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# Routing & Switching

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## Rack Rental Access Guide

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Editor: Stephen Satchell

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Version 1.5

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This publication, *Routing & Switching Rack Rental Access Guide*, is designed to assist candidates in their preparation for the Cisco Systems Routing & Switching Certification Exam.

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## Section 1. Introduction

This manual describes how to access all the features of our Routing & Switching (R&S) Lab Racks. Specifically, it describes how to access each of the devices described below within the lab rack from your location, and how to use our automation system's customer control panels.

Your R&S lab rack consists of:

- Six configurable routers
- Four configurable EtherSwitches
- Three backbone routers (not configurable)
- One access server for console port access to routers and switches

The document *Routing and Switching Hardware Specification* describes how all these components are wired together. Section 3 provides a summary of the inter-device connections in an R&S lab rack.

Not included in this guide are details about the facilities to control an INE R&S Mock Lab session. That information may be found in the companion document, *Routing & Switching Mock Lab Guide*, published separately.

### 1.1. Lab Rack Access Overview

The routers and EtherSwitches are accessed by using TELNET connections to the console command-line interface (CLI) in each device.

### 1.2. Session Activity Overview

- Step 1. Load initial configurations into all configurable routers and EtherSwitches.
- Step 2. Connect to the routers and EtherSwitches in the lab rack to set configuration.
- Step 3. Test your setup by using *ping*, *traceroute*, the various *show* commands, and *debug* commands.

Repeat these steps, as appropriate, to adjust and test your configurations to fix problems and issues.

When using the INE R&S workbooks, you will be instructed to clear all devices and load initial configurations from our database.

### 1.3. Passwords

Unless otherwise directed in the workbook labs or Mock Labs, if you need to set an enable password or vty password, use the user name "cisco" and password "cisco" , all lowercase.

Do *not* use any password other than "cisco" on the 3550 or 3560 EtherSwitches, because password recovery can only be done by our technicians physically accessing the device.

## 1.4. IP Addressing

In INE study materials, some of the IP addresses are specifically tailored to the R&S lab rack to which you are assigned. In those materials, you will see addresses in the form “54.X.1.254”; replace the “X” with the number of the rack:

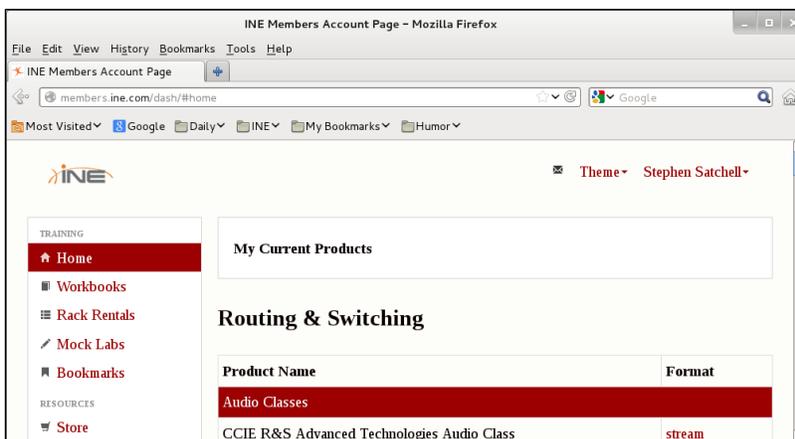
Rack ID	“X”
RSRack1	1
RSRack2	2
RSRack3	3
...	...
RSRack24	24
RSRack25	25

## Section 2. Scheduling a Rack Session

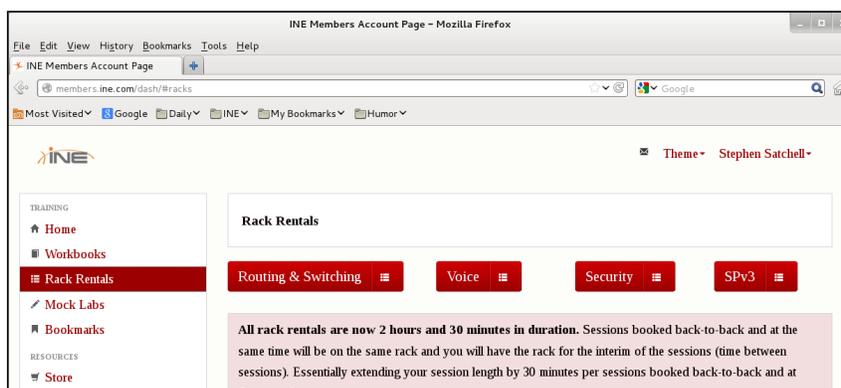
### 2.1. Booking a Rack Session

You must book your rack at least 45 minutes before your desired session time. You cannot book a rack immediately before or during the session; booking must always occur in advance.

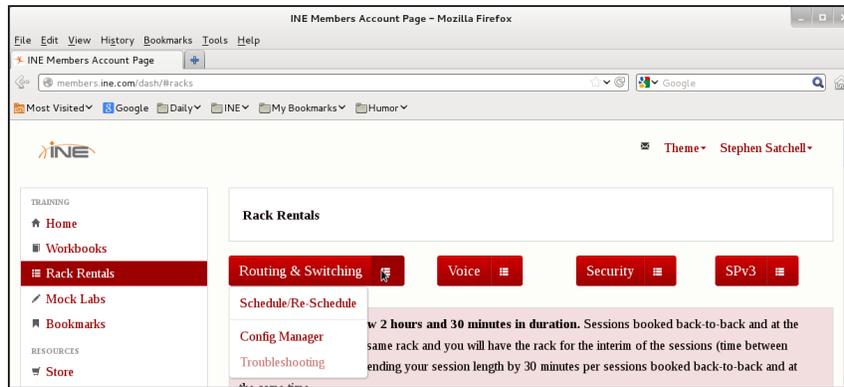
You schedule your Routing & Switching rack session through your Members account. When you sign in to the Members site, you will see a page like this:



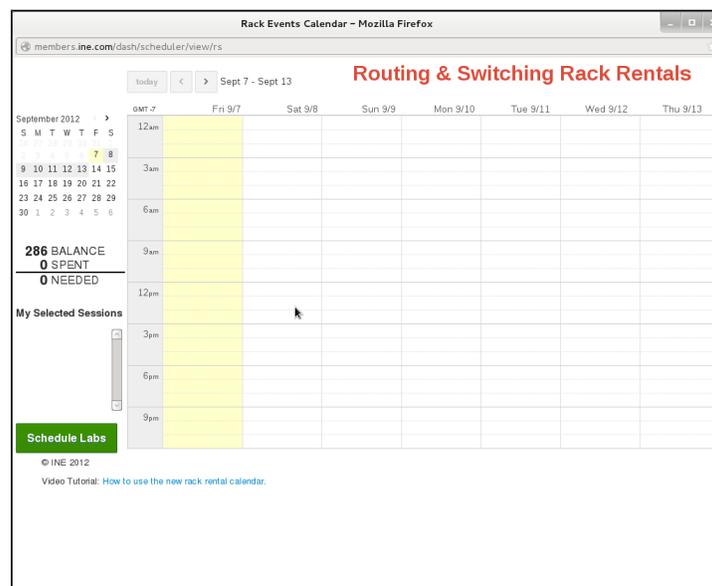
When you click **Rack Rentals** on the left side of the page, you will see this:



