BASIC USER TRAINING PROGRAM

Module 3: Sessions

the Fanfare group

Objective

Students will have an understanding of sessions; configuring a session, starting interactive sessions with a device, and viewing capture reports. We will introduce the concept of reference session profile and how they are important in testing asset maintainability.

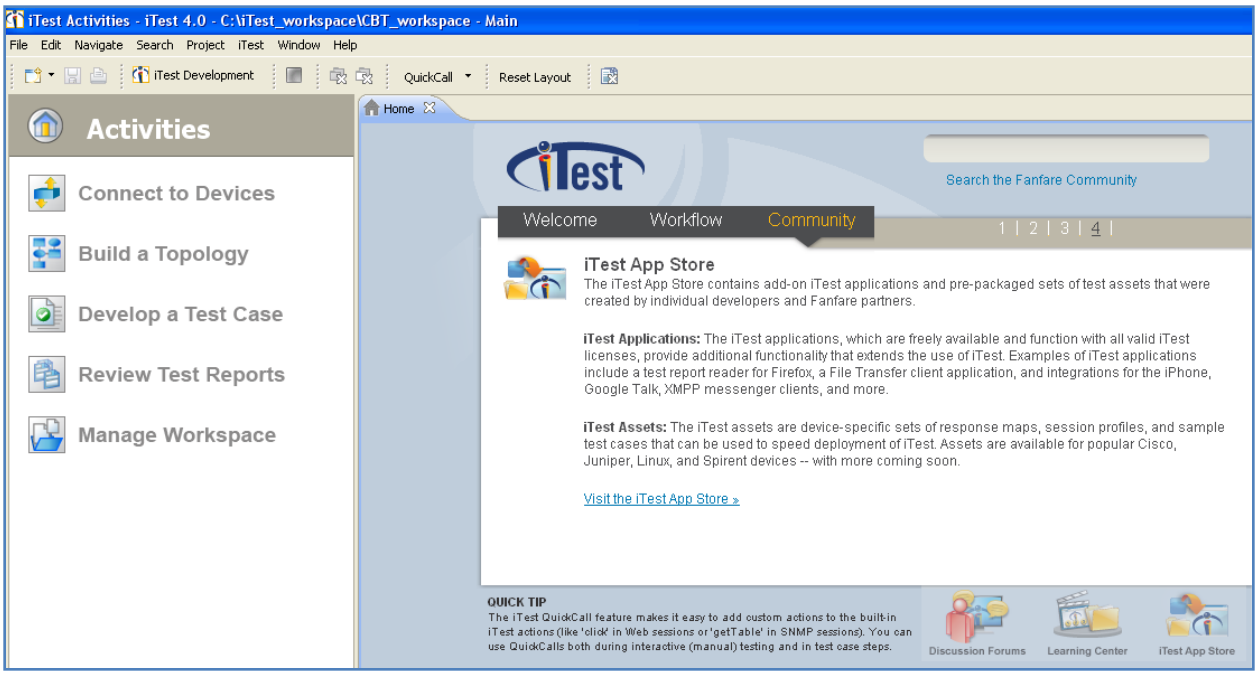
Outline

- Session types and configuration
- Reference Profiles and Inheritance
- Session Properties like termination, prompts, completion
- Launch Sessions to connect to devices
- Preferences
- Capture Reports
- Lab
- Quiz

The objective of this module is to gain a solid understanding of both the creation and use of sessions. You will understand the concept of reference profiles, why you would want to use reference profiles, and how they are important to test asset maintainability.

This module will discuss the different types of sessions that are available in iTest. We will discuss the session properties that must be set depending on the type of session. We will talk about termination, device prompts, and completion — all of which are useful for replay. We will cover replay in the advanced training session, but we will skim thru the basics in this module. We will talk about reference profiles and inheritance, we will talk about connecting with devices and capturing the results, we will discuss the lab and then we will have a Quiz.

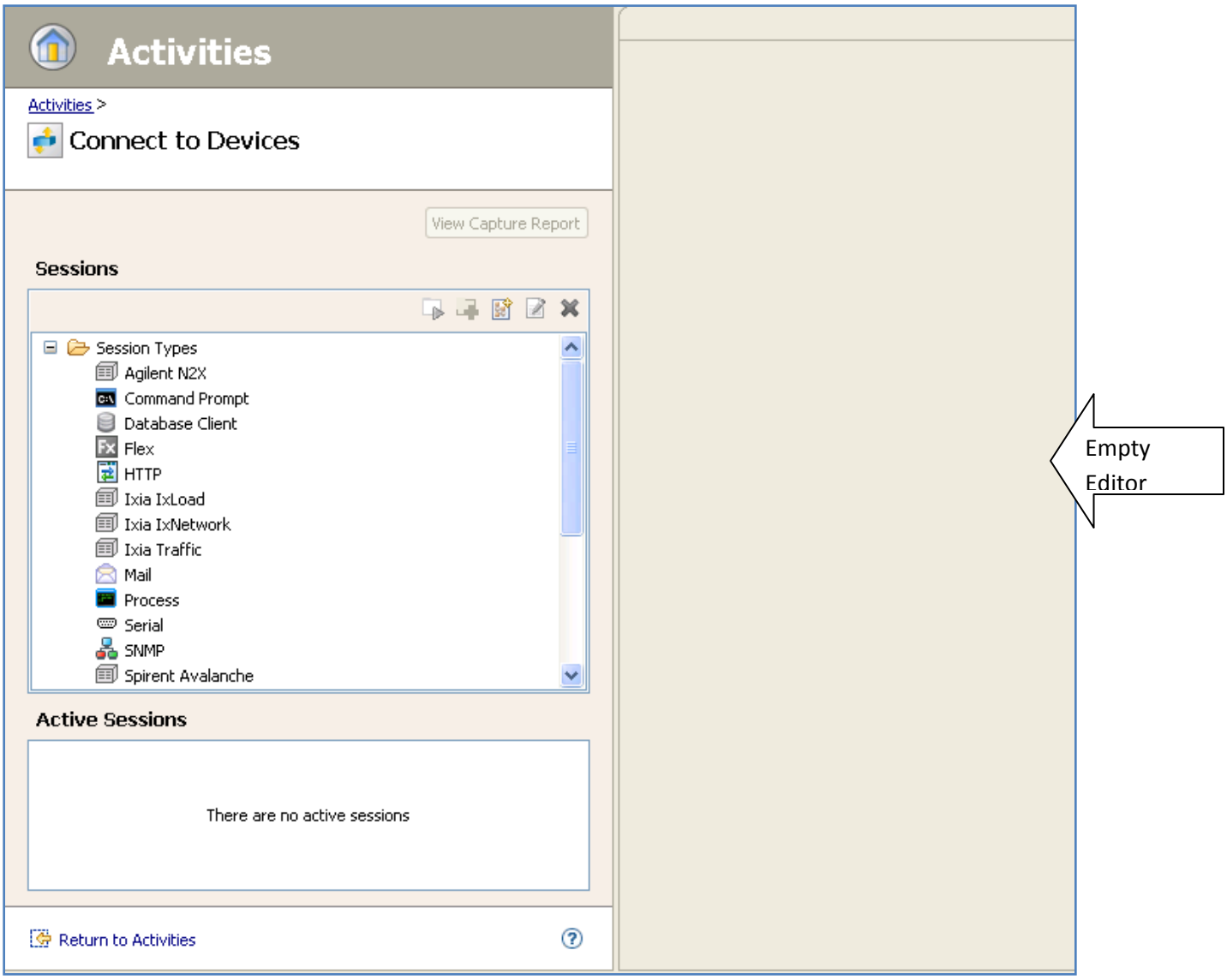
As we mentioned in the previous module, the iTest Activities prospective opens the very first time you start iTest.



