

Configuring Leostream for Multi-User Linux Servers

Unlike conventional desktops with a one-to-one mapping to users, Linux servers, such as those running the NoMachine NX Enterprise Server software, can host multiple user sessions at a time. You can manage Linux servers in the Leostream Connection Broker exactly as you manage Windows Remote Desktop Sessions, i.e., Terminal Server session.

The following example shows how to set up the Connection Broker to manage Linux sessions when using the NoMachine NX Enterprise Server.



The following example assumes that you previously completed the following steps.

1. The Connection Broker virtual appliance is installed in your virtualization layer (see the [Leostream Installation Guide](#))
2. You have logged into the Connection Broker Administrator Web interface and entered your license key (See “Entering Your License Key” in the [Connection Broker Administrator’s Guide](#))
3. You have configured your Connection Broker network settings (see “Setting Network Configuration and Connection Broker VIP” in the [Connection Broker Administrator’s Guide](#))
4. You added one authentication server to your Connection Broker (see “Chapter 13” in the [Connection Broker Administrator’s Guide](#))
5. The NoMachine NX software is installed and configured on the Linux server.

Step 1: Installing the Leostream Agent

In order for the Connection Broker to manage multiple users on the Linux server, you *must* install the Java version of the Leostream Agent on the Linux server. For information on installing the Java version of the Leostream Agent on Linux desktops, consult the [Leostream Installation Guide](#).

After the Leostream Agent is installed, ensure that it points to your Connection Broker by inspecting the `/etc/leostreamagent.conf` file. This file should contain the following line:

```
ConnectionBrokerAddress=cb_address
```

where `cb_address` is the IP address or fully qualified domain name of your Connection Broker. If the `/etc/leostreamagent.conf` file does not point to your Connection Broker, edit and save the file, then restart the Leostream Agent using the following command:

```
service leostreamagentd restart
```

Step 2: Create a Center for the Linux Server

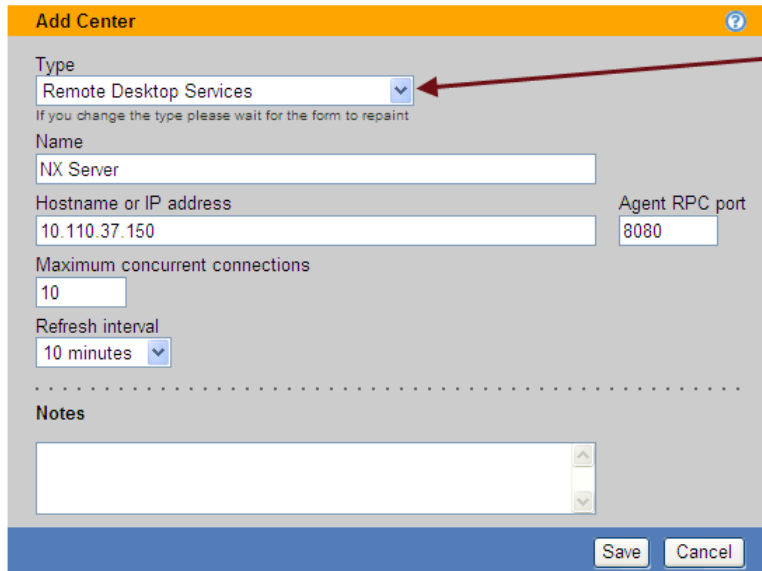
The Connection Broker assigns only one user to a particular desktop or session, at a time. Therefore, to allow multiple users to log in simultaneously to a Linux server, you must define multiple sessions in the Connection Broker. You define these sessions by creating a Remote Desktop Services center for the Linux server.



Leostream defines **centers** as the external systems that inform the Connection Broker about desktops, applications, sessions, and other resources (such as printers, and Teradici PC-over-IP host devices) that are available for assignment to end users.

To add a center for managing the Linux server sessions:

1. Go to the > **Resources** > **Centers** page.
2. Click on **Add Center**. The **Add Center** form opens.
3. Select Remote Desktop Services from the **Type** drop-down menu. The form updates, as follows:



