



Ubuntu Supplement to X350 & X550 User's Guide

NComputing X350 & X550 vSpace Software for Linux on Ubuntu 8.04

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Overview

This document supplements the X350 & X550 User Guide. For basic common information such as safety and regulatory compliance, product overview, card installation and other features of the x350 and x550 please see the X350 & X550 User Guide.

This supplement provides the installation process for the NComputing X350 and X550 vSpace Software for Linux for the Ubuntu 8.04 distribution of Linux and includes instructions for:

- vSpace Software installation for the X350 & X550
- Instructions for On-line registration
- Configuring audio
- USB to user station assignment
- Console functionality
- Uninstall of the Linux vSpace software

This document assumes the user will be starting from a clean install for the OS.

Prerequisites

The following items are needed to begin the installation process:

- Ubuntu 8.04 (LTS) installation image (It's critical that only a clean install be used, modified images may not operate correctly). (LTS: Long Term Support version released every two years.)
- 2.6.24 kernels built for Ubuntu 8.04 are supported, including (but not limited to) 2.6.24-23-generic and 2.6.24-24-generic
- Ncomputing X350 & X550 current vSpace Software Software (x-series_3.0.1479-2_i386.deb or newer) and readme document
- NComputing X350 or X550 PCI card installed in host and connected to at least one XD2 terminal box.
- Sound card (or device) on host system that's supported by Ubuntu 8.04 and has been enabled
- Live internet access is required to install and to register (no offline registration is implemented in this version). Ping register.ncomputing.com or 85.214.42.113 to verify that the registration server is available through the local network.
- v1479-2 (or a more recent version of vSpace) can be downloaded from www.ncomputing.com
→ Support → Software Downloads
<http://ncomputing.com/Support/SoftwareDownloadCenter/tabid/435/language/en-US/Default.aspx>

Fully review the release notes supplied for the vSpace release you are installing

Note: An Internet connection must be available during the installation to download and install any dependant packages located in the Ubuntu package repository maintained by the Ubuntu community and to enable registration.

Installing Ubuntu 8.04

You can locate and download Ubuntu 8.04 (LTS) from: <http://old-releases.ubuntu.com/releases/hardy>. Please use only a clean image from one of the Ubuntu ftp sites as vSpace is designed to work with the kernel, desktop and packages that are included in the LTS version.

1. Download Desktop Edition; Ubuntu 8.04 LTS install CD image
2. Create Ubuntu 8.04 System CD-R
3. Insert Ubuntu 8.04 Disk into System and Power-on/boot the system
4. Ubuntu Install screen opens with option(s) for running the installation program and also has function key selectable setting at the bottom of the screen
 - a. Press F4 (function key 4) to access Modes
 - b. Then Select: "Safe graphics mode" (Insures base host video card is correctly identified)
5. Use keyboard arrow keys to highlight "Install Ubuntu" and press Enter
6. At the appropriate install screens, Select
 - a. Language
 - b. Time Zone Setting
 - c. Keyboard Layout Setting (select appropriate Country)
 - d. Disk Preparation: Select "Guided Option; Use Entire Disk"
 - e. System Administrator Set-up: Enter "User Name" and "Password" Information
7. Ready to Install: Press Enter to Proceed
8. Installation Completes
9. Now Restart/Reboot System
10. After the system reboot, the Ubuntu Desktop should come up and present Username login prompts
11. Log into the system with appropriate "username and password." The "User" must have system "administrative rights" to continue the installation; however, the Username and password supplied during the system's initial Ubuntu 8.04 install are recognized to have administrative rights. (note that your Ubuntu 8.04 installation should have 2.6.24-23- (or 24) generic kernel installed)

***** **Even if prompted following this login, DO NOT INSTALL Ubuntu UPDATES** *****

12. Now, copy the X550 Ubuntu 8.04 NComputing vSpace installation file to the desktop.
xseries_3.0.1479-2_i386.deb (or the most recent version of vSpace for Ubuntu)

Installing the X350 & X550 vSpace Software Software Package

13. Click the “Places” pull-down on the Ubuntu Desktop Menu to locate and open the folder containing the Ubuntu 8.04 vSpace software installation file:

Example file = **xseries_3.0.1479-2_i386.deb**

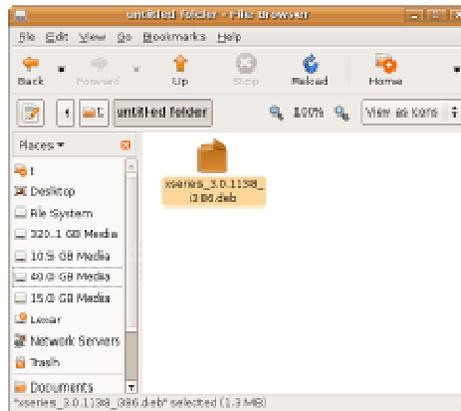


Figure 1 – File Browser Window

14. Double-click on the installation file name and the package installer will open and start to install the package. If prompted, enter password of user with system administrative rights, then click the “Install Package” button, and installation begins.

The X350 and X550 vSpace Software installs multiple packages for this application:

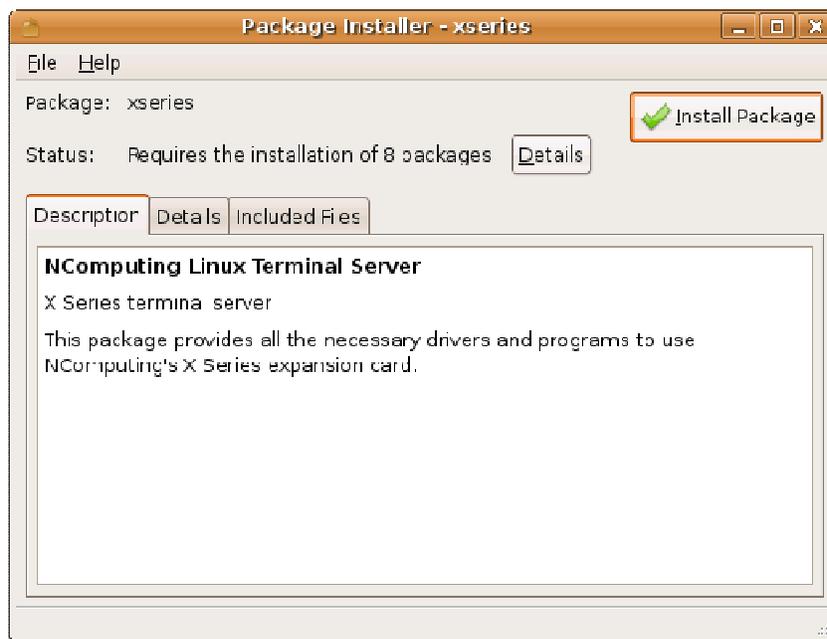


Figure 2- X350 and X550 Package Installer Window

You can track the installation progress via the package install status window.