Connecting to devices

1. Click the **Connect to Devices** on the **Activities page.** This will provide you the ability to interactively launch a **session** and **connect to the device** under test.

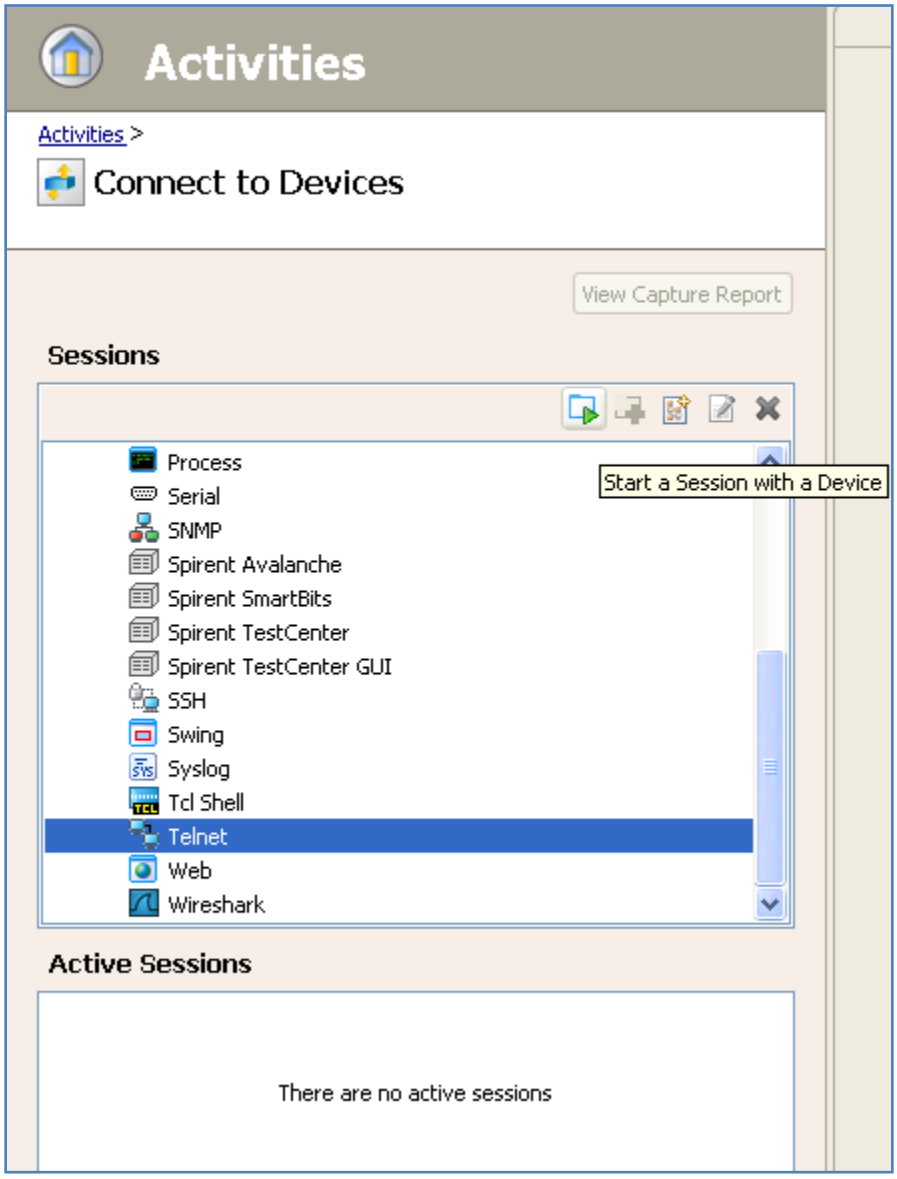
> **Note:** iTest session is like a putty session and much easier and quicker to use if your goal is to just interact with the device.