Click **Routing & Switching** to see the list shown here:

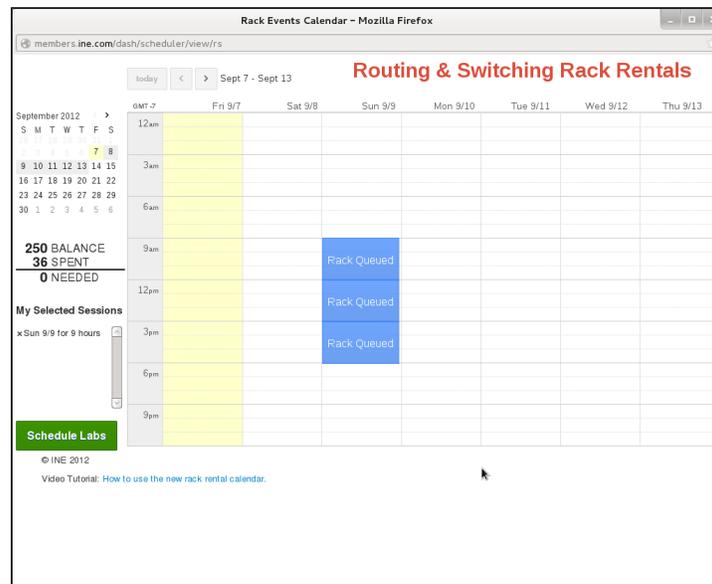


Click **Schedule/Re-schedule** to see the rack session booking calendar:

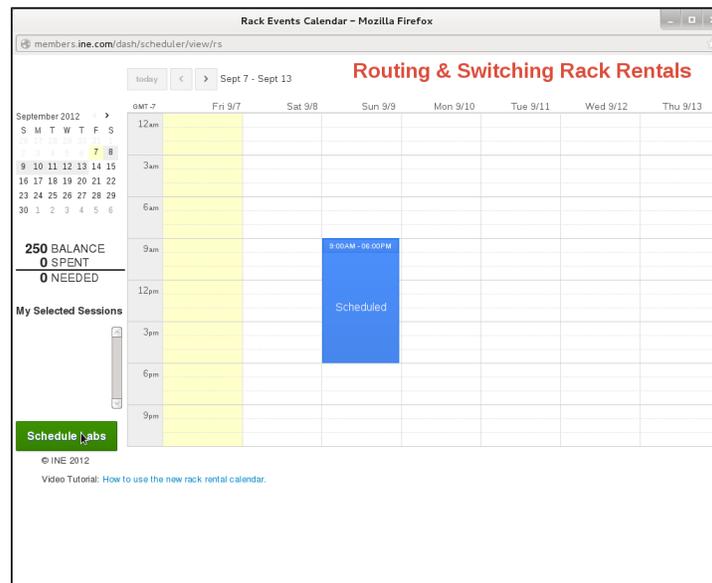


On the calendar page, you will see the number of tokens in your account, any previously booked rack sessions, and the cursor (in light yellow) for the current day (U.S. Pacific Time). If you have set up a local time zone, a second column of time is displayed.

To book a session, click the white boxes for the day(s) and time(s) you would like to schedule:



In this example, I am booking a nine-hour session block, which will give me 8.5 hours of working time—the other half hour is used by the system to prepare the rack for my use. If I click other selections not adjacent to the one I made, those will be separate sessions. To finalize the booking, press the green Schedule Labs button. You will then see confirmation of your selection:

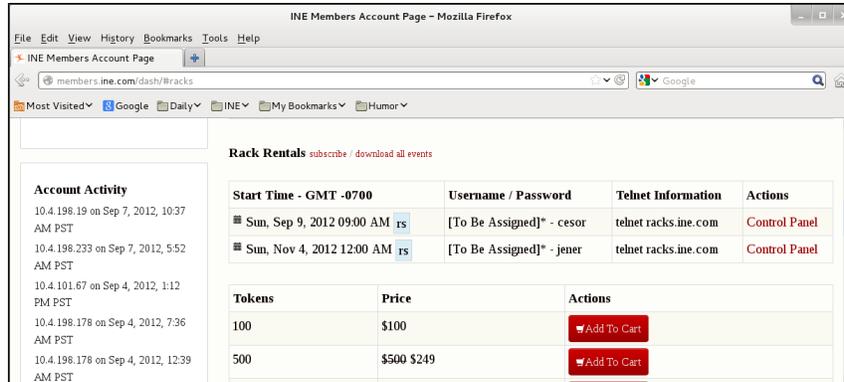


When the automation system prepares your rack for use, it loads a default configuration, which, for Routing & Switching racks, is a minimum configuration so that the routers and EtherSwitches are as close to the factory configuration as practical.

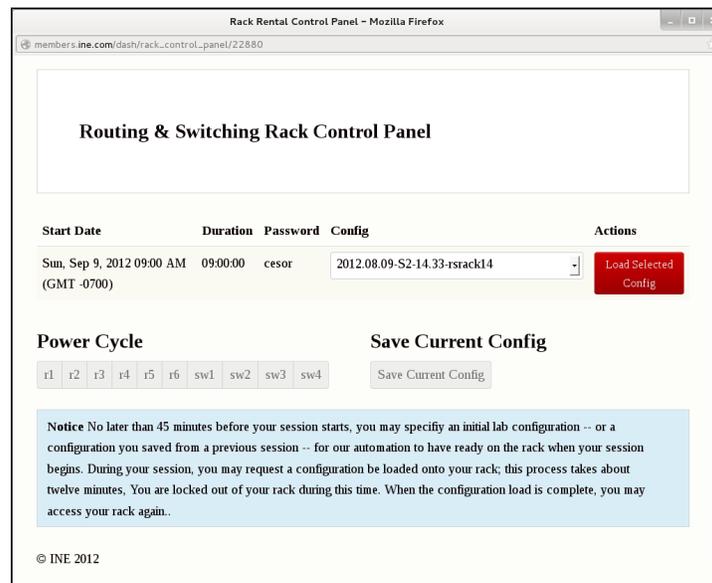
## 2.2. Loading Your Configuration Before Your Session

The setting of your initial configuration, to be loaded before your session starts, must be completed at least 45 minutes before your session start time. At 45 minutes before your start time, the session cannot be changed.