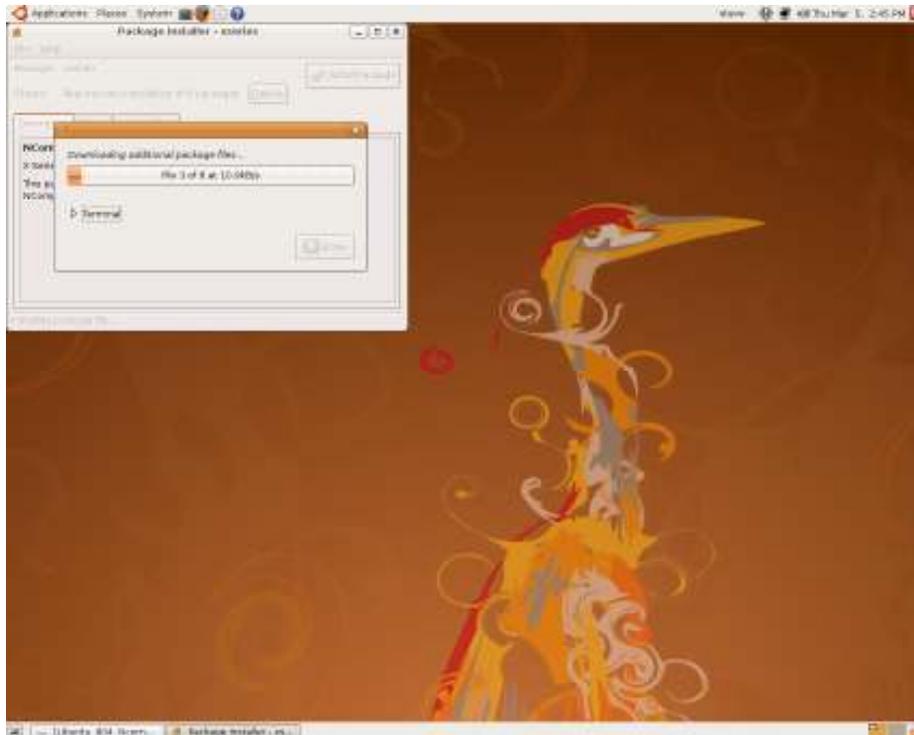


Figure 3 – X350 & 550 Package Install Status Window

15. When prompted, click the check box, and Accept the: "X Series End User License Agreement" (EULA).

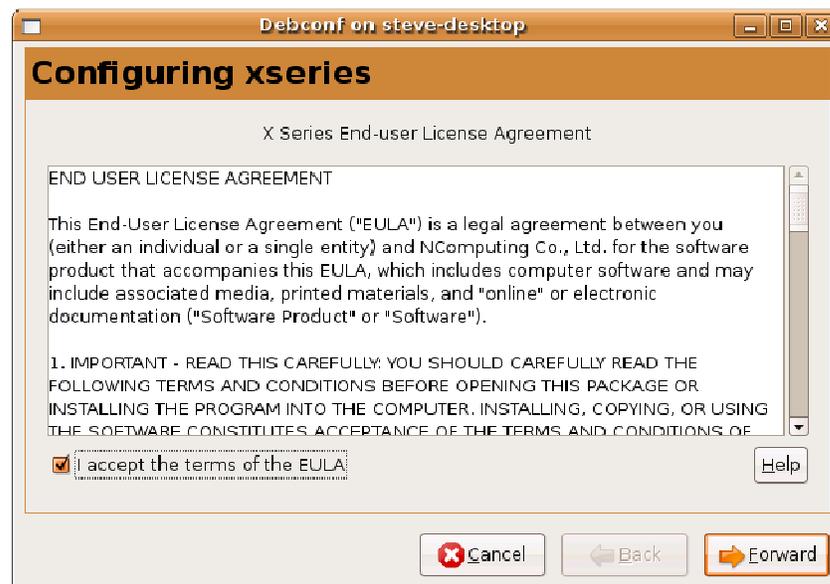


Figure 4 – End user license agreement

16. Then when prompted, click the check box, and Accept the "X Series Terms of use Statement":

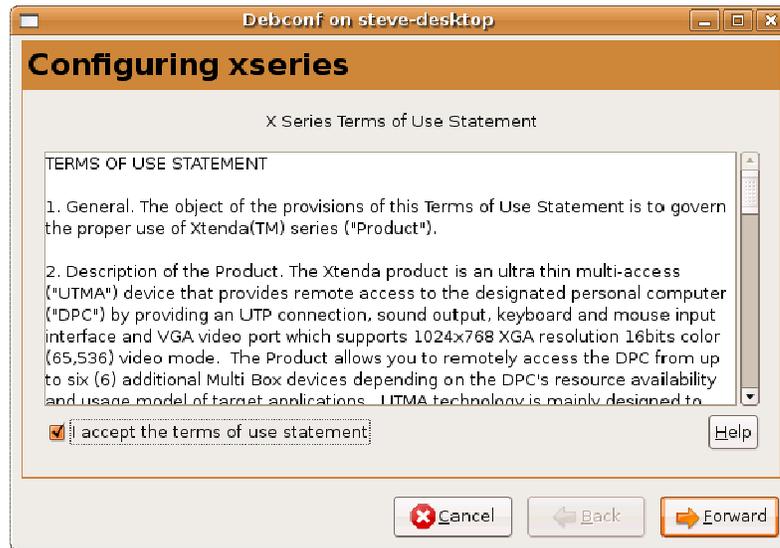


Figure 5 – Terms of Use Statement

If the “**xseries post-configuration: Additional steps required**” message window appears, simply click the “Forward” button to continue.



