". On the next screen you will need to enter the share name as you want it to appear to other network hosts and then specify the directory to be shared.

- Optionally you can also select whether NetDirector should automatically create the directory if it doesn't exist already and whether it is available and browseable. Also you can add a comment about the share that other network hosts can see.

4. Once done click on the create button and the changes will be saved. If you want to create more options for this share you'll need to go to the "view all shares" area and modify them there.
5. After choosing create you'll need to select close to go back to the main screen where you'll need to decide if you want to make more changes to samba, apply all queued changes immediately or schedule them to occur at a later date.

Using NetDirector to create new printer share

To create a new Samba printer share with NetDirector:

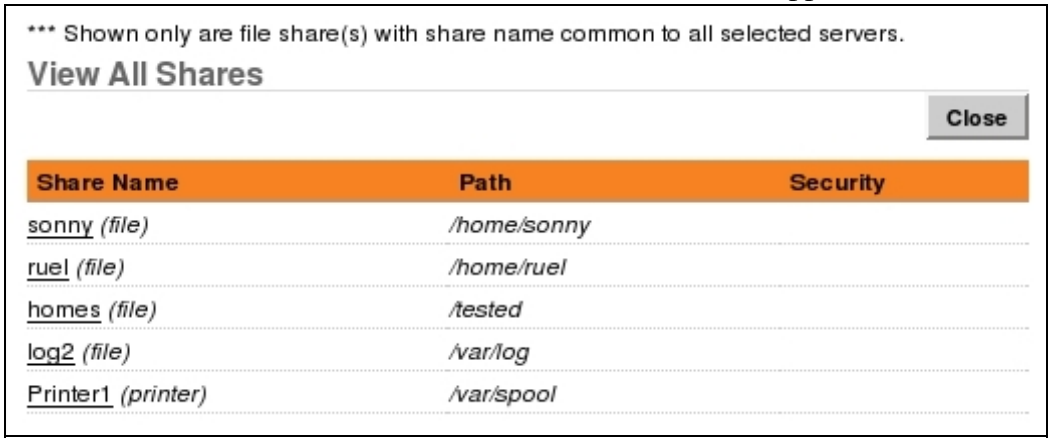
1. Click on ***Samba*** in the Services pane
2. Select the servers you wish to manage
3. Click on ***Create a new printer share***. The Create Printer Share screen will appear:

4. Enter the share data for the printer.
5. Click ***Create*** to create the share.
6. Click ***Close*** to return to the Samba Configuration screen.
7. Click ***Apply changes now*** to apply the change immediately, or select a time and click ***Apply changes at*** to schedule the change for later.

Samba - View all current shares

To view all Samba shares common to all selected servers:

1. Click on ***Samba*** in the Services pane
2. Select the servers you wish to manage
3. Click on ***View All Shares***. The View All Shares screen will appear:



4. You can click on a share name to edit the share, or configure other share options (Security and

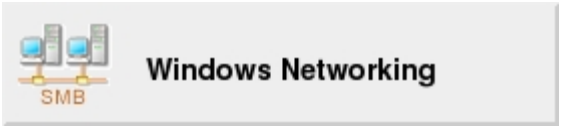
Access Control, File Permissions, File Naming, Miscellaneous Options).

5. Click ***Close*** to return to the Samba Configuration screen.
6. If any changes were made, click ***Apply changes now*** to apply the change immediately, or select a time and click ***Apply changes at*** to schedule the change for later.

Using NetDirector to make Samba be the Local Master Browser

To make samba try to become the Local Master Browser (LMB) on a Windows™ network, you need to set the Master Browser priority.

1. Select Samba from the Service list
2. Select the server/servers you want to modify from the list of Samba servers in the Server Tree
3. Select the ***Windows Networking*** option from the configuration window.