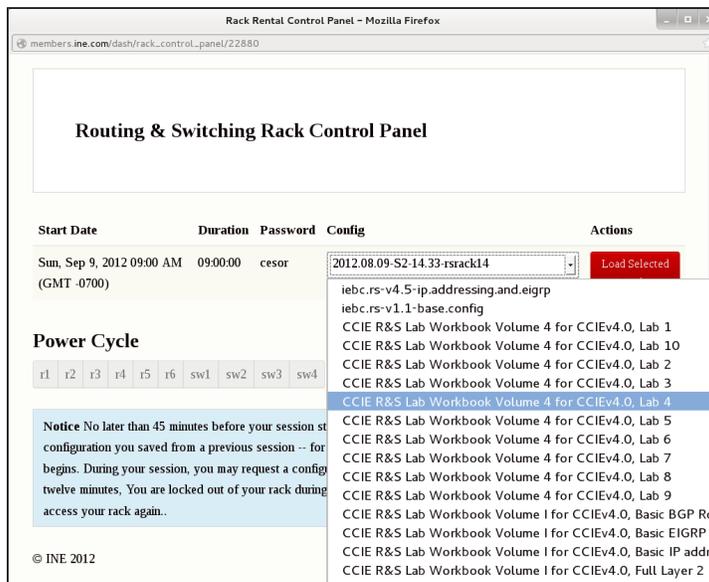
NOTE: If you are using one of the INE CCIE R&S workbook products, we offer a way to use “our” time to load the initial configuration for the lab or technology topic you are working on. Close the scheduling window, refresh your web browser, and, if necessary, click **Rack Rentals** again. Scroll down to the list of scheduled rack rentals:



Click **Control Panel** next to the reservation you want to set, to open the Rack Control Panel:

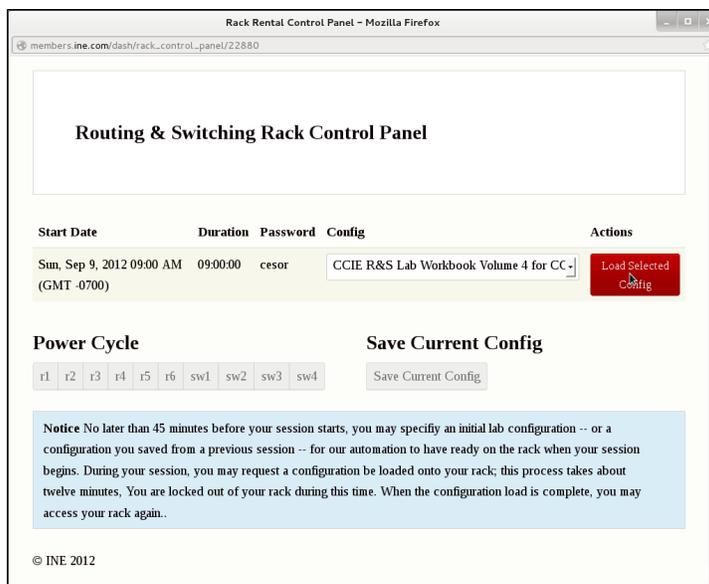


Click the pull-down list to see your configuration options:



At the top of the list, you will see your saved configurations. Further down the list, you will see the product configurations for our workbook products. In this case, I want to select CCIE R&S Lab Workbook Volume 4, lab 4.

When you have selected your configuration to be loaded before your session starts, click the **Load Selected Config** button. You will see the screen like this:



Close the Rack Control Panel window.

(done)

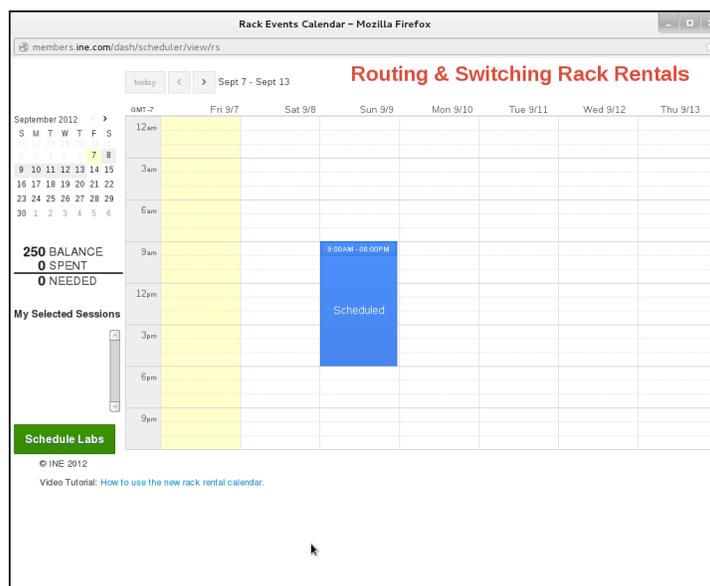
### **2.3. Session Reminder Email Message**

When your lab rack has been set up, the automation system will send you a reminder email message at the start of the session. The reminder message includes the assigned rack and the password for the session.

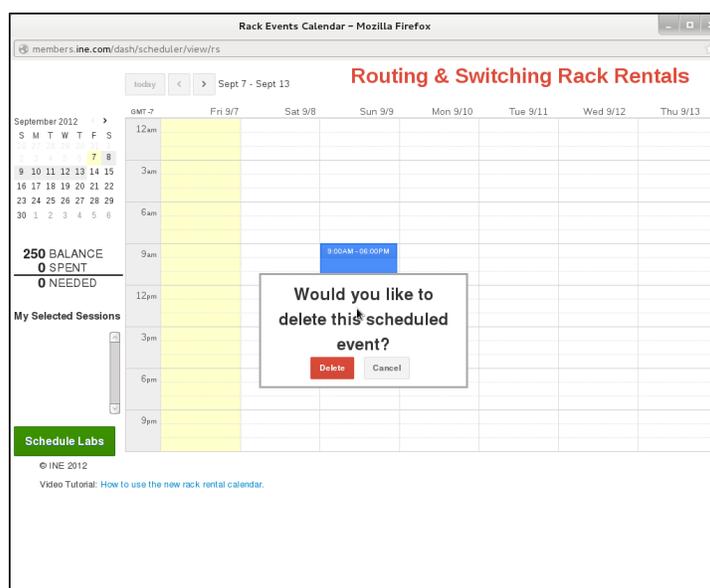
## 2.4. Releasing a Previously Booked Session

Sessions can be canceled up to 45 minutes before the start time of your session. Within 45 of the start time, the session information cannot be changed and the session cannot be cancelled.