Figure 6 – X-series Post-Configuration Message

When the X-series vSpace software installation completes, close any window(s) and reboot the system.



Figure 7 – Installation Finished Message

After the system reboots, the host desktop will display the Ubuntu login screen, as will any stations connected to the X350/X550 PCI card(s).

Please restart the system.

Using the vSpace Administration Console Window

After reboot, enter a username and password with administrative rights in the login screen, to get to the Ubuntu Desktop. On the menu taskbar, click on:

“System > Administration > NComputing Console”;

This launches the vSpace Administration Console. After the initial software installation, the vSpace software will begin an automatic a “30-day Trial Period.” The user has complete access to the features of the vSpace software for this period to evaluate the product. In order to use the product beyond the **“30 day trial period”**, the product must be registered.

Also during the trial period a user session is limited to a 1 hour time period, at the end of an hour, the session will be terminated, Another session can then be started from the admin console.

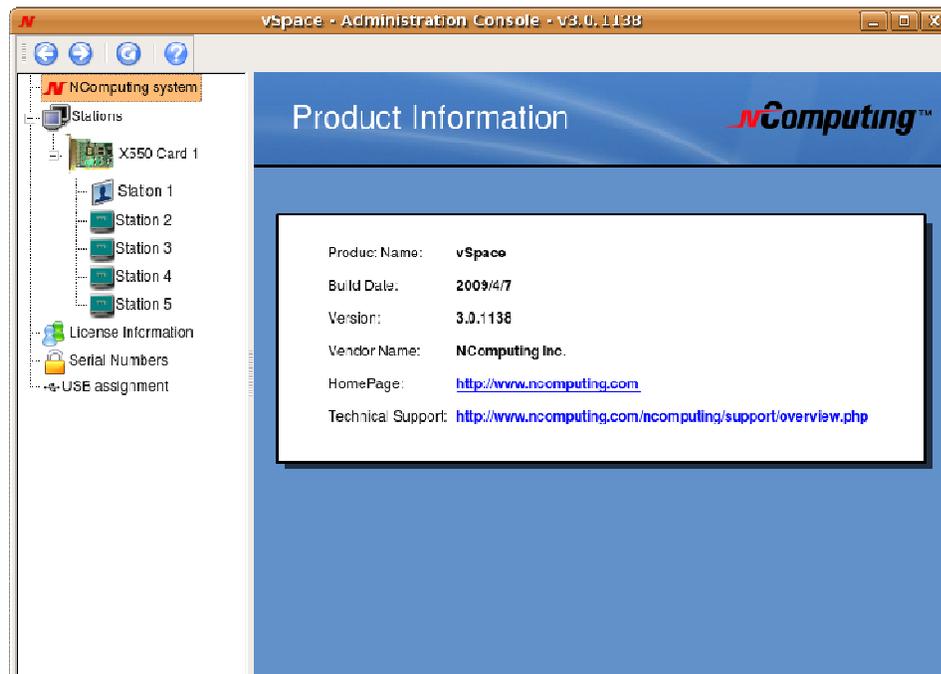


Figure 8 – Administration Console window

Registering Your Product

Internet connection required.

To register your X350/X550 product(s), right-click the “Golden Lock” icon next to the “Serial Numbers” label in the left-hand console window. That causes the “Serial Numbers” window to open, and lists the serial numbers stored inside the PCI card, the card hardware type, card registration status, and where the serial numbers were obtained.

To launch the vSpace registration wizard, right click the first serial number in the list, and select option “Manage Registration” from the resulting pop-up window. The vSpace registration wizard walks you through the product registration process.

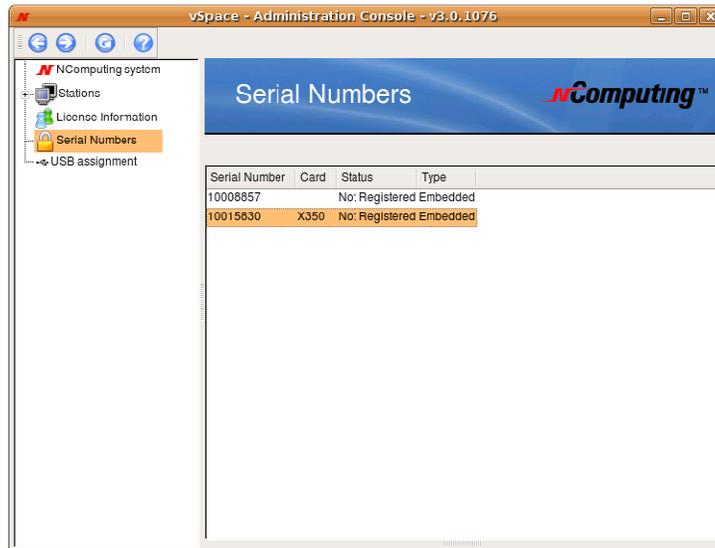


Figure 9 – Serial Numbers Window Display



Figure 10 – Registration Wizard

- Click “Next” to proceed

The wizard then takes you to the “Customer Information” window. You must fill in all the fields provided to continue to the next step.



Figure 11 – Customer Information Window

- Fill out all fields on this form



Figure 12 – Adding your registration data

- Then Click “Next” to proceed

The next screen will be pre-populated with the serial numbers of the NComputing PCI cards installed in this host. Each serial number will already be checked and cannot be unchecked.



Figure 13 – Serial Number Selection

- “Click “Next” to proceed”

The next window in the wizard display the information you entered via the earlier registration screen and host’s currently identified serial numbers. Verify that the information shown is correct.