Add Center

Type
Remote Desktop Services

If you change the type please wait for the form to repaint

Name
NX Server

Hostname or IP address
10.110.37.150

Agent RPC port
8080

Maximum concurrent connections
10

Refresh interval
10 minutes

Notes

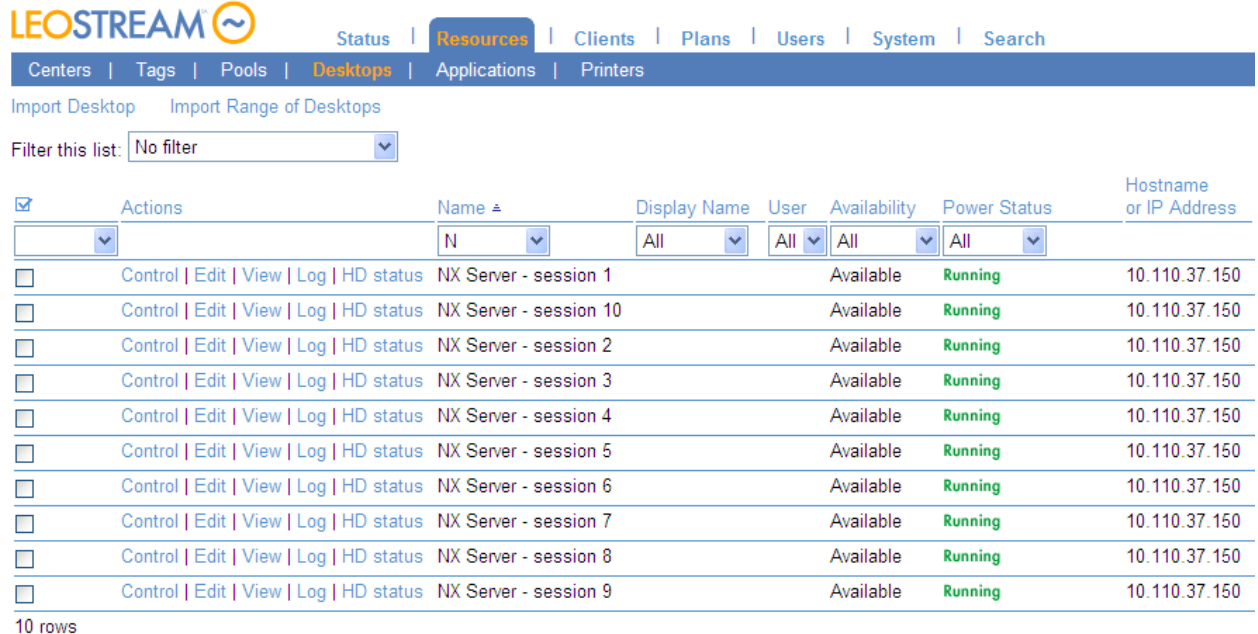
Save Cancel


Select "Remote Desktop Services" to define multiple sessions on a Linux server.

4. Enter a name for the sessions in the **Name** edit field.
5. Enter the IP address of the Linux server in the **Hostname or IP address** edit field.
6. Enter the Leostream Agent port number in the **Agent RPC port** edit field. The default port is 8080. For information on changing the default port, see "Understanding the leostreamagent.conf File" in the [Leostream Agent Administrator's Guide](#). The Linux server must have a running Leostream Agent installed.
7. Enter the maximum number of concurrent sessions in the **Maximum concurrent connections** edit field. You must provide the Connection Broker with a maximum value, even if you are using a Linux server that does not limit the number of concurrent sessions.
8. Select a time from the **Refresh interval** drop-down menu. This setting tells the Connection Broker how often to refresh the sessions in this center. The refresh interval is the length of time between when one refresh action is finished and the next refresh action is invoked.
9. Click **Save**.

Step 3: Working with Linux Sessions

The Linux sessions appear as a series of entries in the list of desktops on the > **Resources** > **Desktops** page shown in the following figure.



LEOSTREAM  Status | Resources | Clients | Plans | Users | System | Search

Centers | Tags | Pools | Desktops | Applications | Printers

Import Desktop Import Range of Desktops

Filter this list: No filter

<input checked="" type="checkbox"/>	Actions	Name ▲	Display Name	User	Availability	Power Status	Hostname or IP Address
<input type="checkbox"/>	Control Edit View Log HD status	NX Server - session 1			Available	Running	10.110.37.150
<input type="checkbox"/>	Control Edit View Log HD status	NX Server - session 10			Available	Running	10.110.37.150
<input type="checkbox"/>	Control Edit View Log HD status	NX Server - session 2			Available	Running	10.110.37.150
<input type="checkbox"/>	Control Edit View Log HD status	NX Server - session 3			Available	Running	10.110.37.150
<input type="checkbox"/>	Control Edit View Log HD status	NX Server - session 4			Available	Running	10.110.37.150
<input type="checkbox"/>	Control Edit View Log HD status	NX Server - session 5			Available	Running	10.110.37.150
<input type="checkbox"/>	Control Edit View Log HD status	NX Server - session 6			Available	Running	10.110.37.150
<input type="checkbox"/>	Control Edit View Log HD status	NX Server - session 7			Available	Running	10.110.37.150
<input type="checkbox"/>	Control Edit View Log HD status	NX Server - session 8			Available	Running	10.110.37.150
<input type="checkbox"/>	Control Edit View Log HD status	NX Server - session 9			Available	Running	10.110.37.150

10 rows



If the **Operating System** column does not display **Linux**, return to the > **Resources** > **Centers** page and select the **Refresh** action associated with the Linux server center.