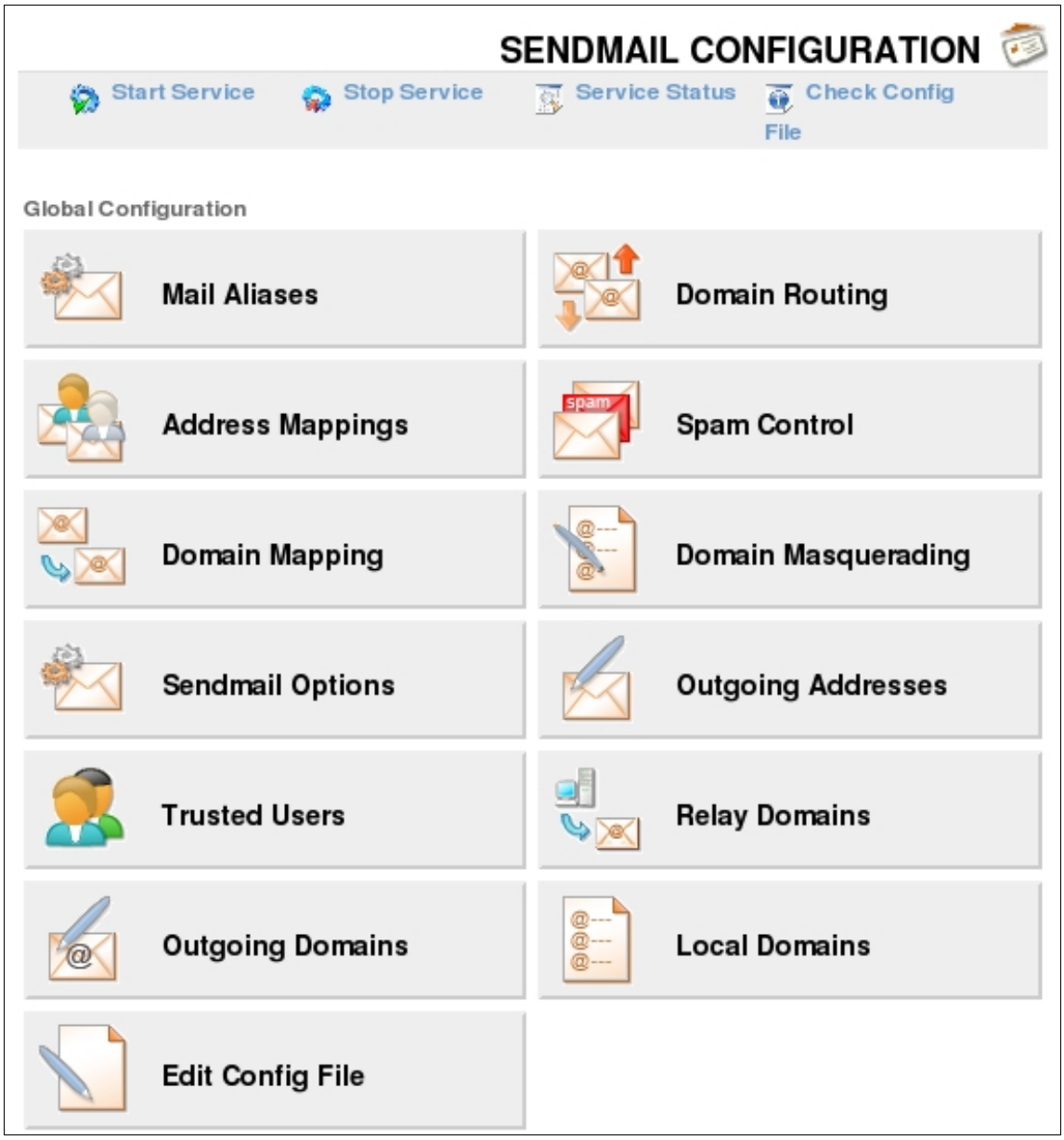


4. Set the Master Browser priority to a low value to force it to become the LMB for the network.
5. Once done click on the create button and the changes will be saved. If you want to create more options for this share you'll need to go to the "view all shares" area and modify them there.
6. After choosing create you'll need to select close to go back to the main screen where you'll need to decide if you want to make more changes to samba, apply all queued changes immediately or schedule them to occur at a later date

NOTE: Please use this carefully, a mis-configured Samba can cause serious issues while it tries to become a LMB.

Sendmail

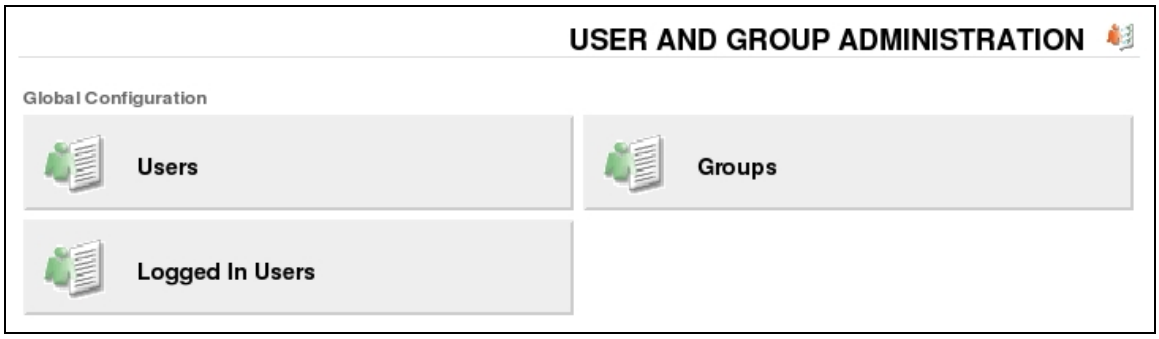
Sendmail is an open source mail transfer agent (MTA): a daemon program for the routing and delivery of email.



For details on the NetDirector configuration options and matching configuration file options, please see the Sendmail section of Appendix A.