To release a previously booked session, return to the scheduling calendar:



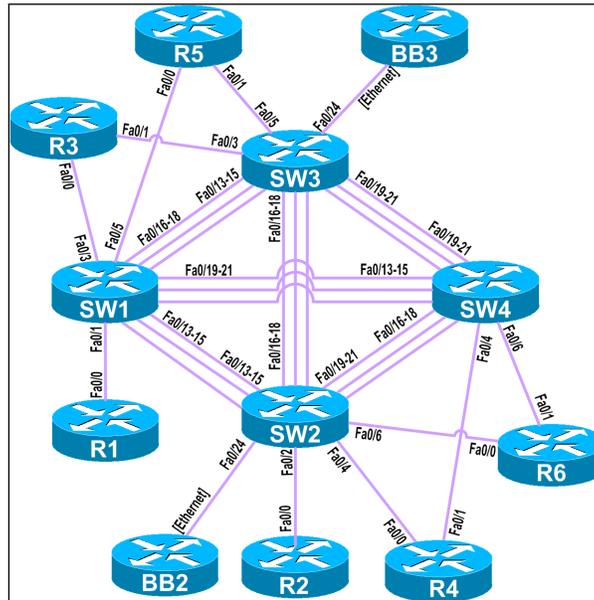
Click the reservation block you want to release; you will see a confirmation dialog box:



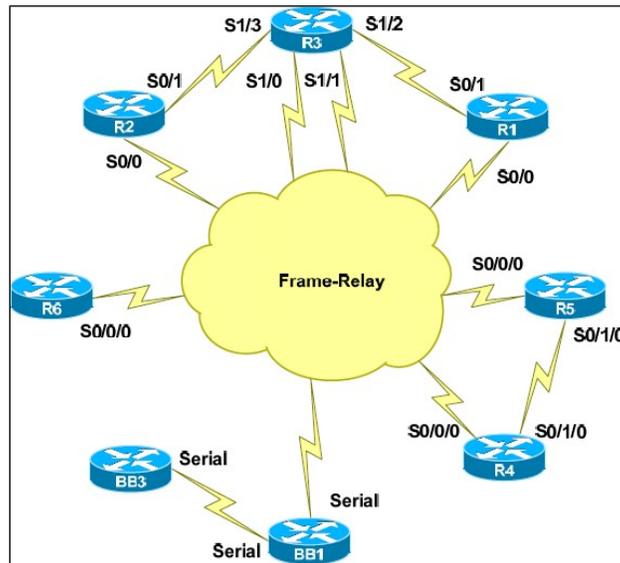
When you click **Delete**, your reservation will be removed from the calendar.

## Section 3. Lab Rack Wiring Diagram

### 3.1. Physical LAN Cabling



### 3.2. Physical WAN Cabling



## Section 4. Getting Started at Your Location

This section describes the minimum equipment you need to effectively complete the labs in our R&S workbooks.

### 4.1. Minimum Necessary Equipment

The minimum equipment you need at your location is a commodity computer with a Microsoft Windows operating system (XP, XP Pro, or Windows 7) or a Macintosh computer with the Mac OS X operating system. Verify that you have software installed that offers these services:

- TELNET client<sup>1</sup>
- Traceroute utility

Static IP address recommended: We strongly recommend that you use an Internet connection at your location that utilizes a static IP address to link to your ISP. Students have successfully worked with our racks using services that lease IP addresses via DHCP; however, some students have found that the ISP lease policies of the service they use cause frequent disconnections. Also, ISPs who give you a static IP address typically don't block the TCP ports that you need to work with our racks.

Users of a local wireless access point must verify that neither the access point(s) nor the uplink service is blocking necessary TCP ports, as described in the subsection "Firewall Information" below.

### 4.2. Optional Equipment and Software

There is no optional equipment or software needed to effectively use our R&S lab racks.

### 4.3. Firewall Information

This section is provided for people who have difficulty reaching our lab racks. In most cases, you should not need any of this information. The information here is extremely useful if you are behind a corporate or hotel firewall, are behind a personal firewall set to a mostly closed configuration, or are using an ISP with unusual characteristics.

TELNET access to our gateway at racks.ine.com uses port 23/TCP.<sup>2</sup>

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<sup>1</sup> Access to our lab racks is not possible using SSH or web browsers.

<sup>2</sup> Access using an alternative port, such as 60023/TCP, is under development but not available at this time.

## Section 5. Loading Initial Configurations

See Section 2.2 for information about having our system load your initial configuration before the start of your session. This section describes how to load an initial configuration during your session.

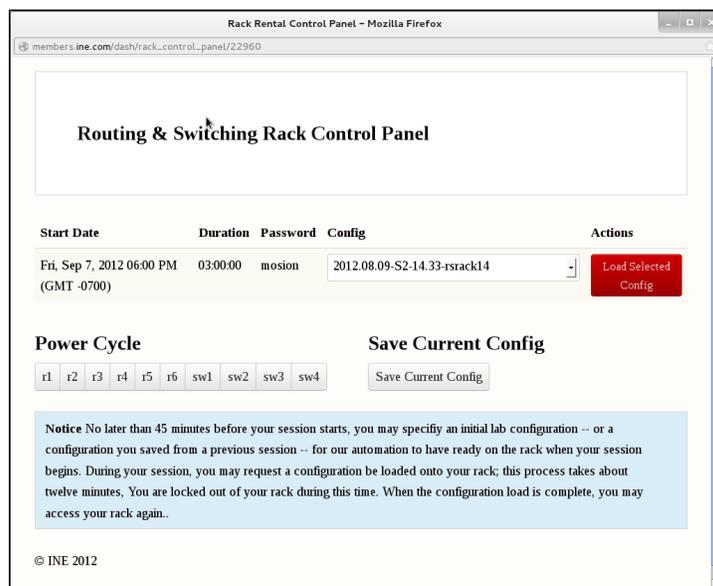
The control panel described in this section is available only during your session. It is not available before the published start time of the session, nor after your session is over.

Our rack automation system includes a method for automatically clearing and loading router and EtherSwitch initial configurations. You do this from the Lab Rack control panel.

Make sure that you have Java and JavaScript enabled in your browser for the domain *ine.com*.

To request a configuration load:

- Log in to your Members account at <http://members.ine.com>.
- Click **Rack Rentals** on the left side of the page.
- Scroll down to the Rack Rentals table.
- Find your current R&S rack session.
- Click **Control Panel**. You should see this:



- Select a configuration to load from the list. At the top of the list are configurations that have been saved by you, or were saved at the end of your R&S sessions by the automation. Below these configurations are the INE product configurations required by our workbook products.

Two additional initial configurations are called for in our workbooks:

NO.CONFIGURATION: This initial configuration returns all configurable lab rack devices to their factory default state.

IPV6.NO.CONFIGURATION: This initial configuration brings the configurable lab rack devices to their factory default state, and then conditions the 3560 EtherSwitches to work with IPv6 addresses; this eliminates the need for you to select the SDM (“Switch database management”) template in the 3560s for IPv6 and restart them yourself.

- After you have selected the desired initial configuration set, click **Load Selected Config**. The control panel will instruct the rack automation to erase all configurations from all configurable devices in the lab rack and load the pre-defined configuration in its place.
- Note the time you clicked **Load Selected Config**.