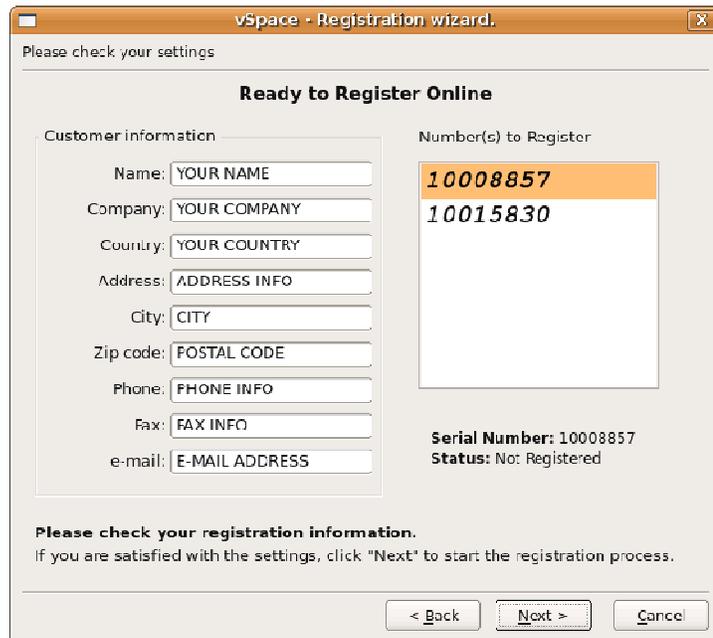


Figure 14– Verify Information Settings

- Click “Next” to proceed

The installation wizard then contacts the online registration server, and the “registration in process” status screen is displayed.

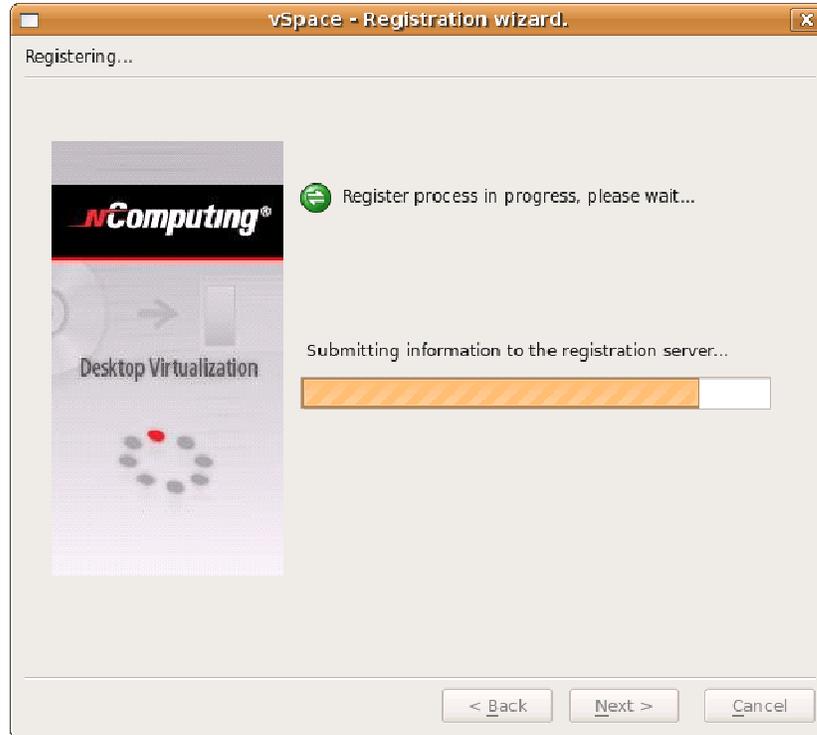


Figure 15 – Registration Status Window

Once the installation wizard completes its communications with the online registration server, one of the following two screens will be displayed. If the registration was successful, the “Trial Period” status is removed from the vSpace software, and it is replaced with a standard software license. If you can get the “Registration process failed!” screen, the PCI card was previously registered to another machine. In this case, the vSpace software stays in “Trial Mode.”

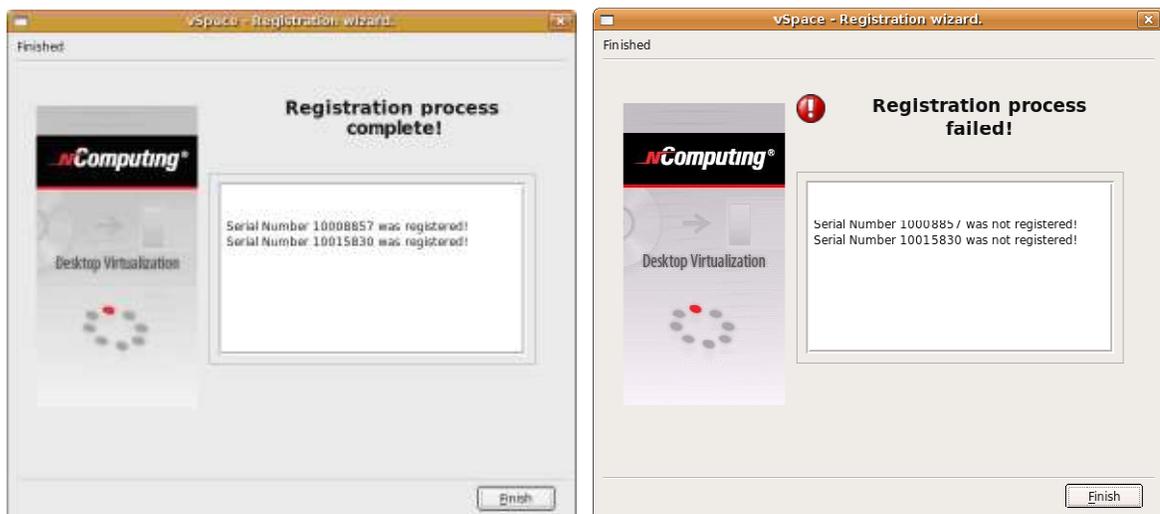


Figure 16 – Registration Complete Status Window

Adding new users

If you have not yet created Users for this Linux installation, now is a good time to do so using the Linux GUI.

Or

You can launch an Ubuntu Terminal console with sufficient rights to create new users
Enter the command “sudo adduser <username>” (The variable **username** refers to the userid or name of the user which should be created, and you will be prompted for the administrative password before the “adduser” command is executed.)
(sudo is the “superuser do” command, and in this context it executes a single “adduser”.command as the “superuser”)

For example: `sudo adduser user2`

For each new user, the system asks a series of questions needed to create the account. After all questions have been answered, the new user will be active on the system and he/she can login at any NComputing X550/X350 terminal attached to this system.

Activating audio output on the stations

Audio output on the X550/X350 station(s) will be only available if the user has the necessary privileges to use audio devices by having been added as a member of the “**Audio**” group. Normally, when Ubuntu creates a new user, he/she is automatically added to the audio group.