Users & Groups

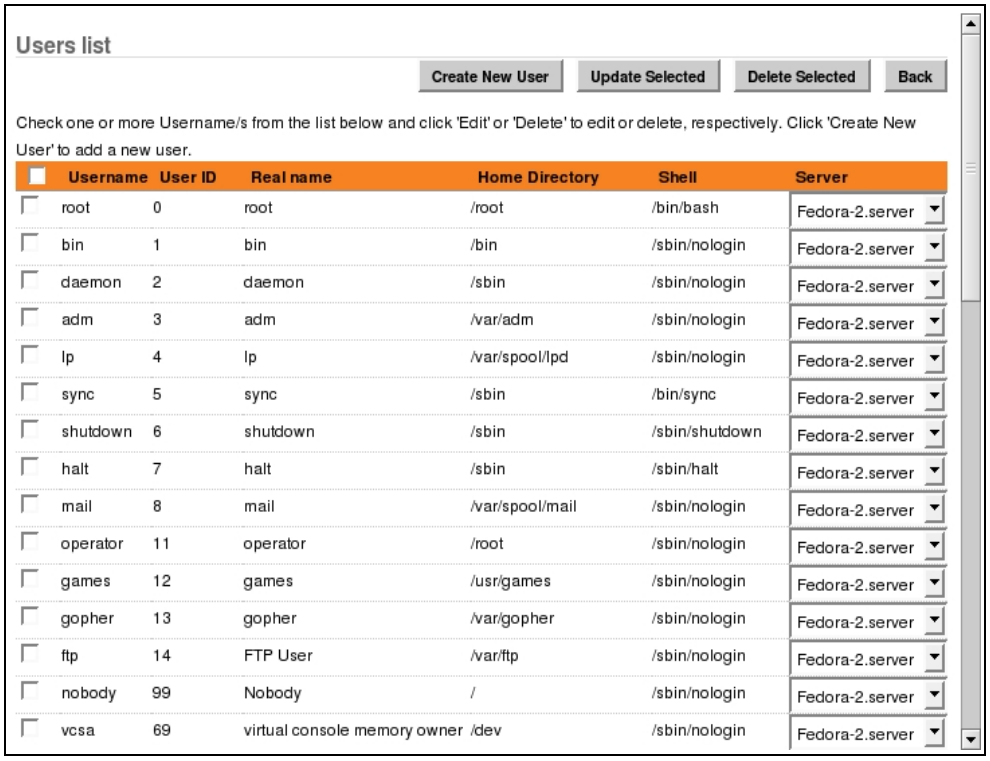
The User and Group service is used to add, update and delete users and groups on your servers, as well as to monitor users who are currently logged in. To use this service, click on the ***User and Group*** icon in the Service pane. This will bring up the User and Group Administration pane:



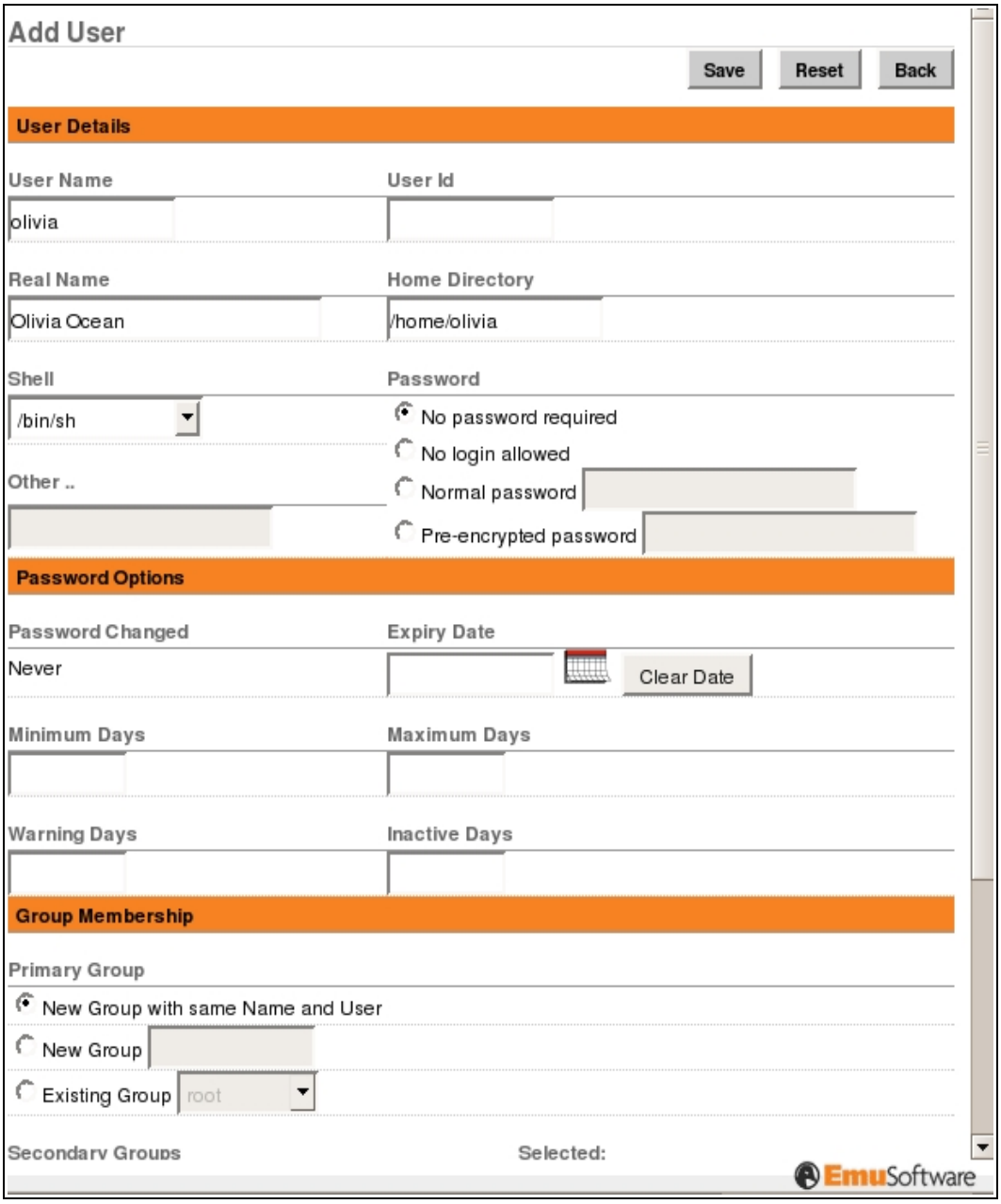
The Users and Groups module allows you to create and modify User and Groups as well as view users currently logged into the servers.