The configuration loading process takes about 15 minutes, depending on how much work the software must do to prepare the lab rack devices for the new configuration. While our automation is loading your selected configuration, access to your rack is blocked. If you attempt to access your rack during this time, you will receive an intercept message stating that the rack automation is busy.

15 minutes after starting the configuration process:

1. Make a TELNET connection to **racks.ine.com**, our TELNET portal.
2. Attempt to connect to your rack by typing the rack name. If you don't receive a message, your rack is ready and you can enter your password and get started.
3. If you receive the intercept message, disconnect, wait five minutes, and try again.
4. If you receive the message again, submit an emergency trouble ticket with the subject “Control Panel.” Our technical staff can determine the status of your configuration load request.

## Section 6. Accessing Routers and EtherSwitches

Routers and EtherSwitches are accessed using TELNET connections, each through the access server to the device console port's command-line interface (CLI) of the devices. You have two options, which can be mixed and matched, with limitations:

- Single TELNET connection, accessing the lab rack access server's console, and using the access server's command line to telnet to each device
- Multiple TELNET connections, accessing the lab rack access server's direct line to the device

There is no direct access over the Internet to the lab rack devices; you cannot make a direct TCP connection to a device's virtual console port. We currently don't offer VPN connection to our R&S lab racks.

### 6.1. Single TELNET Connection to Multiple Devices

You establish a single connection through our TELNET gateway to the R&S rack access server:

```
host$ telnet racks.ine.com
Trying 75.140.41.59...
Connected to racks.ine.com.
Escape character is '^]'.

User Access Verification

Username: rsrack42
Password: bc78ad

(You may need to press Enter a few times here.)

RSRack42AS>
```

From here, you can access the console of almost any device in the rack. First, list the hosts available to you:

```
RSRack42AS>show hosts
Default domain is not set
Name/address lookup uses static mappings

Codes: UN - unknown, EX - expired, OK - OK, ?? - revalidate
       temp - temporary, perm - permanent
       NA - Not Applicable None - Not defined

Host          Port  Flags      Age Type  Address(es)
SW4           2010 (perm, OK) **  IP   1.1.1.1
SW3           2009 (perm, OK) **  IP   1.1.1.1
BB1           2011 (perm, OK) **  IP   1.1.1.1
SW2           2008 (perm, OK) **  IP   1.1.1.1
R4            2004 (perm, OK) **  IP   1.1.1.1
R1            2001 (perm, OK) 19  IP   1.1.1.1
R6            2006 (perm, OK) **  IP   1.1.1.1
R2            2002 (perm, OK) 19  IP   1.1.1.1
R3            2003 (perm, OK) **  IP   1.1.1.1
R5            2005 (perm, OK) **  IP   1.1.1.1
SW1           2007 (perm, OK) **  IP   1.1.1.1
BB2           2012 (perm, OK) **  IP   1.1.1.1
BB3           2013 (perm, OK) **  IP   1.1.1.1
```

Note the device names in the “Host” column: If you type any name from this list and press Enter, the access server will reverse-telnet to the specific device. Press Enter again to see the router prompt of the newly connected device:

```
RSRack42AS>r1
Trying R1 (1.1.1.1, 2001)... Open

Rack42R1>
```

Press Ctrl-Shift-6 (all at once) and then press X to return to the access server prompt. Enter the special “w” command (“where”), which shows you the currently open sessions:

```
RSRack42AS>w
Conn Host          Address          Byte  Idle Conn Name
*  1  R1              1.1.1.1          0     0  R1

RSRack42AS>
```

Now you can open a connection to another router, using its hostname from the list you get using the show host command:

```
RSRack42AS>r2
Trying R2 (1.1.1.1, 2002)... Open

RSRack42R2#
```

Press Ctrl-Shift-6 and then X to return to the access server prompt. Now the “w” command reveals two active connections:

```
RSRack42AS>w
Conn Host          Address          Byte  Idle Conn Name
  1 R1             1.1.1.1         0     0 R1
* 2 R2             1.1.1.1         0     0 R2
```

Note the numbers in the “Conn” column: These are the connection numbers for those connections. At the access server prompt, you can enter the connection number to switch back to the respective router. For example, you can enter “1” or “2” to switch back to R1 or R2. If you simply press Enter at the access server prompt, it resumes the last active connection (marked by the “\*” sign in the “w” command output).

```
RSRack42AS>1
[Resuming connection 1 to R1 ... ]

Rack42R1#
```

When you are using the access server with a single TELNET connection from your location, we recommend that you open connections to all devices in the rack and switch between them using Ctrl-Shift-6, X and then entering the connection number at the access server prompt. When you finish opening all the connections, the output of the “w” command looks like this:

```
RSRack42AS>w
Conn Host          Address          Byte  Idle Conn Name
  1 R1             1.1.1.1         0     0 R1
  2 R2             1.1.1.1         0     2 R2
  3 R3             1.1.1.1         0     0 R3
  4 R4             1.1.1.1         0     0 R4
  5 R5             1.1.1.1         0     0 R5
  6 R6             1.1.1.1         0     0 R6
  7 SW1            1.1.1.1         0     0 SW1
  8 SW2            1.1.1.1         0     0 SW2
  9 SW3            1.1.1.1         0     0 SW3
* 10 SW4           1.1.1.1         0     0 SW4
```

When you instruct our automation to load an initial configuration, all the connections to all the devices will be forced closed; you will need to re-open the connections when the configuration loading is complete.

To locate certain problems, you have limited, read-only access to the backbone servers. In the host table displayed at the beginning of this section, you will see three additional host names: “BB1,” “BB2,” and “BB3.” You use the same technique to access them that you used with the other devices.

Do not become dependent on seeing information on the backbone routers; use this debug method as a last resort for your studies. During the actual certification exam, you have *no* access to the backbone routers in the exam's Test Lab Rack.

## 6.2. Multiple TELNET Connections to Console Lines

Alternating back and forth between devices using the access server to do the multiplexing can become tedious, especially when you try to make a configuration change that affects two ends of the same link. Windows, Mac, and Linux users can have multiple windows open, each with a TELNET session. Modern versions of programs like Secure CRT offer tabbing, so that changing the focus to another device is a single mouse-click.

If you prefer to work with multiple devices, you start an instance of TELNET for each device on your computer. Within each instance, you log in to the rack *and* the device:

```
window1$ telnet racks.ine.com
Trying 75.140.41.59...
Connected to racks.ine.com.
Escape character is '^]'.

User Access Verification

Username: rsrack42r1
Password: bc78ad

(You may need to press Enter a few times here.)

Rack42R1#
```

Now change to (or create) your second window or tab:

```
window2$ telnet racks.ine.com
Trying 75.140.41.59...
Connected to racks.ine.com.
Escape character is '^]'.

User Access Verification

Username: rsrack42r2
Password: bc78ad

(You may need to press Enter a few times here.)

RSRack42R2#
```

Now change to (or create) your third window or tab:

```
window3$ telnet racks.ine.com
Trying 75.140.41.59...
Connected to racks.ine.com.
Escape character is '^]'.

User Access Verification

Username: rsrack42r3
Password: bc78ad

(You may need to press Enter a few times here.)

RSRack42R3#
```

Continue the process, in additional windows or tabs, specifying the user names rsrack42r4, rsrack42r5, rsrack42r6, rsrack42sw1, rsrack42sw2, rsrack42sw3, and rsrack42sw4. You end up with six windows or tabs, one per device.