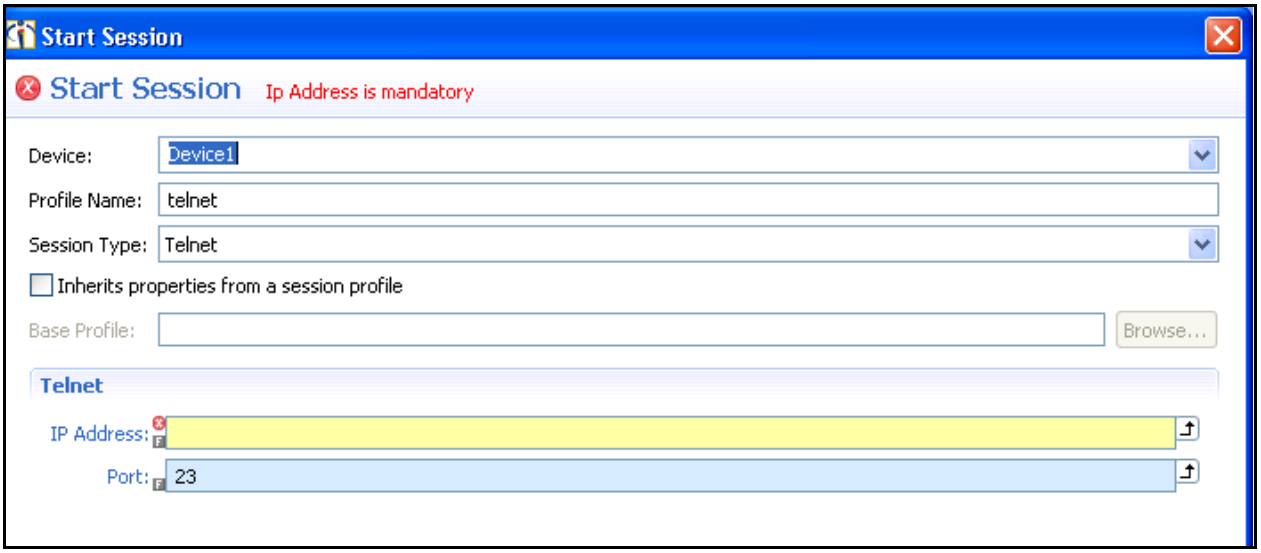
Notice that it will bring the empty editor in the view on the right. On the left side there are two sections the top section holds the sessions of different kinds of session types. The Active Sessions window shows the instances of sessions that are running now. Because there is no active session running, it says There are no active sessions

Note: A session is a collection of configuration settings that enables you to talk to the application or device under test interactively.

2. Double-click the **Telnet** session type or alternatively, you can select it and click **Start a Session with a Device**  .)



3. The Start Session wizard starts.



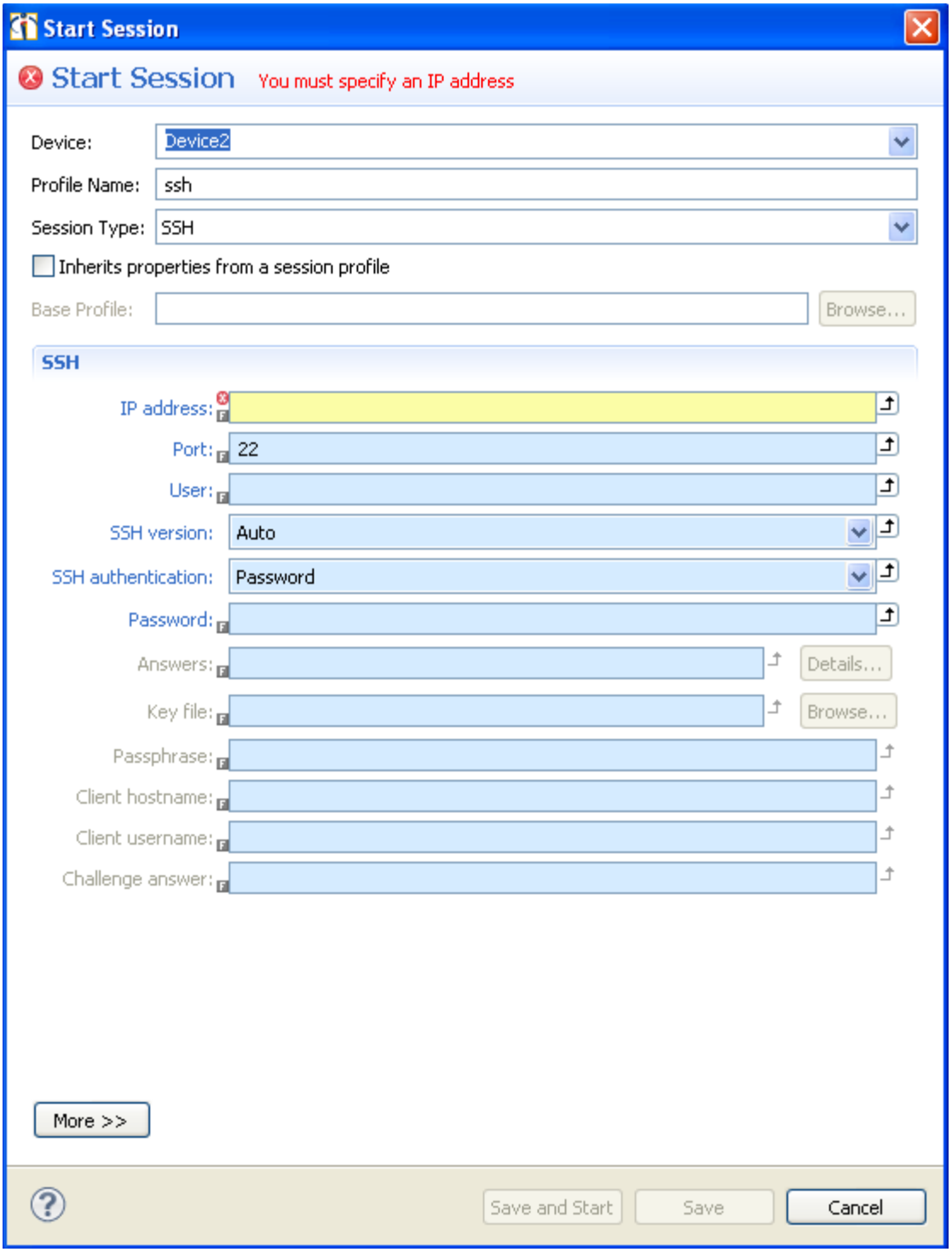
Notice that the text box for the IP Address property is highlighted yellow and a red x denotes that the text in the text box is invalid. iTest displays the validation error message in the title: **IP Address is mandatory**.

iTest performs this "real-time validation" to ensure that the form of all property settings is correct. Yellow highlighting indicates a missing value and the red x indicates an error. To learn what to enter in a property filed, hover the cursor over a field to view an associated tool tip.