Create New Users

1. To create a new user, first select the server or servers on which you want to add the user.
2. Next, click on the ***Users*** button in the Users and Groups pane. This will bring up the Users interface:



3. To add a new user to the selected server(s), click the ***Create New User*** button to bring up the Add User pane:

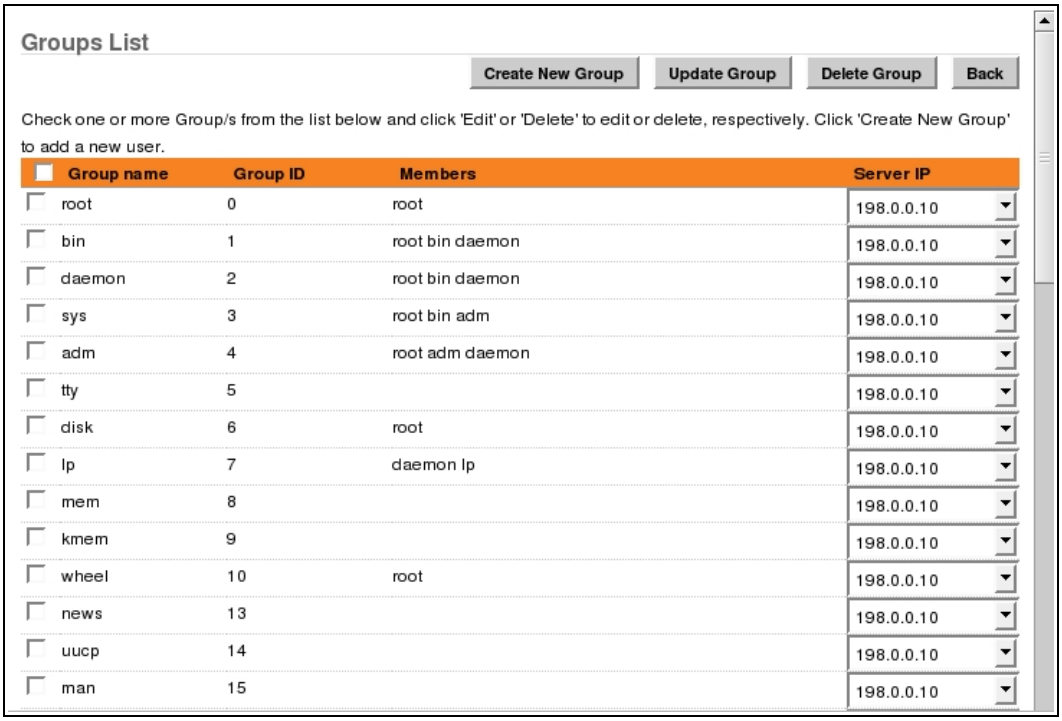


4. Enter the user information. Notice in the above illustration, the User ID (UID) is left blank. This is intentional, and is recommended for most cases. Leaving the UID blank allows the agent on each server to which you are adding a user to select an available, unique UID for that system. Entering a UID will force that UID to be used, but you may run into conflicts if that UID is already in use on a system.

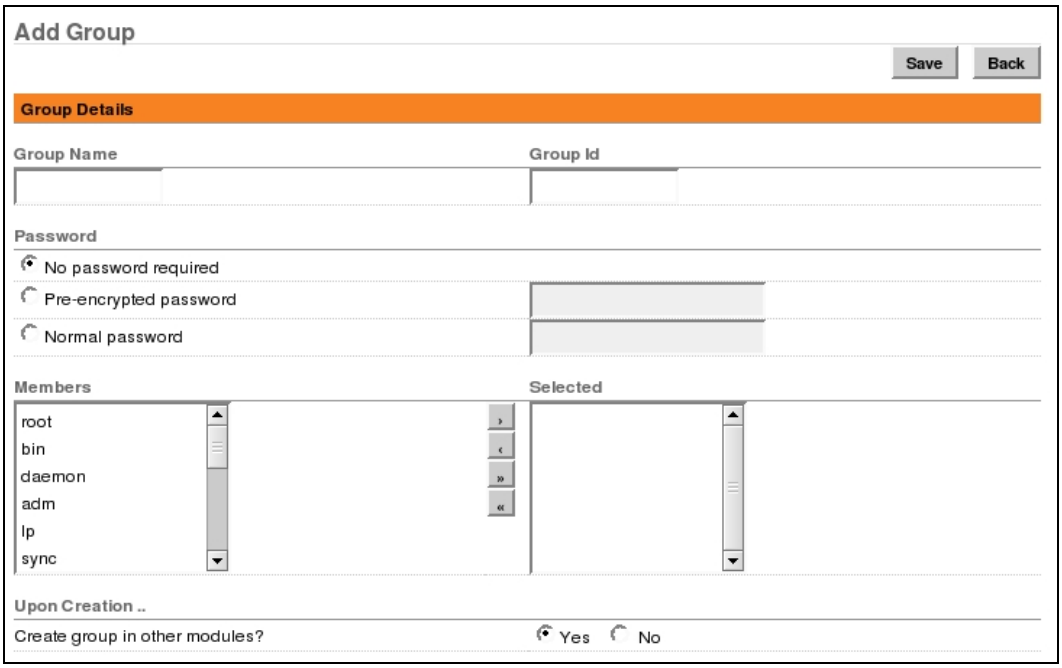
5. Once the user is configured, click ***Save***. In order for the changes to be applied, you will need to click ***Back*** on the Users screen to get to the Users and Groups screen. At this point, all changes made in the Users and Groups section can be either applied now or scheduled.