When you instruct our automation to load an initial configuration, all the connections to all the devices will be forced closed; you will need to re-open the connections when the configuration loading is complete.

You can get read-only access to the backbone servers using this technique by using the user names rsrack42bb1, rsrack42bb2, and rsrack42bb3.

Do not become dependent on seeing information on the backbone routers; use this debug method as a last resort for your studies. During the actual certification exam, you have *no* access to the backbone routers in the exam's Test Lab Rack.

You can shift windows around so that you can see the contents of one window while keying configuration data into another. Another benefit of using multiple windows is that you can see error messages on multiple devices at the same time, so you can trace and debug problems such as connection flapping.

Alternatively, tabs require only one mouse movement plus one click to change focus, and you don't have to shift anything to see the entire output.

The method you use is a matter of personal style and preference.

### 6.3. Clearing a Busy Access Server Console Line

Occasionally you may get disconnected from the access server as a result of a temporary network outage or your ISP DHCP changing your local IP address. You may find that the router refuses your attempt to log in again with a message similar to this one:

```
host$ telnet racks.ine.com
Trying 75.140.41.59...
Connected to racks.ine.com.
Escape character is '^]'.

User Access Verification

Username: rsrack1r3
Password: mn98ty

+-----+
| Line in use. Login to the access server using the |
| username clearrrack1 and manually clear the line. |
+-----+

Connection closed by foreign host.
```

To fix this problem, you must clear the access server's connection to the console line for the router you want to access. To do this, use the following login sequence to our TELNET gateway:

```
host$ telnet racks.ine.com
Trying 75.140.41.59...
Connected to racks.ine.com.
Escape character is '^]'.

User Access Verification

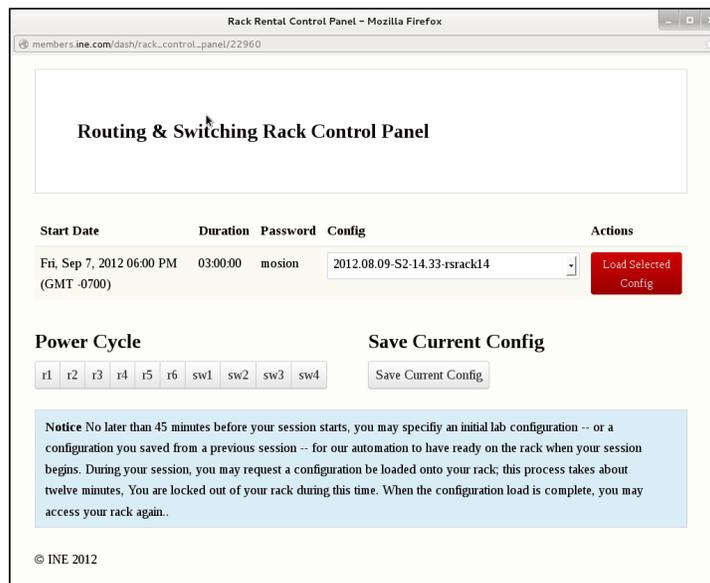
Username: clearrrack42
Password: bc78ad
```



## Section 7. Power-Cycling Your Lab Rack Devices

Sometimes your configuration can cause a router or EtherSwitch to “blow out” like an out-of-control oil well; you can't stop its output or break it out of a frozen state. When this happens, we offer a way to power-cycle a specific device to recover it. Here's how:

- Log in to your Members account at <http://members.ine.com>.
- Click **Rack Rentals** on the left side of the page.
- Scroll down to the Rack Rentals table.
- Find your current R&S rack session.
- Click **Control Panel**. You should see this:



- Click the **Power Cycle** button that corresponds to the device that you need to power-cycle.

The control panel will instruct the automation to turn the device off for five seconds, then turn it back on. We recommend that you have a TELNET session to monitor the power-up and IOS loading.

If you saved a configuration to NVRAM that caused the device to fail, you may want to force the device into ROMMON mode to bypass loading the problem configuration saved in the device. Use the device-specific method for clearing out the configuration from NVRAM, and then let the device boot again.

The buttons only power-cycle R1 through R6 and SW1 through SW4; there are no buttons available for the backbone routers or for the access server.

The power buttons are effective only during your session.

## Section 8. Saving Your Configurations for Later Reloading

Saving and reloading router and Ethernet configurations can be cumbersome. We have provided a system that allows you to save your configurations to our database and reload that configuration—perhaps into a different lab rack—using our control panel.

This is particularly useful if you try to schedule two back-to-back sessions and our scheduler has to assign the sessions on different lab racks. In such a case, just before the end of the first session, save your working configuration as described below. When the next session starts, instruct our system to load your saved configuration onto the new rack. The automation sets up the new rack to use the old rack's IP addressing scheme, so all your notes and working diagrams are valid.

The control panels shown in this section are available only during your session. They are not available before the published start time, nor after your session is over.

### 8.1. Taking a Snapshot of Your Current Work

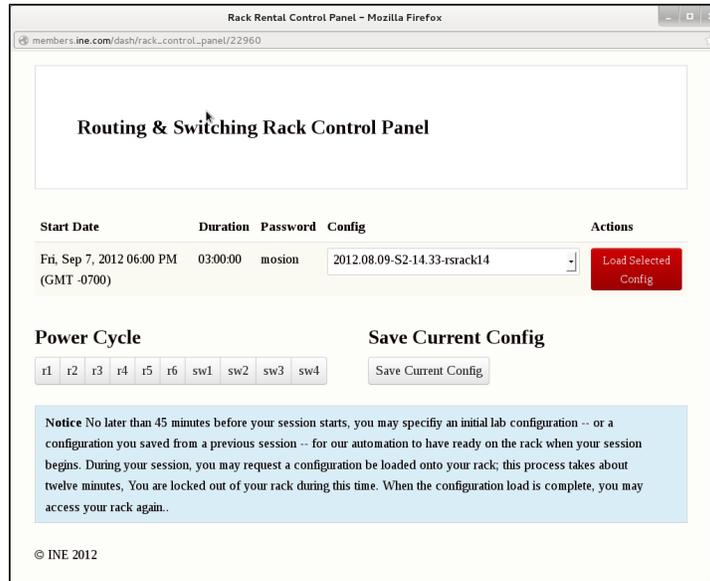
When you reach a stopping point, you can save your current work. Our automation also tries to save your work at the end of your session(s) before preparing the lab rack for the next user. The advantage of doing the configuration state save operation yourself is that you can be sure the equipment is in a state in which the configurations can be saved.