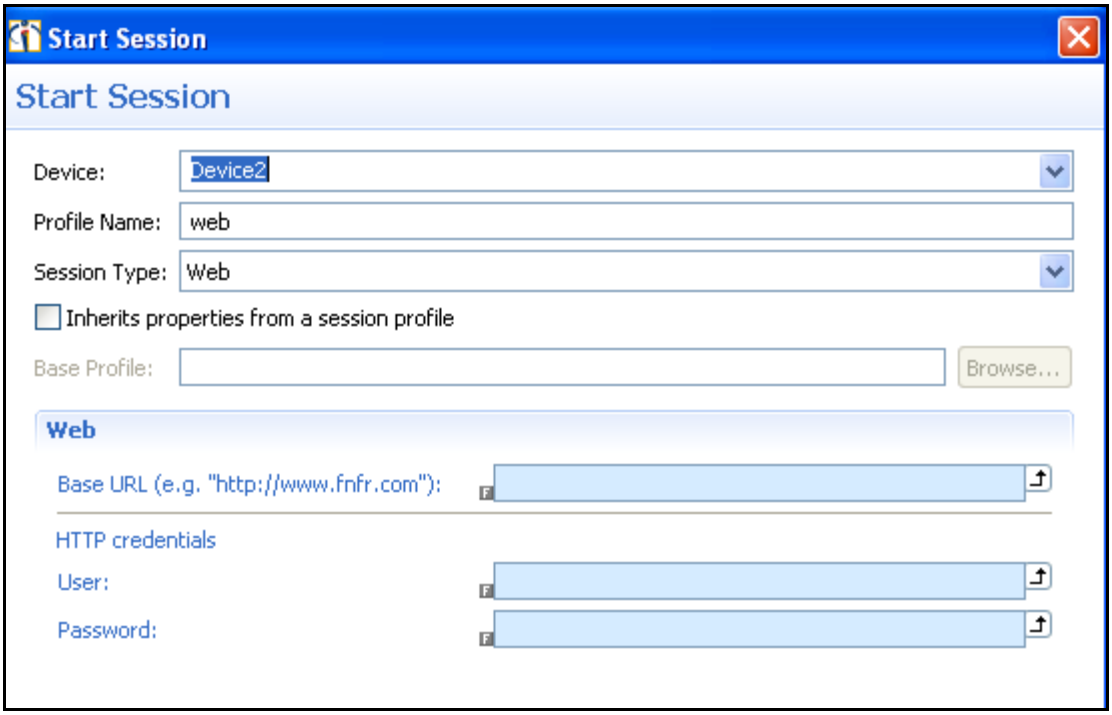
Lets focus first on setting the session properties. In the **Telnet** section, we have **IP Address** and **Port**.(We will discuss the gray box with F on it in a later module. As we mentioned earlier, the red x indicates that IP address is a required field when defining a Telnet session.

Note: The properties that appear at the bottom of the Start Session wizard depend on the type of session you are defining.

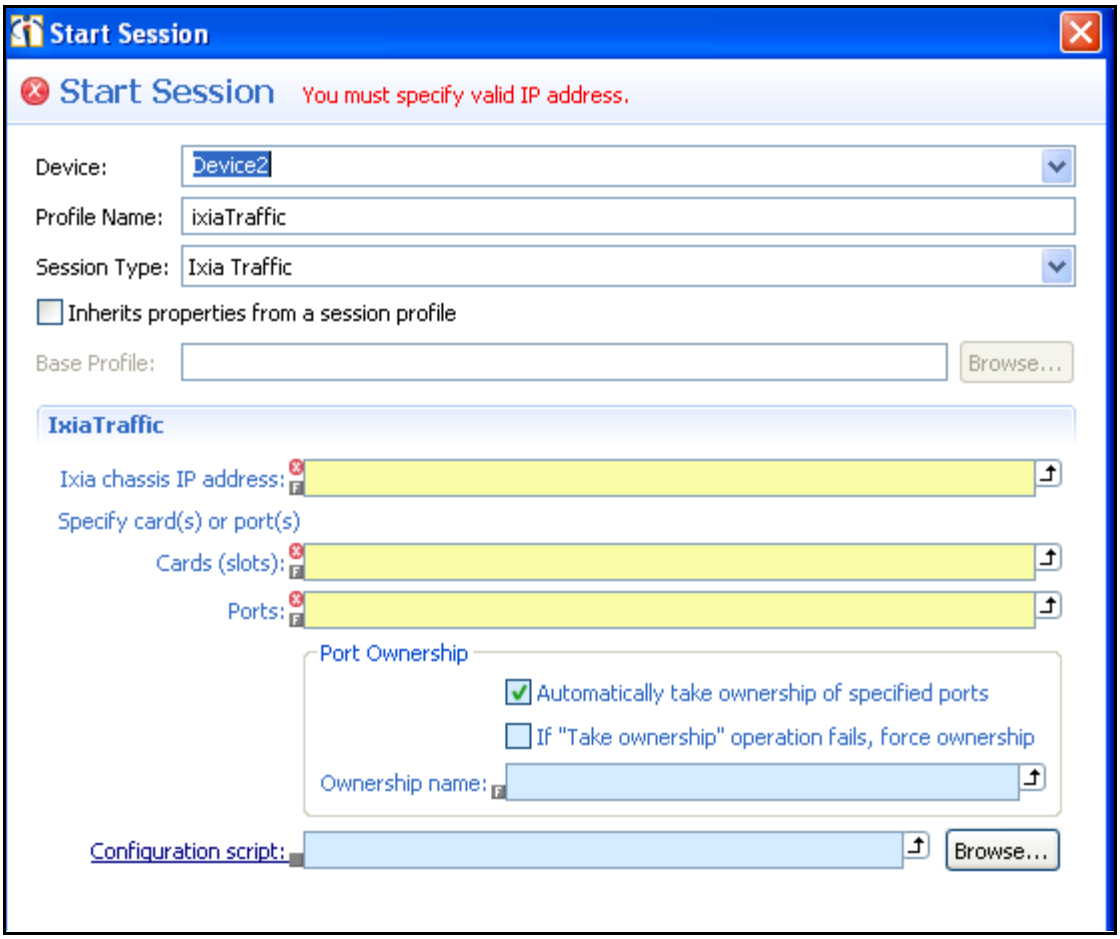
The set of properties depends on the session type you select. For example, If I were to select SSH, there are lot more fields, IP Address is mandatory for this session type, **SSH version**, **authentication, password** and some grayed out fields depending on what kind of authentication you are going to use.



If I select a Web session type, it is looking for **URL of the web page, username** and **password** if necessary.