You can subsequently add or remove sessions, as follows.

1. Go to the > **Resources** > **Centers** page.
2. Click the **Edit** action associated with the center. The **Edit Center** form opens.
3. Modify the number in the **Maximum concurrent connections** field.
4. Click **Save**.



When changing the number of available sessions, the Connection Broker first deletes all existing sessions and recreates new sessions. The Connection Broker does *not* disconnect users logged into any of the previous sessions, however the session assignments are no longer displayed in the Connection Broker Web interface.

Step 4: Making a Pool of Sessions

To begin assigning the Linux sessions to users, first create a pool that contains all the sessions.



The Leostream Connection Broker defines a **pool** as any group of desktops, sessions, or applications.

To create a new desktop pool:

1. Go to the > **Resources** > **Pools** page, shown in the following figure.

LEOSTREAM

Status | **Resources** | Clients | Plans | Users | System

Centers | Tags | **Pools** | Desktops | Applications | Printers

Create Pool

Actions	Name	Total	Assigned	Available	Unavailable	Provisioning Threshold	Provisioning Template
Edit Refresh	All Desktops	194	0	192	2	0	
Edit Refresh	All Applications	26		25	0	0	

2 rows

2. Click the **Create Pool** link. The **Create Pool** form opens.
3. Enter a name for the pool in the **Name** edit field.
4. Select the All Desktops pool from the **Subset of Pool** drop-down menu. The pool you are creating is nested inside the selected pool.
5. Select Centers from the **Define pool using** drop-down menu. The form updates to display the **Center Selection** fields, shown for desktops in the following figure.

Select the Linux server center

6. Select the Linux server centers from the **Available centers** list.
7. Move the center to the **Selected centers** list by clicking the **Add highlighted items** arrow.
8. Leave the remaining items on this form with their default values, and click **Save**.

The pool of Linux sessions now appears on the > **Resources** > **Pools** page.

Step 5: Define Plans

After you separate your desktops into pools, define the behaviors you want to assign to the desktops in those pools.



The Leostream Connection Broker defines a **plan** as a set of behaviors that can be applied to any number of pools. This step describes three types of plans: 1) Power Control, 2) Release, and 3) Protocol.

Please consult Chapter 10 in the [Connection Broker Administrator's Guide](#) for details on creating these plans.

This example uses the default power control and release plans, configured as shown in the following figures.

Edit Power Control Plan ?

Plan name
Default

When User Disconnects from Desktop
Wait: 0 minutes ▼, then Do not change power state ▼

When User Logs Out of Desktop
Wait: 0 minutes ▼, then Do not change power state ▼

When Desktop is Released
Wait: 0 minutes ▼, then Do not change power state ▼

.....

Notes

This is the default power control plan

Save Cancel

The Default Power Control Plan never changes the power state of the Linux server. Otherwise, when one user logs out of their session, the Connection Broker would power down the server, causing any other users that were logged in to lose their work.

Edit Release Plan ?

Plan name
Default

When User Disconnects from Desktop
Release to pool: Never ▼
Forced logout: Never ▼

When User Logs Out of Desktop
Release to pool: Immediately ▼

When Connection is Closed
Execute plan for: Logout ▼
This section of the plan executes when no Leostream Agent is installed or communicating on the remote desktop

Timed Release After Initial Assignment
Release to pool: Never ▼

When Desktop is Released
 Log user out of the desktop
 Delete virtual machine from disk
Virtual machine must in a VMware Center and marked as "deletable"

.....

Notes

This is the default release plan

Save Cancel

The Default Release Plan keeps the user assigned to a particular session from the time they log in until they log out. After the user logs out, that session is available for a different user.

This example uses a protocol plan named `NoMachine NX`, shown in the following figure.