You can manually add users to the “**Audio**” group using the following terminal console command:

“sudo adduser <username> audio”

For example: sudo adduser user2 audio

When a new user in the “**Audio**” group logs in for the first time, the audio volume will be set to MUTED. To un-mute the audio, left click on the speaker symbol located on the upper taskbar, and select a new default volume level.



Figure 17 – Location of audio level control

Changing Video Resolution on the Sessions

To change the monitor resolution on the stations, it is necessary to select the icon identified in the screen shot below to access the console’s video mode window. This icon is available when “Stations”, “X550(X350) Card” or any of the stations (1-5 or 1-3) are selected within the console. All sessions on a single card are set to the same resolution and a host reboot is necessary for a resolution change to take effect. (Please note that the host console resolution is running on an independent video card and can be changed separately.)

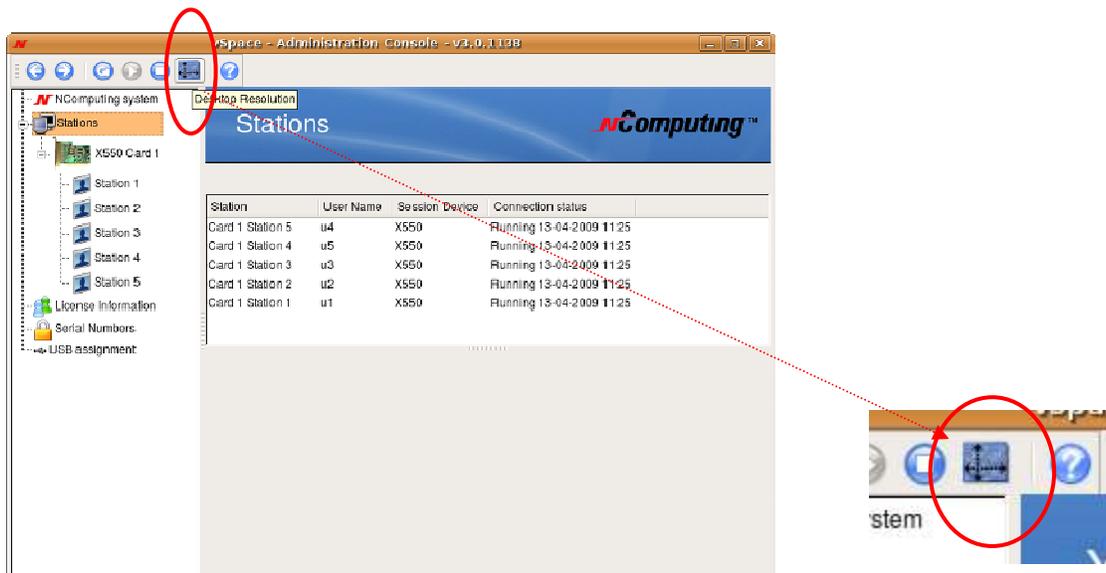


Figure 18 – Identifying console card resolution icon

The Video mode resolution can be selected as shown below.

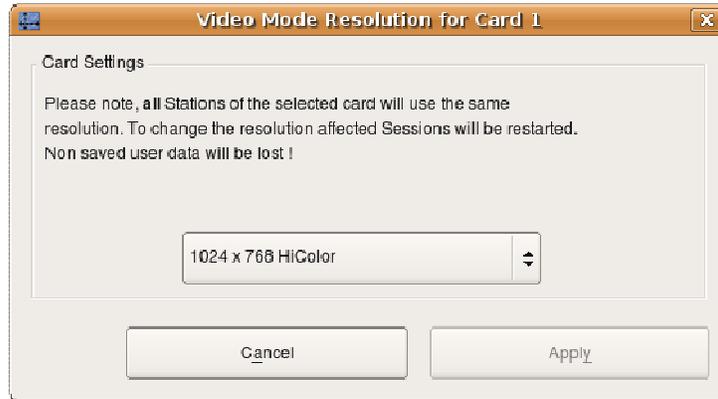


Figure 19 – Current card resolution setting

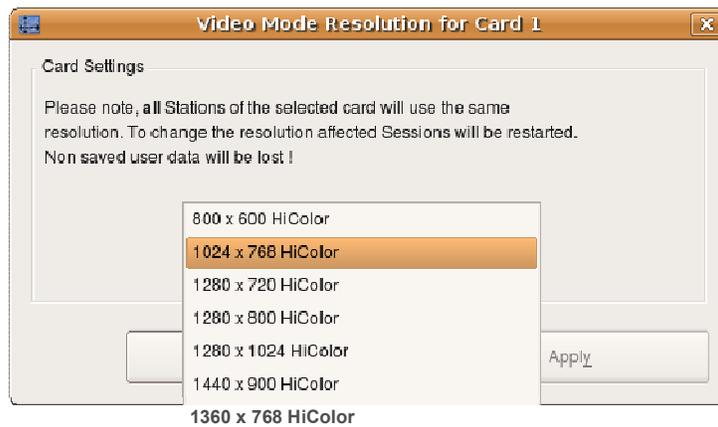


Figure 20 – Changing PCI card resolution

The X-series Admin Console for Linux

The Ncomputing System console provides current data on the Stations (and/or sessions), the X-series card, license status, PCI card serial number, and USB assignment. The product information screen shown below provides vSpace version information and contact information.

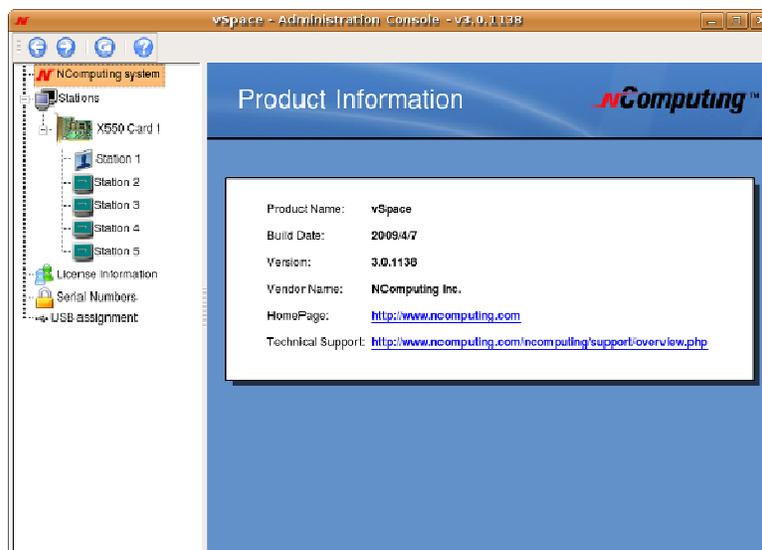


Figure 21 – Product Information screen

Station information includes the station number, User Name for the for individuals logged onto each Session, and the time each session was started. A session time resets to the current time if you use the console to stop a session and then start it again (see page 18 for how to stop/start sessions from the console).