Finally, if we select a traffic generator session type such as IxTraffic, we need **chassis, cards and ports** and optionally the configuration script.



These are all dynamic fields that depend on the of session type.

Note: About the **Inherit properties from a session profile** checkbox**.** We will talk more about inheritance in session profiles later in this module, but just for your curiosity, you can specify that a session profile should be used as a template of the property settings for use by other session profiles. When you check the box, the profile inherits all property settings from an existing session profile.

Configuring a session

There are two ways to configure a session

- **Inherit all property settings from an existing session profile**—You can inherit the settings from either a reference session profile or any other session profile. This is the most common and the most powerful way to define a session profile.
- **Specify the Session Type** (Telnet, SSH, SNMP, Web, and so on)and then specify the properties of the connection, for example, IP address, port in case of telnet session. It Inherits all property settings from the **default iTest template** for a session type.

In this module, we will configure sessions by inheriting the properties from an existing session profile.

Before we actually configure the session, let's discuss about reference profile. what exactly is the Reference profile? **Reference profile** is the **master session profile**, which contains the **configuration information** that can be used by other session profiles. essentially what you do in your master session profile is store the **prompts**, **completion criteria** and store your **terminators** etc and then you would just base other session profiles off that Master session profile.

We will show you how to create the Reference profile from scratch in the later module but essentially the reference profile is the parent profile you will define everything that is common to the family of devices in the reference profile and then base the other session profiles off of that reference session profile. We will show you how to make the prompts generic when we get to that module. it will be all clear as we move forward.

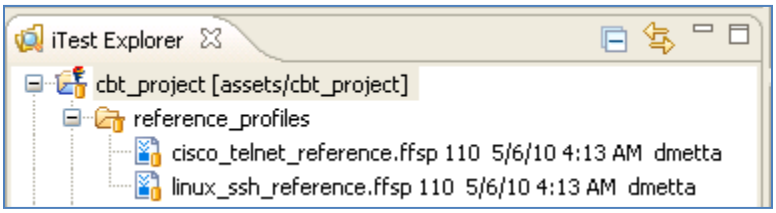
As an example let's look at the SSH session

As you noticed, there are blue boxes. The blue box means that its value has been inherited. If it is white then it means that it has been changed from its inherited stage. in other words, the **SSH** version here is '**Auto**' and blue color is indicating that has been inherited down from the parent. Now you might be wondering why it is the case because we have not created a reference profile yet. Well in this case when we start from scratch and not started with reference profile, this is actually inheriting the settings from the template in the iTest code. in the master profile of iTest code, the SSH version is set to 'Auto'. that is why we get the blue background. The way you change the inheritance of a field is with this arrow:

In this module, we will use the pre-defined reference profile that you had imported in the previous module from the Fanfare SVN repository and saved it under the Reference profile folder in the iTest explorer window.

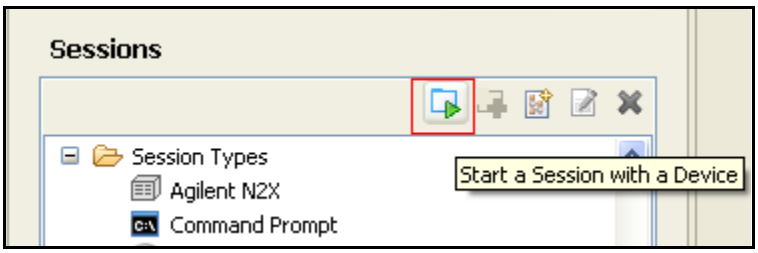
a. cisco_telnet_reference.ffsp

b. linux_SSH_reference.ffsp



TELNET SESSION TYPE

1. Let's start **Telnet Session Type**. Double-click the Session Type in the Session window or highlight the session type and click the **Start** a session with a Device button in the Session Window



2. Let's give the device a name.

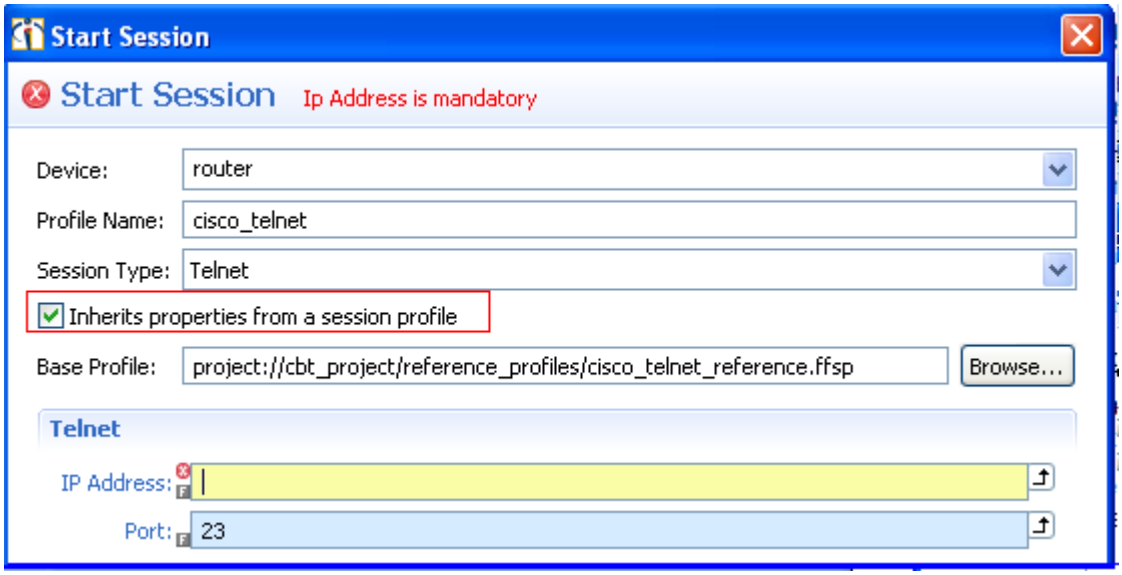
> **Note**: A device is either the actual physical device that you will interact with or an abstract device that will act as a placeholder for various session configurations.

idea here is to give a generic device name we can save different session configurations that can connect to the device. Let's name it **router.**