Create a new Group

1. To create a new group, first select the server or servers on which you want to add the user.
2. Next, click on the ***Groups*** button in the Users and Groups pane. This will bring up the Groups interface:



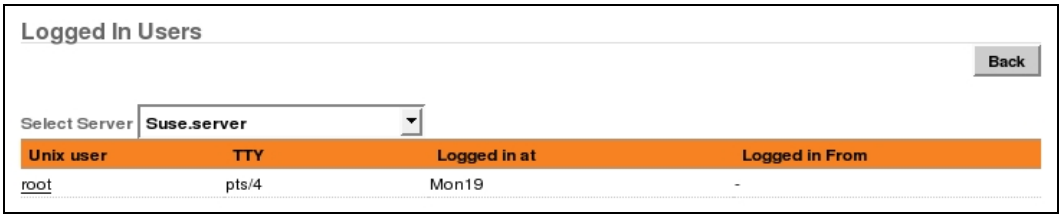
3. To create a new group, click the ***Create New Group*** button. This will bring up the Add Group pane:



4. Enter the Group Name and configure the group as you wish. Again, it is recommended to leave the Group ID (GID) blank so that the NetDirector Server Agent on each selected system can choose an unused GID to assign to the group.
5. Once the group is configured, click ***Save***. In order for the changes to be applied, you will need to click ***Back*** on the Group screen to get to the Users and Groups screen. At this point, all changes made in the Users and Groups section can be either applied now or scheduled.

View currently logged in users

1. To view logged in users on a server or group of servers, select the server(s) in question in the Server Tree and then click the ***Logged In Users*** button. This will display the Logged In Users screen:



2. If you select multiple servers, you can use the "Select Server" drop-down menu to select an individual servers in order to view the logged in users.
3. Click the ***Back*** button to go back to the Users and Groups pane.

Chapter 6: Troubleshooting and Support

Log Files

There are two main log files that you can check in to help diagnose problems. These are:

1. Server Manager: /opt/netdirector/jakarta-tomcat/logs/catalina.out
2. Server Agent: /opt/netdirectoragent/agent/ndagent.log

Further Documentation

You can find additional documentation on NetDirector on our website:

1. FAQ: http://www.emusoftware.com/content/blogsection/14/188/
2. Online Documentation: http://www.emusoftware.com/content/view/88/153/

Support

If all else fails, you may find answers to your questions in one of our forums:

1. Community forum: http://www.netdirector.org/index.php?option=com_joomlaboard&Itemid=62
2. For support subscribers, problem reports can be made by emailing Emu Software at support@emusoftware.com. Please include as much detail of the problem as possible, as well as the following information: Logs, Service, Errors

Subscriptions and customization

1. Subscribtion to Emu Software's NetDirector includes support and updates. Contact sales@emusoftware.com for information on NetDirector Subscription Services.
2. Emu Software can build custom modules. If there is a module that you would like to be custom built, please contact sales@emusoftware.com with as much detail on the module (service, desired usage, etc) as possible.

Appendix A: Configuration file option mappings

Apache

NetDirector Option	`httpd.conf file entry`
Processes and Limit	
Maximum headers in request	`LimitRequestFields`
Maximum request line size	`LimitRequestLine`
Threads per child process	`ThreadsPerChild`
Maximum spare threads	`MaxSpareThreads`
Minimum spare threads	`MinSpareThreads`
Initial threads per child process	`StartThreads`
Minimum spare server processes	`MinSpareServers`
Initial server processes	`StartServers`
Maximum request header size	`LimitRequestFieldsize`
Display extended status information	`ExtendedStatus`
Maximum requests per server process	`MaxRequestsPerChild`
Maximum threads per child process	`MaxThreadsPerChild`
Number of child processes	`NumServers`
Maximum spare server processes	`MaxSpareServers`
Maximum concurrent requests	`MaxClients`
Networking and Addresses	
Multiple requests per connection	`MaxKeepAliveRequests`
Keep-alive timeout	`KeepAliveTimeout`
Addresses for name virtual servers	`NameVirtualHost`
Request timeout	`TimeOut`

NetDirector Option	`httpd.conf file entry`
Listen on addresses and ports	`Listen`
Listen queue length	`ListenBackLog`
TCP send buffer size	`SendBufferSize`
Users & Groups	
Run as Unix user	`User`
Run as Unix Group	`Group`
Miscellaneous	
Server HTTP Header	`ServerTokens`
Core Dump Directory	`CoreDumpDirectory`
Server lock file	`LockFile`
Server PID file	`PidFIle`
Server memory scoreboard file	`ScoreBoardFile`
CGI Programs	
Browser regex, Set variable, Value	`BrowserMatch`
Matching cases?	`BrowserMatchNoCase (if set to no)`
CGI Script Log	`ScriptLog`
Maximum logged post data size	`ScriptLogLength`
Maximum CGI log size	`ScriptLogBuffer`
Virtual Servers -> Create Virtual Server	
Handle connections to address	`<VirtualHost address:port>`
Port	`In VirtualHost line`
Document Root	`DocumentRoot`
Server Name	`ServerName`

Bind

NetDirector Option	bind config file entry
Other DNS Servers	`server`
IP address	`server`
Ignore bogus server?	`bogus`
Zone transfer format	`transfer-format`
Maximum transfers	`transfers`
Logging and Errors	`logging section`
Channel name	`channel`
Minimum message level	`severity`
Log to	`file`
Versions to keep	`versions (file option)`
Maximum file size	`size (file option)`
Syslog level	`syslog`
Record categories in log	`print-category`
Record severity in log	`print-severity`
Record date and time in log	`print-time`
Access Control Lists	`acl section`
ACL name	`acl`