Make sure that you have Java and JavaScript enabled in your browser for the domain *ine.com*.

To save your current work:

- Ensure that all devices are at a command prompt, and that there isn't continuous console output.
- Click **Rack Rentals** on the left side of the page.
- Scroll down to the Rack Rentals table.
- Find your current R&S rack session.

- Click **Control Panel**. You should see this:



- Click **Save Current Config**.

The configuration save process takes about four minutes. During the time the automation is saving your configuration, the rack is not available to you.

## Section 9. Lab Rack Support

Most of the time, for most people, the facilities we provide to support your R&S lab rack rental is sufficient for productive lab exam preparation. However, if you experience any problems with your rack rental, we have technical support staff on call to help you.

### 9.1. Scope of INE Lab Rack Support

The INE Lab Rack technical staff can:

- Perform repairs on (or, if necessary, perform replacement of) our routers, EtherSwitches, security appliances, and cabling within our lab racks and within our infrastructure.
- Identify in-the-cloud issues with your access to our TELNET and VPN gateways.
- Fix authentication issues with your access to our TELNET and VPN gateways.
- Use our cable and interface check reports, generated before your session or sessions start, to speed repair of your lab rack and verify that the repair was effective.
- Fix problems with lab rack bookings.

The cable and interface check that is run before your session or sessions detects problems with the rack before you start and identifies the failures it detects. This facility eliminates the need for our technicians to perform diagnostic checking during your rack session to locate a failed cable or interface. Our automation also keeps extensive logs of its actions, and the results of those actions, to speed identification of the cause of a problem.

The INE sales team can:

- Carry out purchase and accounting of lab rack tokens.
- Perform bulk booking of lab rack sessions.
- Resolve conflicts between Bootcamps and self-paced customer rentals.

INE staff also handles issues for its products via the INE Online Community (<http://www.IEOC.com>) for its products and related tasks and questions:

- INE workbooks
- INE on-demand products
- INE Bootcamps and workshops
- INE purchases and discounts
- Details on setting up Cisco equipment to implement a lab solution or scenario requirement
- Operation of Cisco software
- Technology questions, such as questions about BGP, EIRGP, RIP, or OSPF configuration

## 9.2. Knowledgebase

INE maintains a Knowledgebase of information to help troubleshoot common issues, problems, and questions:

[http://support.ine.com/index.php?\\_m=knowledgebase&\\_a=view](http://support.ine.com/index.php?_m=knowledgebase&_a=view)

## 9.3. Common Lab Rack Access Problems and Their Solutions

This section provides quick troubleshooters for common issues.

### 9.3.1. Cannot Connect to TELNET Gateway racks.ine.com

The most common reasons for inability to reach our TELNET gateway to access your lab rack are:

- You are trying to use an SSH client, a web browser, or TELNET over SSL.
- Port 23/TCP is firewalled in your computer or your local network.

The “Firewall Information” section of this document can help you with finding and opening the needed port to access our TELNET gateway.

If you determine that a firewall isn't blocking port 23/TCP, generate a traceroute to **racks.ine.com**, follow the instructions in “Submitting an Emergency Support Ticket.” Include the traceroute report in your ticket. Our technicians will investigate the problem.

### 9.3.2. “Line in Use”

You can reach our gateway, but when you attempt to connect to your lab rack, you see a screen like this:

```
host$ telnet racks.ine.com
Trying 75.140.41.59...
Connected to racks.ine.com.
Escape character is '^]'.

User Access Verification

Username: rsrack1
Password: mn98ty

+-----+
| Line in use. Login to the access server using the |
| username clearrsrack1 and manually clear the line. |
+-----+

Connection closed by foreign host.
```

See the section “Clearing a Busy Access Server Console Line.” When trying to access the lab rack using the name, such as rsrack1, select the menu item “0.” When trying to access a lab rack device directly, such as rsrack1r3, use the corresponding menu item to clear the device console connection; in this example, use menu item “3” for the device r3.

### 9.3.3. Cannot Connect to Lab Rack

You can reach our gateway, but your attempts to get to your lab rack appear to fail. Try using the Cisco escape sequence to determine whether the access server's console is linked to a lab rack device console; if this is the problem, you will be returned to an access-server command prompt. If that fails, press ENTER a few times to see if you get a response. Usually, you will see something.

If all else fails, clear all the lines using the procedure described in “Clearing a Busy Access Server Console Line” to clear the console connection (menu item “0”).

If you still don't get a response, follow the instructions in “Submitting an Emergency Support Ticket.” Our technicians will investigate the problem.

### 9.3.4. Lab Rack Connection Intercepted

In certain circumstances, when you try to connect to your lab rack via our TELNET gateway, you will see a screen that looks like this:

```
The current time is Wed Jan 12 13:20:34 PST (GMT-08) 2011

This is the INE Lab Rack System. The password for this rack login has been temporarily disabled. There are several possible reasons that the password would be temporarily disabled:

1. Your session has not yet started. Our sessions start at 03:00 (GMT-08), 09:00 (GMT-08), 15:00 (GMT-08), and 21:00 Pacific time (GMT-08).
2. Your session has already ended. Our sessions end at 02:30 am (GMT-08), 08:30 am (GMT-08), 14:30 pm (GMT-08), and 20:30 pm (GMT-08).
3. Our rack automation is still preparing the rack for your session.
4. You have requested the loading of a product configuration, or one of your saved configurations, and our rack automation is still working on your request.
5. You are taking a Mock Lab and our rack automation is capturing your rack for grading, or preparing your rack for the next part.

Connection closed by foreign host.
```

In the first line, you see the current time in the INE local time zone. We follow the Daylight Saving Time rules for the United States Pacific time zone. If you see this message, it's possible that you are trying too early (or too late) to connect to your lab rack.

When our automation system is performing a task on your rack, we disconnect you from your lab rack devices and the access server, and we also block you from logging in to your rack. This is so that you don't accidentally corrupt your rack or the operation in progress. When the operation is complete, the system restores your ability to log in to your rack via the TELNET gateway.

This lockout is particularly important for Mock Labs, because the scoring is dependent on the automation being able to properly configure your rack for each part of the test and capture your settings when each part is completed. Disrupting your rack will cause you to receive a lower grade.

On very rare occasions, you may find that you don't have proper access to your rack at the beginning of the session, and you haven't asked the automation system to perform any tasks for you. In that case, wait 15 minutes and try again; if you continue to see the banner, follow the instructions in "Submitting an Emergency Support Ticket" so that one of our technicians can fix the problem.

### 9.3.5. Cannot Connect to a Device

You have trouble connecting to a device, either from the access server or by using the device-specific login sequence on our TELNET gateway. Try using the Cisco escape sequence first. If that fails, press ENTER a few times to see if you get a response.