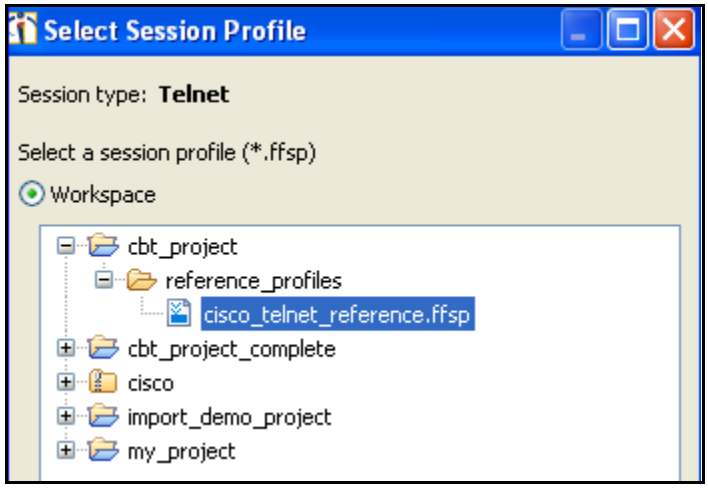
3. Profile name is actually a name of the configuration. profile name serves as the handle to iTest, to know which device to send the command, this is to associate a physical device with the session type. I can leave it blank, as there is no star and iTest will assign a name as telnet (default). But I like something that is more meaningful. I am going to actually put **cisco_telnet.** The reason I want to put cisco_telnet to indicate what kind of session it is. Many devices have multiples session types – the ways to get into that for instance there can be a telnet interface, and GUI Interface to interact to the same device. in this way, at a quick glance, when I go ahead and create my test case, there is a column for profile name, I can quickly tell what kind of session it is. It is not mandatory, just best practice.

4. Session type is set to Telnet as default as we started with Telnet session type.

5. Notice there is a checkbox here that says Inherit properties from a session profile



Check the box and click Browse to tell where you need to inherit the properties from. I can select my 'cbt_project' and select my 'reference_profiles' and now it shows up my cisco_telnet_reference profile.

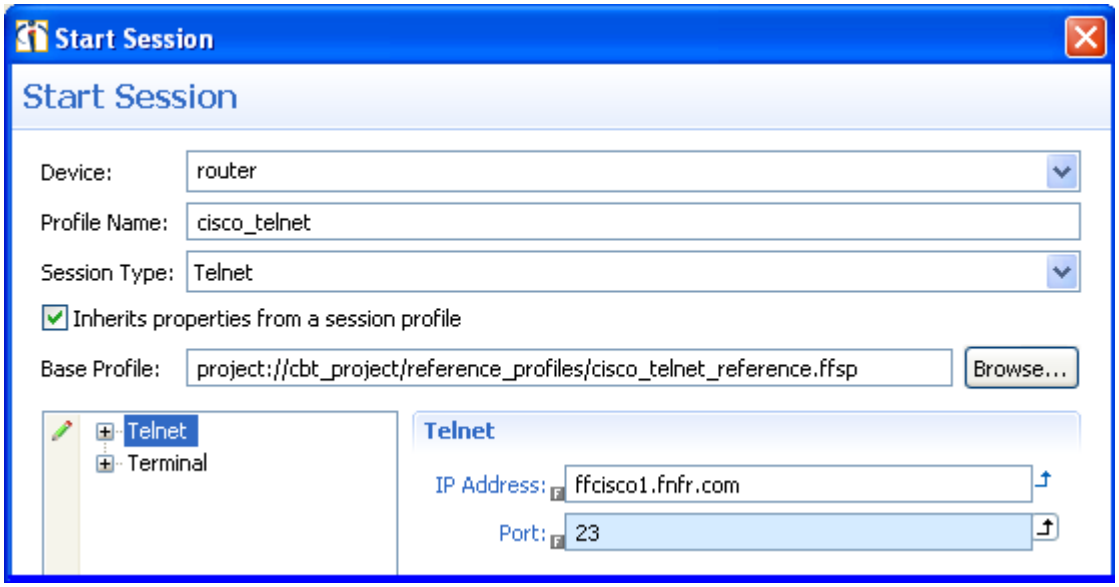


6. Provide the IP address: **ffcisco1.fnfr.com**. This is a Cisco router that we have for demonstration and training purpose. all you would have to do is that when you create a session profile and base that off the master session profile and just enter the IP address.

> **Note:** Please note that a Reference session profile is a template on which you can build other profiles. This is the most common and the most powerful way to define a session configuration. Also make a note of that you can inherit settings fro session profile documents only, not from session configurations defined for devices.

In order to view to the other configuration settings, we need to come down to the lower left corner and click the 'more' button. By default, iTest will show you the most important information in this page initially. In order to drill in to get to other properties, you have to click to this more 'button'. Now this shows the other properties, called the session properties.

Let us collapse these categories.