Matching addresses, networks and ACLs	`enumerated in acl section. Eg:`
	`acl acl1 {`
	`196.198.0.1;`
	`198.0.0.1;`
	`localhost; };`

Files and Directories	`In the options section`
Statistics output file	`statistics-file`
Database dump file	`dump-file`
Process ID file	`pid-file`
Path to zone transfer program	`named-xfer`

NetDirector Option	bind config file entry
Forwarding and Transfers	In the options section
Servers to forward queries to	forwarders
Maximum zone transfer time	max-transfer-time-in
Zone transfer format	transfer-format
Maximum concurrent zone transfers	transfers-in
Addresses and Topology	In options section
Source IP address for queries	query-source (address IP port #)
Source port for queries	query-source (address IP port #)
Nameserver choice topology	topology
Miscellaneous Options	In options section
Maximum core dump size	coresize
Maximum data memory usage	datasize
Maximum open files	files
Maximum stack memory usage	stacksize
Interval between cleaning expired records	cleaning-interval
Interval between check for new interfaces	interface-interval
Interval between logging stats	statistics-interval
Do full recursive lookups for clients?	recursion
Allow multiple CNAME aliases for one name?	multiple-cnames
Fetch glue records?	fetch-glue
Set authorative AA bit on responses?	auth-nxdomain
Control Interface Options	controls section
Internet port access	inet 198.0.0.1 port 8080 allow { allow {111.111.111.111 ;} keys { };

NetDirector Option	bind config file entry
Unix FIFO access	unix "198.0.0.75" perm 9999 owner 516 group 516;
DNS Keys	include "/etc/rndc.key";
Key ID	in /etc/rndc.key file?
Algorithm	in /etc/rndc.key file?
Select string	in /etc/rndc.key file?
Zone Defaults	Defaults set here are used when creating new zones
Record Name	zone
Type	type
Allow transfers from...	allow-transfer
Allow queries from...	allow-query
Check names in master zones?	check-names
Check names in slave zones?	check-names
Check names in responses?	check-names
Notify slaves of changes?	notify
Create Master Zone	zone section
Zone type	type
Domain Name/Network	zone (e.g. zone "example.com")
Records file	file
Edit Config File	Allows for editing of the config file directly

Samba

NetDirector Option	smb.conf file entry
Unix Networking	
Idle time before disconnect	deadtime
Trusted hosts/users file	hosts equiv
Network Interfaces	interfaces
Keepalive packets	keepalive
Maximum packet size	max xmit
Listen on address	socket address
Socket Options	socket options
Windows Networking	
Workgroup	workgroup
WINS mode	wins support
Server description	server string
Server name	netbios name
Server alias	netbios aliases
Security	security
Authentication	
Use encrypted passwords?	encrypt passwords
Allow null passwords?	null passwords
Password program	passwd program
Change Unix password as well?	unix password sync
Change password chat	passwd chat = *New*password* %n *Retype*new*password* %n *passwd:*all*authentication*tokens*updated*successfully* *New*password* %n *passwd:*all*authentication*tokens*updated*successfully* *New*password* %n *passwd:*all*authentication*tokens*updated*successfully* *passwd:*all*authentication*tokens*updated*succes

NetDirector Option	smb.conf file entry
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Username mapping	username map
Miscellaneous Options	
Log file	log file
Max log size	max log size
File Share Defaults	
Share Comment	comment
File Share Defaults -> Security and Access Control	
Writeable?	writeable
Guest access?	guest only
Guest Unix user	guest account
Hosts to allow	hosts allow
Hosts to deny	hosts deny
Valid users	valid users
Invalid users	invalid users
Possible users	username
Read-only users	read list
Read/write users	write list
Printer Share Defaults -> Printer Options	
Minimum free space	min print space
Force postscript printing	postscript
Print command	print command
Display queue command	lpq command
Delete job command	lprm command
Pause job command	lppause command
Resume job command	lpresume command

NetDirector Option	smb.conf file entry
Printer Driver	printer driver
Edit Config File	
Option in config file only	dns proxy
Option in config file only	domain logons
Option in config file only	logon path
Option in config file only	logon script
Option in config file only	obey pam restrictions
Option in config file only	pam password change
Option in config file only	smb passwd file
Option in config file only	wins proxy
Option in config file only	printing
Option in config file only	load printers
Option in config file only	printcap name
Create a new fileshare, Create a new copy, View all shares -> Edit	
Share name	[share name]
Directory to share	path
Available?	available
Browseable?	broswseable
Create a new printer share, Create a new copy, View all shares -> Edit	
Share name	[printer name]
Unix Printer	printer
Spool Directory	path
Available?	available
Browseable?	broswseable

DHCP

NetDirector Option	dhcp config file entry
Edit Client Options	
Client hostname	`option host-name`
Default routers	`option routers`
Subnet mask	`option subnet-mask`
Broadcast address	`option broadcast-address`
Domain name	`option domain-name`
DNS servers	`option domain-name-servers`
Time servers	`option time-servers`
Log servers	`option log-servers`
Swap server	`option swap-server`
Root disk path	`option root-path`
NIS domain	`option nis-domain`
NIS servers	`option nis-servers`
Font servers	`option font-servers`
XDM servers	`option x-display-manager`
Static routes	`option static-routes`
NTP servers	`option ntp-servers`
NetBIOS name servers	`option netbios-name-servers`
NetBIOS scope	`option netbios-scope`
NetBIOS node type	`option netbios-node-type`
Custom option	`option option`
Use name as client hostname?	`use-host-decl-names`
Default lease time	`default-lease-time`