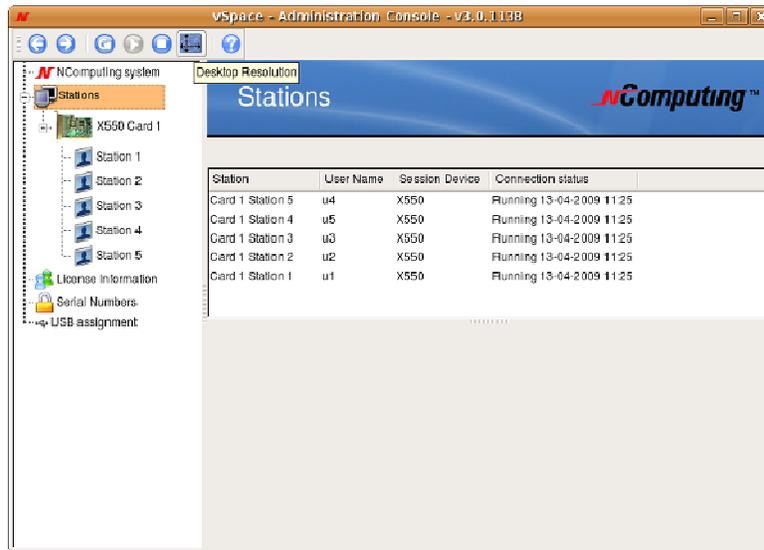


Figure 22 – Station information screen

X-series PCI card device information includes a hardware serial number (Device Version) and the software serial number (Serial Number).

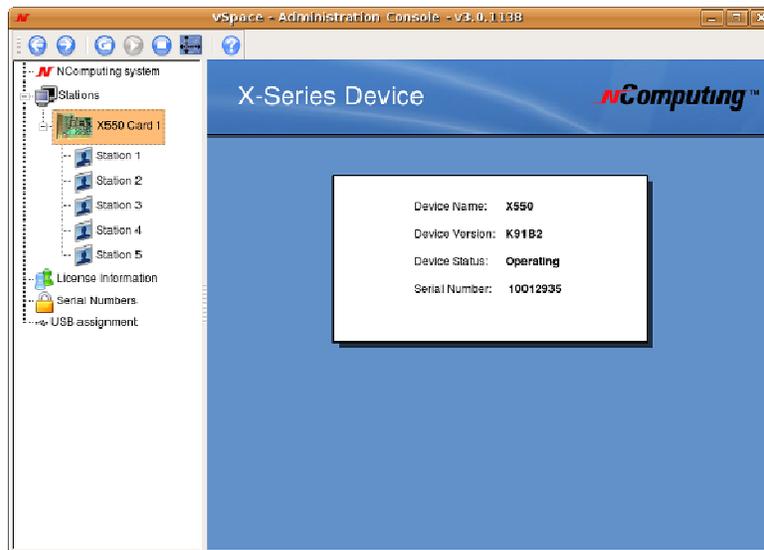


Figure 23 – X-series PCI card information screen

The Session Information screen provides data about an individual user session. The display name represents the x11 window manager display number, and the station ID is the Ncomputing internal station identifier for this session. Also, selected sessions can be refreshed (circular arrow), started (right arrow) and stopped (square) from the menu bar. If you select an X-series card in the left-hand pane, and click the stop icon, all sessions on that card will be stopped (an administrator information box will pop up on the console session for each session and allows the administrator to verify they want all applications running on that session to be stopped. Then the console actually stops that station's session.)

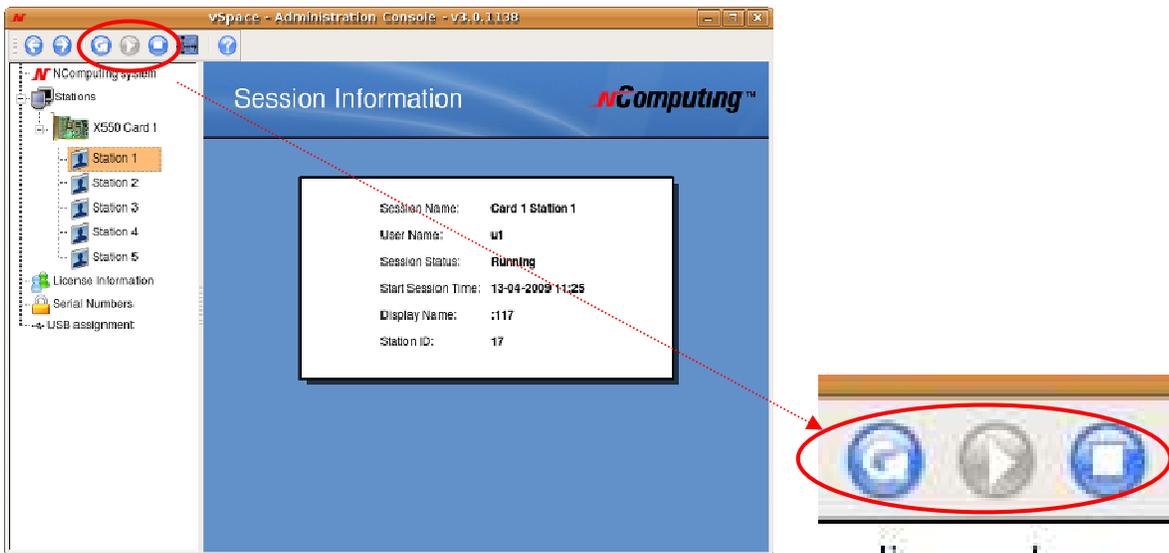


Figure 24 – Session information - Identifying “Console Refresh“, “Session Stop“, and “Session Start“ icons

The License information lefthand-pane icon displays user entered contact information for the registered user.