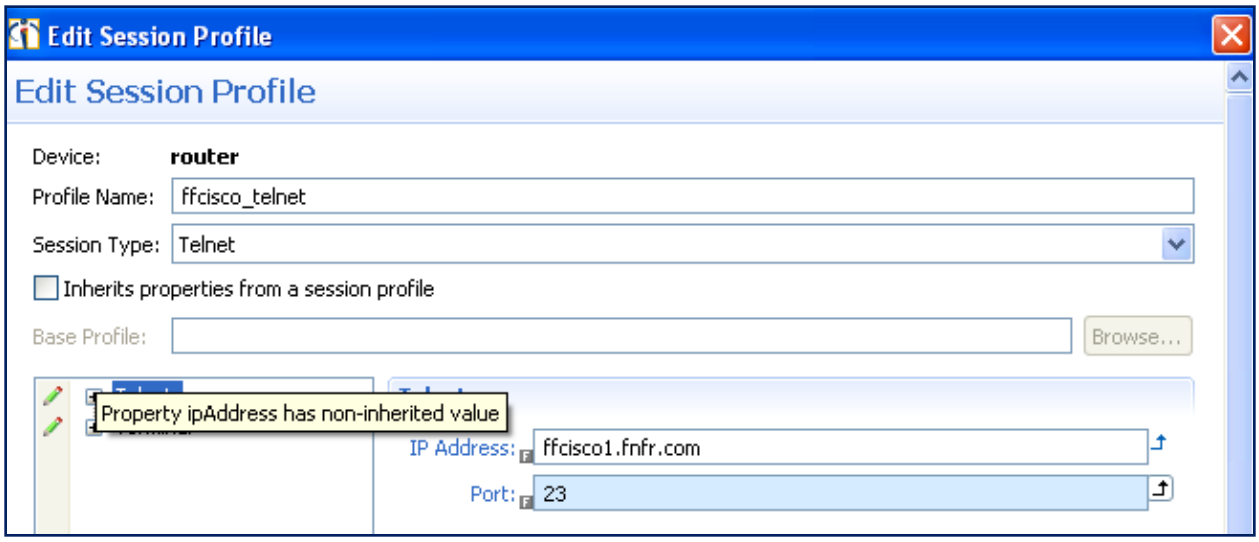


Now we can see there are two different categories here

- **Telnet**
- **Terminal**

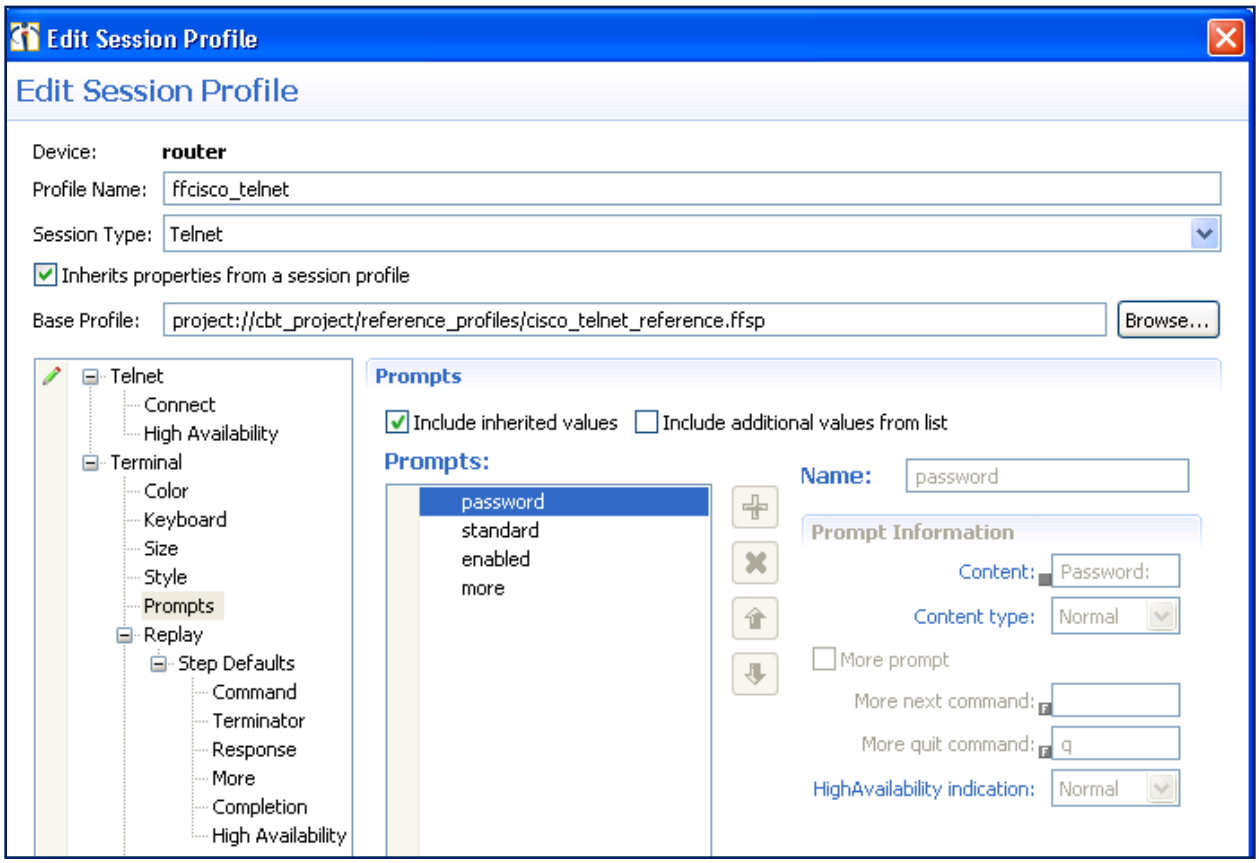
As you notice, here is a pencil icon. This is the first instance we have seen the pencil icons but we will see this a lot as we go through the course. Now what these pencil icons indicates that there is something is different than default in this session. as you can see, The Telnet and Terminal categories has pencil icons.

If I mouse over this pencil icon, it says Property IP Address has non-inherited value



Let me drill down a little bit and click this prompt property,

You will notice that the checkbox Include inherited values is checked and the prompt values are grayed out, meaning that the prompts are being inherited from the base session profile.



Also, you will notice that all the session properties like **completion**, **terminator** are being **inherited from the Reference session profile**. We will talk more about the terminators and completion properties in our advance modules. But essentially, There properties in this Telnet Session are important with regards to replay.

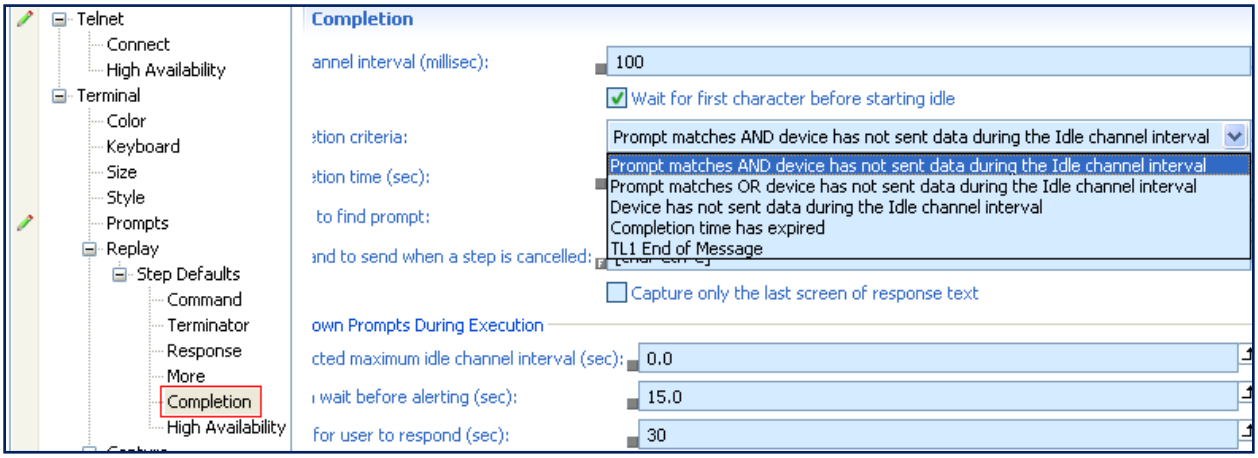
If I scroll down to **Replay** setting, you see there are things called Step Defaults. And again it is the Preview of the Replay coming in the later module. But it's good to be aware of these now.