NetDirector Option	dhcp config file entry
Boot filename	`filename`
Maximum lease time	`max-lease-time`
Boot file server	`next-server`
Server name	`server-name`
Lease length for BOOTP clients	`dynamic-bootp-lease-cutoff`
Lease end for BOOTP clients	`dynamic-bootp-lease-length`
Dynamic DNS enabled?	`ddns-updates`
Dynamic DNS domain name	`ddns-domainname`
Dynamic DNS reverse domain	`ddns-rev-domainname`
Dynamic DNS hostname	`ddns-hostname`
Dynamic DNS update style	`ddns-update-style`
Allow unknown clients?	`allow unknown-clients`
Server is authoritative for all subnets?	`authoritative`
Edit Config File	Edit configuration file directly for any options not included in NetDirector GUI
Add a new subnet	
Hosts under this subnet	`host`
Groups under this subnet	`group`
Subnet description	`# comment on subnet`
Network address	`subnet`
Netmask	`netmask`
Address ranges	`range`
Add a new shared network	
Hosts under this shared network	`host`
Groups under this shared network	`group`
Subnets under this shared network	`subnet in shared-network section`

NetDirector Option	dhcp config file entry
Shared network description	`# comment in shared-network`
Network name	`shared-network`
View Subnets	View subnets. click on subnet to edit - options same as new subnet
View Shared Networks	View shared networks. click on shared network to edit - options same as new shared network.
Add a new host	
Host assigned to	`host`
Host description	`# comment in host`
Host name	`host`
Harware Address	`hardware`
Fixed IP Address	`fixed-address`
Add a new host group	
Group assigned to	`group`
Hosts under this group	`host`
Group description	`# under group`
Use name as client hostname?	`use-host-decl-names`
View Hosts	View hosts. Click on hosts to edit - options same as new host
View Host Groups	View host groups. Click on host group to edit - options same as new host group

Postfix

NetDirector Option	postfix config file entry
General Options	
What domain to use in outbound mail	myorigin
What domains to receive mail for	mydestination
What trouble to report to the postmaster	notify_classes
Send outgoing mail via host	relay_host
Address that receives bcc of each message	always_bcc
Timeout in handling requests	daemon_timeout
Default database type	default_database_type
Default message delivery transport	default_transport
Sender address for bounce mail	double_bounce_sender
Number of subdir levels below the queue dir	hash_queue_depth
Name of queue dirs split across subdirs	hash_queue_names
Max number of Received: headers	default_destination_recipient_limit
Time in hours before sending a warning for no delivery	delay_warning_time
Network interfaces for receiving mail	inet_interfaces
Idle time after internal IPC client disconnects	ipc_idle
Timeout for I/O on internal comm channels	ipc_timeout
Mail system name	mail_name
Mail owner	mail_owner
Official mail system version	mail_version
Time to wait for next service request	max_idle
Max service requests handled before exiting	max_use
Internet hostname of this mail system	myhostname
Local internet domain name	mydomain

NetDirector Option	postfix config file entry
Local networks	mynetworks
Send postmaster notice on bounce to...	bounce_notice_recipient
Send postmaster notice on 2bounce to...	2bounce_notice_recipient
Send postmaster notice on delay to...	delay_notice_recipient
Send postmaster notice on error to...	error_notice_recipient
Mail queue directory	queue_directory
Lock file dir, relative to queue dir	process_id_directory
Separator usernames / address extensions	recipient_delimiter
Postfix support programs and daemons dir	program_directory
Disable kernel file lock on mailboxes	sun_mailtool_compatibility
Max time to send a trigger to a daemon	trigger_timeout
Email content filter	content_filter
Address Rewriting and Masquerading	
Rewrite "user%domain" to "user@domain"	allow_percent_hack
Rewrite "user" to "user@$mydomain"	append_at_myorigin
Rewrite "user@host" to "user@host.$mydomain"	append_dot_mydomain
Rewrite "site!user" to "user@site"	swap_bangpath
Send mail with empty recipient to...	empty_address_recipient
Address masquerading	masquerade_domains
Masquerading exceptions	masquerade_exceptions
Mail Aliases	
Alias databases used by the local delivery agent	alias_database
Alias databases built by "newaliases" command	alias_maps
Canonical Mapping	
Address apping lookup tables	canonical_maps
Tables for RECIPIENT addresses	recipient_canonical_maps

NetDirector Option	postfix config file entry
Tables for SENDER addresses	sender_canonical_maps
Virtual Domains	
Domain mapping lookup tables	virtual_alias_maps
Domains to perform virtual mapping for	virtual_alias_domains
Transport Mapping	
Transport mapping lookup tables	transport_maps
Relocated Mapping	
Relocated mapping lookup tables	relocated_maps
Local Delivery	
Name of the transport for local deliveries	local_transport
Shell to use for delivery to external command	local_command_shell
Search list for forward	forward_path
Valid mail directory to external commands	allow_mail_to_commands
Valid mail delivery to external files	allow_mail_to_files
Default rights of the delivery agent	default_privs
Home-relative pathname of user mailbox file	home_mailbox
Destination address for unknown recipients	luser_relay
Spool directory	mail_spool_directory
External command to use instead of mailbox delivery	mailbox_command
Optional actual transport use	mailbox_transport
Optional transport for unknown recipients	fallback_transport
Max number of parallel deliveries to the same local recipient	local_destination_concurrency_limit
Max number of recipients per local message delivery	local_destination_recipient_limit