Figure 25 – License Information screen

The Serial Numbers screen shows the X-series PCI card's internal serial number, the card type, and the current registration status.

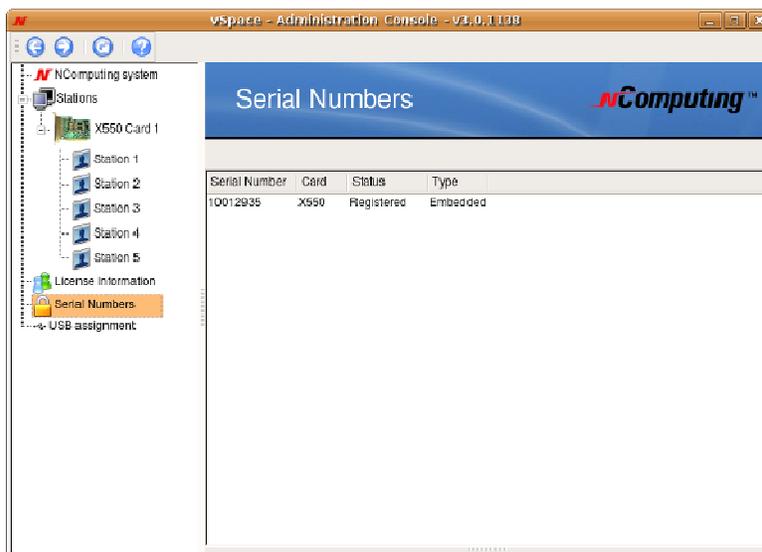


Figure 26 – Serial Numbers screen

USB Port Assignment

“Assigning” USB devices (i.e., associating them with a particular station or access device), is begun by clicking on the “**USB assignment**” icon in the left-hand-pane of the NComputing vSpace Administration Console. This function permits assigning a host USB port (or USB devices attached to a host port) to limit accessibility to specific virtual desktop sessions, all sessions associated with X-series access devices, or to the host console session.

In the current implementation, users can manage USB devices that mount automatically through the Gnome and KDE Volume Manager (USB memory stick, HDD, etc.).

Please note that assignment cannot be changed for devices previously present and mounted with a different user's rights. Therefore, to ensure your USB port assignment configuration works as intended, please disconnect all non-essential USB devices and re-boot the machine **BEFORE** attempting to assign USB ports to X-series device connected stations.

After the reboot, please Login as user “root” to define the USB port assignments.

To prevent un-authorized access by other non-root system users, some multi-user Ubuntu deployments may need to require USB removable storage to be mounted with specific security attributes. The following options are available:

- Assign the device just to the Host console:
Only the console session can see or have any access to the USB device when it gets attached to the system.
- Assign the device as Shared read-write:
All sessions/stations will see the device when it is plugged in; all sessions are allowed to read/write associated contents.
- Assign it as Shared read-only:
All sessions/stations can read from the storage device, but they cannot write or delete files.
Example: when a teacher wants to share pictures or media with students logged on other

stations but does not want them to alter the storage device files in any way.

- Assign it to one particular Station associated with a specific X-series PCI card:

With this attribute, the removable USB storage device will only be seen at that particular station, and that station is the only one with permissions to read/write/delete files on the USB device.



Figure 27 – USB assignment screen

To identify the Linux port you wish to assign to a particular Access Device or Station, insert a USB memory device into the physical USB port you wish to use for that station and click the Refresh button on the USB assignment toolbar. (The refresh button is denoted with a curved arrow, and the button is located to the left of the toolbar’s Question Mark button.) Clicking “Refresh” updates the USB connectivity information list and causes the newly plugged-in device to appear in the list.

- Double click on the “✓ Default” item corresponding to the USB port you’ve just identified, and select the “Session” to which you wish to assign the port.

Note: The definition for the “✓ Default” setting for this Ubuntu installation is stored in the “vspace.com” file located at:

```
/etc/ncomputing/vspace.com
```

Port defaults are specified by the following numeric convention:

- 0 None (device will not be mounted)
- 2 Mount device to Host station/session
- 3 Mount device Shared read-write
- 4 Mount device Shared read-only

After all specific USB assignments have been made using the NComputing Administration Console, the device specific assignments are then stored in the “usb.com” file located at:

```
/etc/ncomputing/usb.com
```

USB 1.1 devices and USB 2.0 devices show up in the assignment screen under two different device types. USB 1.1 devices will be shown under a “UHCI Controller” designation in the

Product column, and USB 2.0 devices show with the “EHCI Controller” designation in that same Product column. To ensure a device plugged-in to a physical USB port gets assigned to the correct session/station – regardless of whether the device is USB 1.1 or USB 2.0 – the physical port must be logically “double identified” using both a USB 1.1 device and a USB 2.0 device. The physical port must be logically “double assigned” under both the “UHCI” and the “EHCI” controller designations.