Create Protocol Plan

Plan name
NoMachine NX

Leostream Connect and Thin Clients Writing to Leostream API

RDP Priority: Do not use

Command line parameters

Configuration file
screen mode id:i:2
desktopwidth:i:1024
desktopheight:i:768

RGS Priority: Do not use

Configuration file

VNC Priority: Do not use

Command line parameters
{IP}:5901

Configuration file
[connection]
host={IP}
port=5900

Radmin Priority: Do not use

Command line parameters
/connect:{IP}

Configuration file

NoMachine NX Priority: 1

Configuration file
<!DOCTYPE NXClientSettings>
<NXClientSettings application="nxclient"
version="1.3" >

Enter a name to use when assigning this protocol plan to a pool.

This section configures the protocols to use when users log in from Leostream Connect or any thin client device that writes their own Leostream client using the Leostream API.

The "Priority" indicates the order in which the Connection Broker tries to use the display protocols to connect to a remote desktop. To indicate that the Connection Broker should not use a particular protocol, select "Do not use".

Select a "Priority" of "1" to indicate that the Connection Broker should connect to desktops using NoMachine NX.

Specify the configuration file to use when the viewer is launched. The default configuration file passes a scrambled password to the NX server on the remote desktop.

Step 6: Define a Policy

After you define your pools and plans, build policies that assign the plans to desktops.



The Leostream Connection Broker defines a **policy** as a set of rules that determine how desktops are offered, connected, and managed for a user, including: what specific desktops are offered; what display protocol is used to connect to those desktops, which Power Control and Release plans are applied to those desktops, what USB devices the user can access in their remote desktop; and more.

To create policies:

1. Go to the **> Users > Policies** page.
2. Click the **Create Policy** link.

3. Enter a name for the policy in the **Name** edit field. This example uses `Linux Sessions`.
4. Configure the **Desktop Assignments from Pools** section to offer a single session from the Linux Sessions pool, and manage that session using the plans defined in Step 5, as shown in the following figure.

The screenshot shows the 'Desktop Assignment from Pools' configuration form. It is divided into several sections:

- Desktop Assignment from Pools:**
 - Pool: `Linux Sessions` (dropdown menu) — **Select the pool of Linux sessions**
 - Backup pool: `Select ...` (dropdown menu)
 - Backup pool applies only when the policy offers a single desktop
- When User Logs into Connection Broker:**
 - Number of desktops to offer: `1` (dropdown menu) — **Offer a single session**
 - Select desktops to offer based on: `User ("follow-me" mode)` (dropdown menu)
 - Display to user as: `Desktop name` (dropdown menu)
 - Allow users to reset offered desktops: `Not allowed` (dropdown menu)
 - Offer running desktops without a Leostream Agent
 - Offer stopped and suspended desktops
 - Offer desktops with pending reboot job
 - Favor previously-assigned desktops
- When User is Assigned to Desktop:**
 - Revert the desktop to its most-recent snapshot
 - Log out any rogue users
 - Enable single sign-on to desktop console (VNC and PCoIP, only)
 - Prevent user from manually releasing desktop
 - Adjust time zone to match client (Leostream Connect and HP SAM, only)
- Plans:**
 - Protocol: `NoMachine NX` (dropdown menu) — **Select the appropriate plans.**
 - Power control: `Default` (dropdown menu)
 - Release: `Default` (dropdown menu)

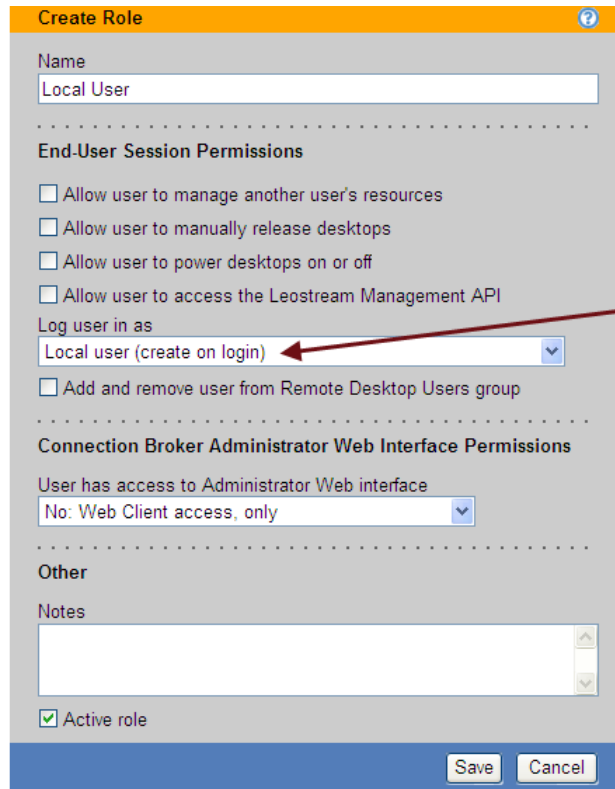
5. Leave the remaining items on this form with their default values, and click **Save**.