NetDirector Option	postfix config file entry
Prepend a Delivered-To: when...	prepend_delivered_header
General Resource Control	
Max size of bounced message	bounce_size_limit
Max time for delivery to external commands	command_time_limit
Max number of Postfix child processes	default_process_limit
Max number of addresses remembered by the duplicate filter	duplicate_filter_limit
Max attempts to acquire file lock	deliver_lock_attempts
Time in seconds between lock attempts	deliver_lock_delay
Max attempts to fork a process	fork_attempts
Time in seconds between fork attempts	fork_delay
Max memory used for processing headers	header_size_limit
Max memory used for handling input lines	line_length_limit
Max size of a message	message_size_limit
Max number of messages in active queue	qmgr_message_active_limit
Max number of in-line memory recipients	qmgr_message_recipient_limit
Min free space in the queue file system	queue_minfree
Max time after which stale lock is released	stale_lock_time
Time in seconds between attempts to contact a broken MDT	transport_retry_time
SMTP Server Options	
SMTP greeting banner	smtpd_banner
Max number of recipients accepted for delivery	smtpd_recipient_limit
Disable SMTP VRFY command	disable_vrfy_command
Timeout in seconds for SMTP transactions	smtpd_timeout
Timeout before sending 4xx/5xx error response	smtpd_error_sleep_time

NetDirector Option	postfix config file entry
Error count for temporarily ignore a client	smtpd_soft_error_limit
Error count for closing connection	smtpd_hard_error_limit
HELO is required	smtpd_helo_required
Allow untrusted routing	allow_untrusted_routing
Restrict ETRN command upon...	smtpd_etrn_restrictions
Restrictions on client hostnames/addresses	smtpd_client_restrictions
Restrictions on HELO commands	smtpd_helo_restrictions
Restrictions on sender addresses	smtpd_sender_restrictions
Restrictions on recipient addresses	smtpd_recipient_restrictions
DNS domains for blacklist lookups	maps_rbl_domains
Restrict mail relaying	relay_domains
SMTP server response on access map violation	access_map_reject_code
SMTP server response on invalid hostname reject	invalid_hostname_reject_code
SMTP server response on RBL domains violation	maps_rbl_reject_code
SMTP server response on client reject	reject_code
SMTP server response on forbidden relaying	relay_domains_reject_code
SMTP server response on unknown domain reject	unknown_address_reject_code
SMTP server response on unknown client reject	unknown_client_reject_code
SMTP server response on unknown hostname reject	unknown_hostname_reject_code
SMTP Client Options	
Action when listed as best MX host	best_mx_transport
Hosts/domains to hand off mail to on invalid destination	fallback_relay
Ignore MX lookup error	ignore_mx_lookup_error
Skip 4xx greeting	smtp_skip_4xx_greeting

NetDirector Option	postfix config file entry
Skip wait for the QUIT command	smtp_skip_quit_response
Max number of parallel deliveries to the same destination	smtp_destination_concurrency_limit
Max number of recipients per delivery	smtp_destination_recipient_limit
Timeout for completing TCP connections	smtp_connect_timeout
Timeout on waiting for the greeting banner	smtp_helo_timeout
Timeout on waiting for answer to MAIL FROM	smtp_mail_timeout
Timeout onw aiting for answer to RCPT TO	smtp_rcpt_timeout
Timeout on waiting for answer to DATA	smtp_data_init_timeout
Timeout on waiting for answer to transmit of message content	smtp_data_xfer_timeout
Timeout on waiting for answer to ending "."	smtp_data_done_timeout
Timeout on waiting for answer to QUIT	smtp_quit_timeout
Delivery Rates	
Max number of parallel deliveries to the same destination	default_destination_concurrency_limit
Max number of recipients per message delivery	default_destination_recipient_limit
Initial concurrency level for delivery to the same destination	default_delivery_slot_cost
Max time (days) in queue before message is undeliverable	maximal_queue_lifetime
Min time (secs) between attempts to deliver a deferred message	minimal_backoff_time
Max time (secs) between attempts to deliver a deferred message	maximal_backoff_time
Time (secs) between scanning the deferred queue	queue_run_delay
Transports that should not be delivered	defer_transports
Debugging Features	

NetDirector Option	`postfix config file entry`
List of domain/network patterns for which verbose log is enabled	`debug_peer_list`
Verbose logging level when matching the above list	`debug_peer_level`
Edit Config File	Edit configuration file directly for any options not included in NetDirector GUI

FTP

NetDirector Option	vsFTP config file entry
General Options	
File Umask	local_umask
Idle session timeout	idle_session_timeout
Data connection timeout	data_connection_timeout
Welcome banner text	ftpd_banner
FTP username	ftp_username
Anonymous FTP	
Anonymous enable	anonymous_enable
Anonymous can upload	anon_upload_enable
Anonymous can make Dirs	anon_mkdir_write_enable
Local User	
Local users enable	local_enable
Local chroot	chroot_local_user
Local write	write_enable
Log Infos	
Xfer log format	xferlog_std_format
Xfer log file	xferlog_file
Edit Config File	Can be used to edit options not included in the NetDirector GUI