If all else fails, try power-cycling the device as described in the section “Power-Cycling Your Lab Rack Devices.” We strongly recommend that, before you perform the power cycle, you have a TELNET window open to the device (either directly, or through the access server) so that you can watch the boot-up messages as they are output by the router. If you see a serious error message, follow the instructions in “Submitting an Emergency Support Ticket” and include the error message. Our technicians will investigate the problem.

#### 9.3.6. Cannot Bring Up a Link

The vast majority of the time, problems with bringing up a link between two devices is a configuration issue, although on rare occasion an interface will die or a cable will be knocked loose. Before submitting a trouble ticket, enable CDP on both devices, configure the interface on each end of the link to its default, issue “**no shutdown**” commands to the interfaces, wait 60 seconds, and then use “**show cdp neighbor**” to verify that the cable is in place. Then use “**show ip interface brief**” to see if the link is reported as “up/up.”

If the link will not come up after this procedure, follow the instructions in “Submitting an Emergency Support Ticket” and include the text of your testing on both ends of the link. Our technicians will investigate the problem.

#### 9.3.7. Cannot See Progress Reports when Loading or Saving Configurations

Ensure that you have Java and JavaScript enabled for the domain *ine.com*—most browsers will let you restrict the ability to execute scripts to specific domains so that you don't expose your system to websites with malicious scripts.

## 9.4. Submitting an Emergency Support Ticket

An emergency ticket is warranted in the following situations:

- Hardware failure in any device of the lab rack
- Can't log in via **racks.ine.com**
- Can't connect to lab rack devices from the access server
- Rack control panel failure

If your issue is *not* one of these, see the next subsection, “Submitting a Support Request Ticket.”

The emergency ticket system is available only during your session time. It is not available before the published start time, nor after your session is over.

We assume that, before you submit an emergency rack trouble ticket, you have tried the troubleshooting tips described in “Common Lab Rack Access Problems and Their Solutions” above, and that the tips didn't clear the problem. We also assume that you have collected debugging information to show the problem and have included that information in your ticket.

NOTE: The following example shows submitting a ticket against a Voice rack session. The process is identical for an R&S lab rack session.

To submit a trouble ticket, first sign in to your INE Members account. Then go to the Active Rack Session Support page on the Members site:

[http://members.ine.com/member/911\\_tickets/active\\_session\\_support.php](http://members.ine.com/member/911_tickets/active_session_support.php)

You will see the following screen:

**Active Rack Session Support**

**Your currently active rack sessions:**

Rack Number	Password	Session Start Time	Session Time Remaining	Session End Time
vorack1	██████	2011-12-31 15:00:00	5 hours, 16 mins, 2 secs	2011-12-31 20:30:00

**Your Open 911 Tickets:**

You have no open 911 tickets at this time.

**Submit a New 911 Ticket:**

Which rack do you want to send a ticket for?  
vorack1

What type of problem do you wish to report?  
Hardware Failure

- Hardware Failure
- Can't Login
- Can't Connect
- Can't Connect VPN
- Rack Control Panel
- Mock Lab Control Panel
- Veriphy Insight

Details:

Go back the members area

If you have multiple rack reservations, select the lab rack that is the subject of the ticket under “Which rack do you want to send a ticket for?”

Select the type of problem (under “What type of problem do you wish to report?”) that best describes the nature of the problem. In the Details box, provide as much information as you can to show the nature of the problem and what you've done to resolve it. Then click the **Submit Ticket** button (not visible in the image above) to launch your ticket.

For problems connecting to our TELNET gateway, please include a traceroute report (not just a ping report) from your location to `racks.ine.com` so we can begin investigating the problem when we receive the ticket.

You will then see confirmation that your ticket has been submitted:

## Your 911 Ticket Has Been Submitted.

Information:  
Email: [satch@ine.com](mailto:satch@ine.com)  
Rack Number: vorack1  
Rack Password: ■■■■■■  
Subject: Veriphy Insight

Our support team will begin working on your issue right away and reply to you soon.

[Go back to the 911 tickets page](#)

[Go back the members area](#)

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Initial submission of an emergency ticket causes our system to page the on-duty technician. Additions to an emergency ticket do *not* cause the technician to be paged.

Our response time to emergency tickets is usually less than 30 minutes. If the problem can't be fixed quickly, our on-duty technician will respond to your ticket, perform adjustments, and respond again when the work is completed.

### 9.5. Submitting a Support Request Ticket

You can submit support request tickets via email. The following addresses are used for non-emergency tickets, as described in the previous section. **Tickets sent to these addresses are normally handled during United States Pacific Time business hours.**

Racks	<a href="mailto:racks@ine.com">racks@ine.com</a>
Sales Issues	<a href="mailto:sales@ine.com">sales@ine.com</a>
Customer Service	<a href="mailto:cs@ine.com">cs@ine.com</a>
Support	<a href="mailto:support@ine.com">support@ine.com</a>

When submitting tickets, include supporting information in addition to the statement of your problem so that we may start working on resolving the ticket when we receive it. Please use a descriptive subject line. When the ticket is regarding a specific rack session, please include the following in the body of your message:

- Identification of the rack (such as “RSRack4”)
- The password for the rack session
- The starting time of the session (using Pacific Time)

The password and starting time can be found in your rack reservation table.

## Section 10. Backbone Routers

Part of the equipment complement for a Routing & Switching lab rack are three non-configurable routers that imitate the Internet at the remote end of WAN links to the world, including Frame Relay links. In the real certification exam, you have *no* access to the backbone routers; we provide limited read-only access to the backbone routers so that you can troubleshoot external routing problems.

BB1 implements the Frame Relay switch used in our R&S lab racks, and it also has an internal link to BB3. BB2 and BB3 are connected to the rest of the rack using Ethernet links. The configuration of the backbones are fixed. The same backbone configuration used in the R&S lab racks are also used for the Security and Service Provider lab racks.

You access the backbone routers using the techniques described in the section “Accessing Routers and EtherSwitches.” You reference BB1, BB2, and BB3 as the host names at the lab rack access server command line, or use the “bb1”, “bb2,” and “bb3” suffixes for the gateway user name in the multiple-TELNET method. When you connect to the backbone router, you will see a banner like this one (the example here uses BB1's banner):

```
RSRack42AS>bb1
Trying BB1 (1.1.1.1, 2011)... Open

+-----+
|
| Welcome to BB1. These commands are available for use at privilege 0
|
| ping                show ip bgp
| telnet              show ip bgp neighbors
| traceroute          show ip bgp summary
| show ip route        show ip interface brief
| show ip protocols
|
| The reference configuration for this device is available at:
| http://www.ine.com/downloads/bb1.txt
|
+-----+

RS.42.42.BB1>
```

The information in the Welcome banner for each backbone router shows the commands you may use to investigate the running state of the router.

The reference configurations may be downloaded via the following links:

```
http://www.ine.com/downloads/bb1.txt
http://www.ine.com/downloads/bb2.txt
http://www.ine.com/downloads/bb3.txt
```