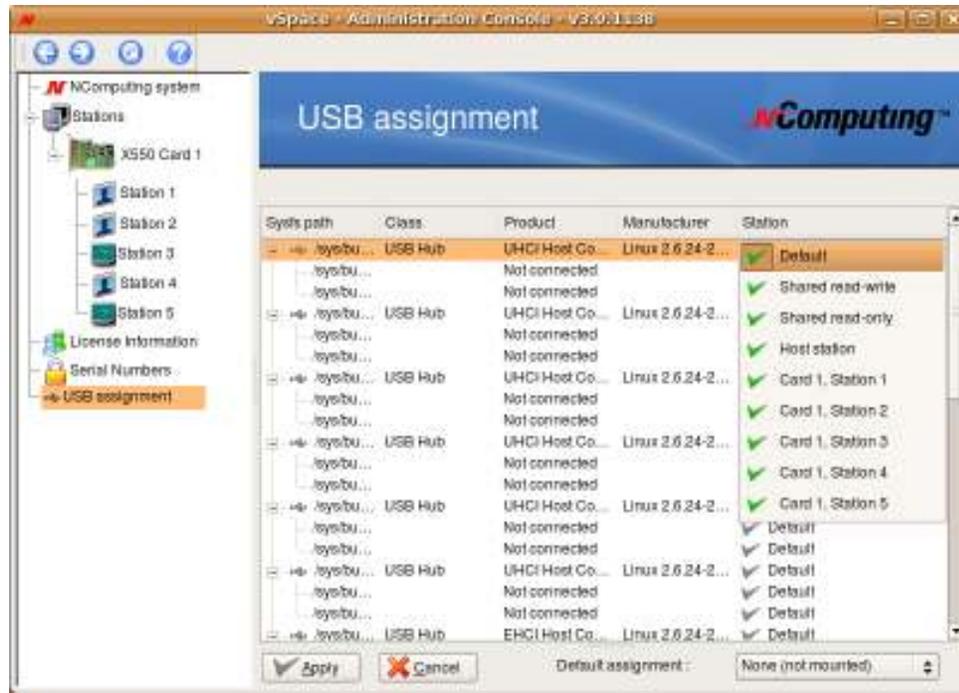


Figure 28 – Port Assignment to Station

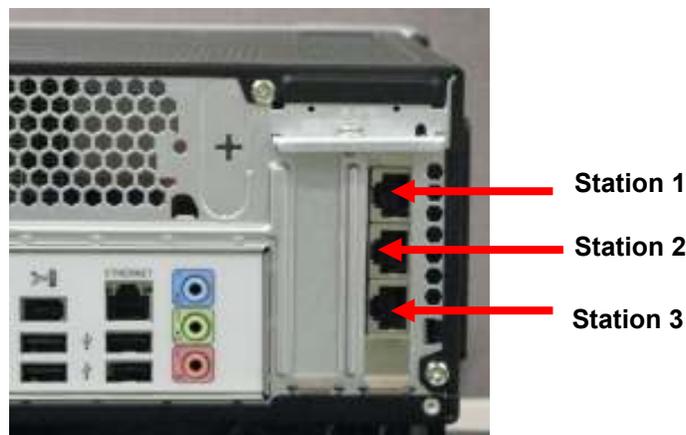


Figure 29 – Identifying the Station number (X350)

- After selecting the desired station number, click “Apply” to save the new setting.

If you attach a USB hub to a USB port on your host computer, you can assign the entire USB hub to a particular Station, or you can assign its ports to different Stations on an individual basis.

After a USB port is assigned to a Station, and the configuration is saved, whenever a USB

storage device is plugged into that port, the Gnome or KDE Volume Manager (storage “volume” – not audio “volume”) will show ONLY on the assigned Session’s (i.e., Station’s) screen and it will not be visible on any other user’s screen.

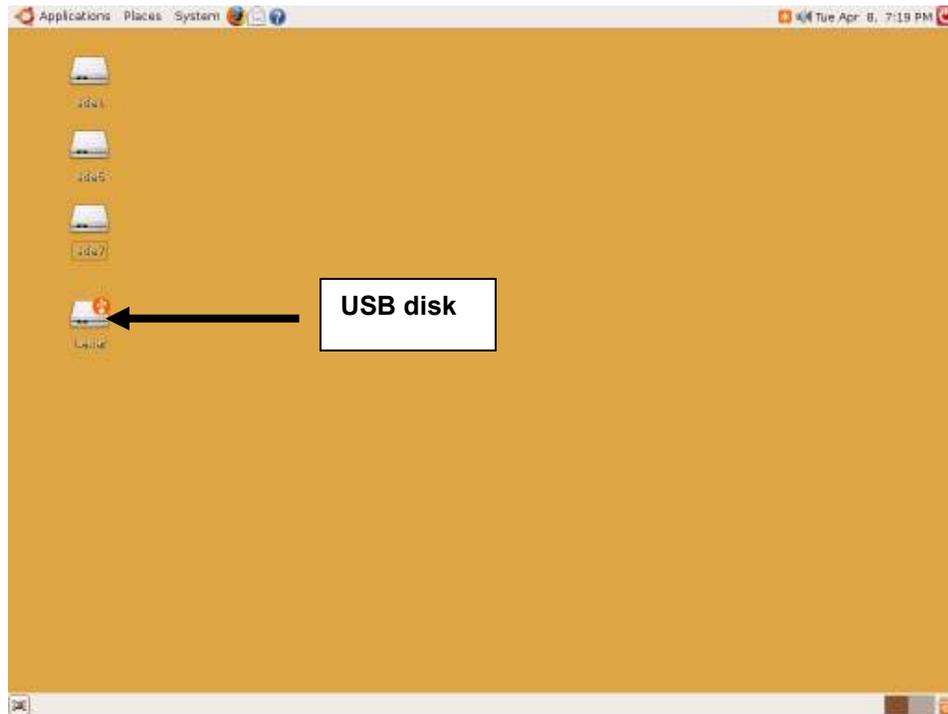


Figure 30 – USB Storage volume icon shown on Desktop

Uninstalling vSpace

Uninstalling NComputing’s vSpace software can be done using the standard Ubuntu tools. The Synaptic Package Manager will remove the software. vSpace software is identified with the name “xseries”.

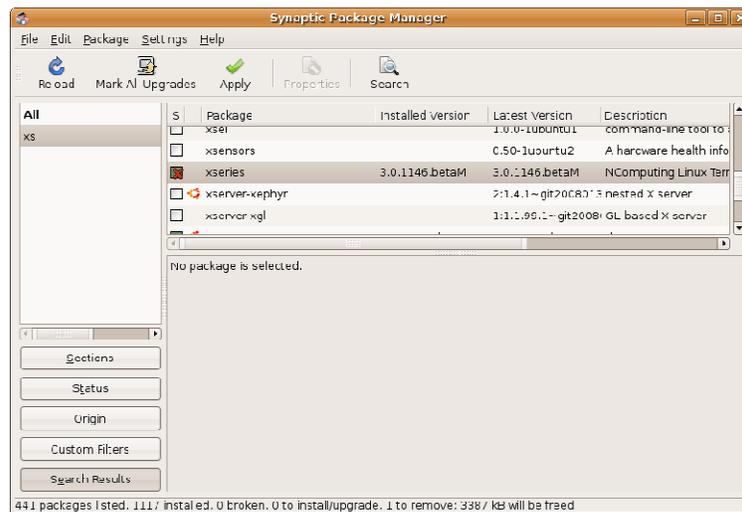


Figure 31 – Uninstalling vSpace for Linux