Step 7: Creating a Role to Add Local Linux Users

If your Linux server and NX are configured to authenticate users locally on the Linux machine, you can use the Leostream Agent to automatically create the local Linux accounts, greatly simplifying administration.

To create this type of role:

1. Go to the **> Users > Roles** page.
2. Select **Create Role**. The **Create Role** form opens.
3. Enter a name for the role in the **Name** edit field.
4. Select **Local user (create on login)** from the **Log user in as** drop-down menu, as shown in the following figure.



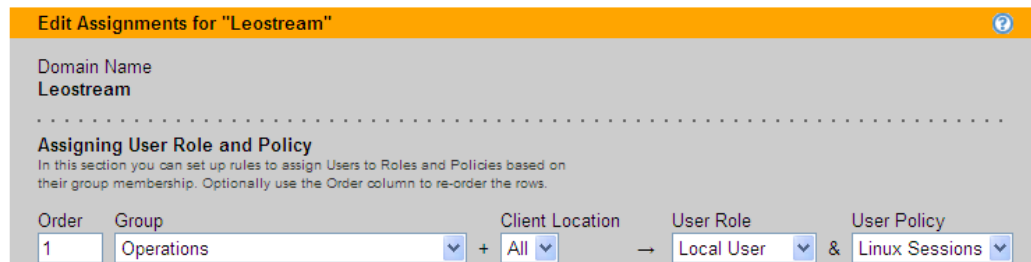
Use this option to create the user, if they do not exist. When the user logs out, the user account is not deleted, so the user retains their work.

5. Click **Save**.

Step 8: Assigning the Role and Policy to Users

This example assumes that you previously added an authentication server to the Connection Broker. See Chapter 13 in the [Connection Broker Administrator's Guide](#) for instructions on adding an authentication server. Assign the role and policy from Steps 6 and 7 to a user who is authenticated through that server, as follows.

1. Go to the **> Users > Assignments** page.
2. Click the **Edit** action associated with the appropriate authentication server.
3. Configure the **Assigning User Role and Policy** section to assign the role and policy to the correct set of users, for example:

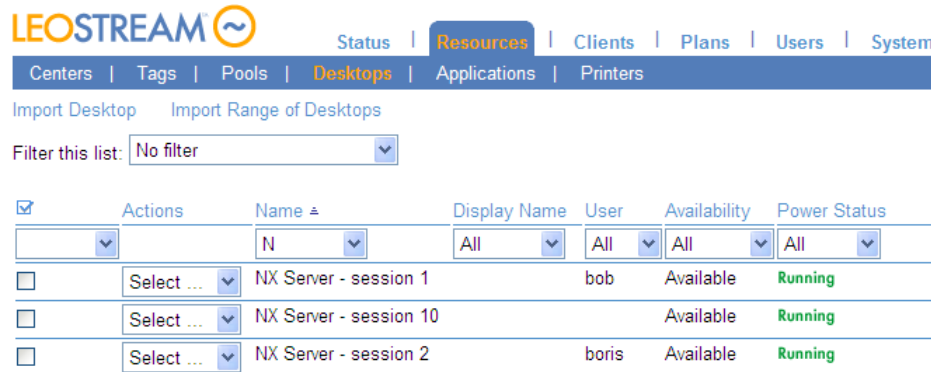


Order	Group	Client Location	User Role	User Policy
1	Operations	All	Local User	Linux Sessions

4. Click **Save**.

Step 9: Logging into Linux Sessions

When a user that is assigned this policy logs in to the Connection Broker, the Connection Broker offers the user one of the Linux sessions. As soon as the user connects to that session, the Connection Broker assigns that session to the user. When the next user logs in, the Connection Broker offers and assigns a different Linux session. The **Users** column on the > **Resources** > **Desktops** page indicates which users are currently assigned to each session, as shown in the following figure.



<input checked="" type="checkbox"/>	Actions	Name \pm	Display Name	User	Availability	Power Status
<input type="checkbox"/>	Select ...	NX Server - session 1		bob	Available	Running
<input type="checkbox"/>	Select ...	NX Server - session 10			Available	Running
<input type="checkbox"/>	Select ...	NX Server - session 2		boris	Available	Running

The Leostream Agent on the Linux server manages each session, separately. When a particular user disconnects or logs out of their session, that user's release plan is applied only to that session.