Let's go to Terminator. The terminator is what iTest will finish every line with after sending a command. By default it is going to send a 'carriage return' and 'a new line'. This is important to be aware of because certain devices may just need the character return. And there might be certain steps or certain commands in your device where you do not need to send anything. The way you handle is that you actually overwrite the terminator in certain steps and we will get to that later when we get to test case files. But now you just are aware of that this terminator property is where you control that.

And I select this drop down menu; you can see that choices are –

1. Character return
2. New Line
3. Default of Character return and new line.
4. None and custom

Another property that is important to make note of is **Completion** Go ahead and click that.



We will talk about this in the replay module. How does iTest know to send the next command? In the other words, when does the previous command complete and when can I send the next command.

The default – if you look at the 'Completion Criteria says Prompt match that means itest has seen the prompt that have been defined and device has not sent the data during the idle channel interval and that is set in the property above (Idle channel interval). What this means is that device **has to be idle for at least 100 ms and iTest has seen a prompt.**

The reason this is important because there is another choice that says Prompt matches OR device has not sent data during the idle channel interval. And that is important because on certain steps, when you start creating test cases, the device might be sitting there waiting for carriage return and not give you a prompt. In that case you have to adjust these completion criteria.

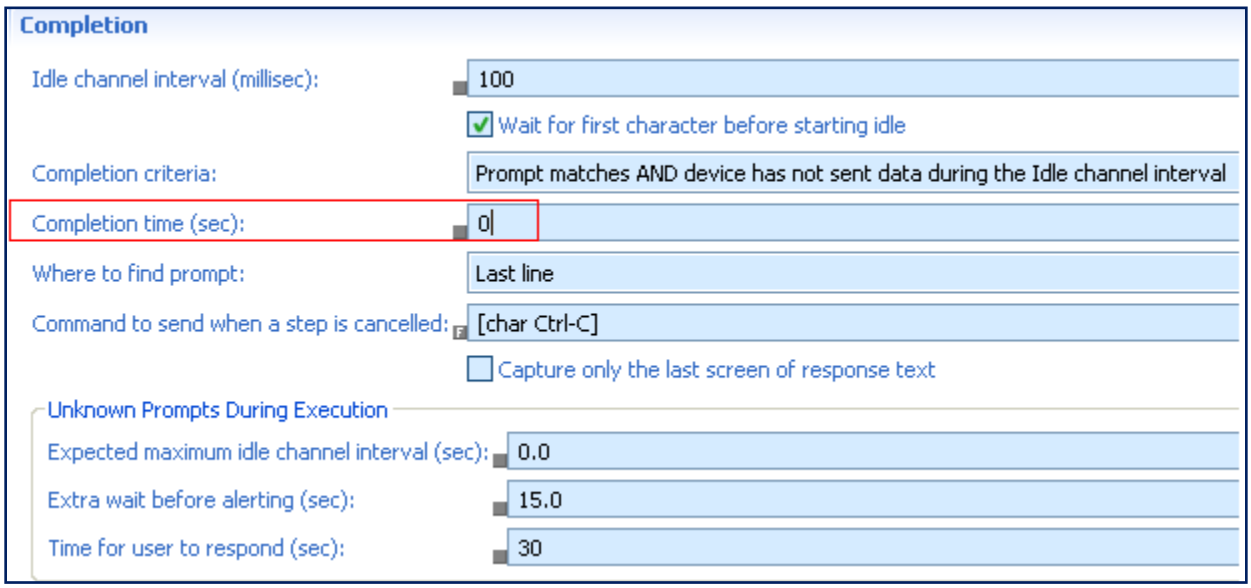
You could also say that the device has not sent data during the idle channel interval. This has nothing to do with prompts and literally just to make sure that device is idle.

Completion time has expired and that is just a gross timing and nothing to do with whether the device is idle or not. It just to wait for x amount of time and send the next command. I would discourage to use this unless it is absolutely necessary.

And finally TL1 End of Message: For anyone who is working with TL1 devices. This is the specific format and we

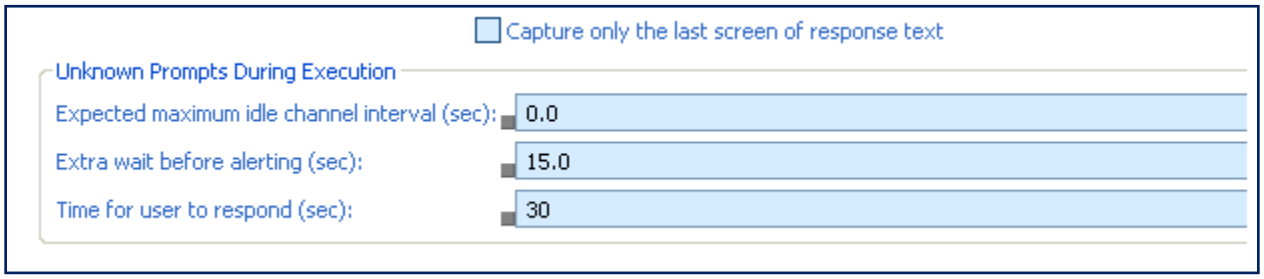
understand the format of those devices.

The completion time property here – this is what corresponds to the Completion time has expired. That how you set the gross timing



And finally, let's see where to find the prompt. By default, it only looks for the prompt at the last line of the response. This is to avoid picking up the false prompt but for whatever reason the prompt is in the middle ot if it is last line with empty line underneath, you can select Last non-empty line or simply Any line

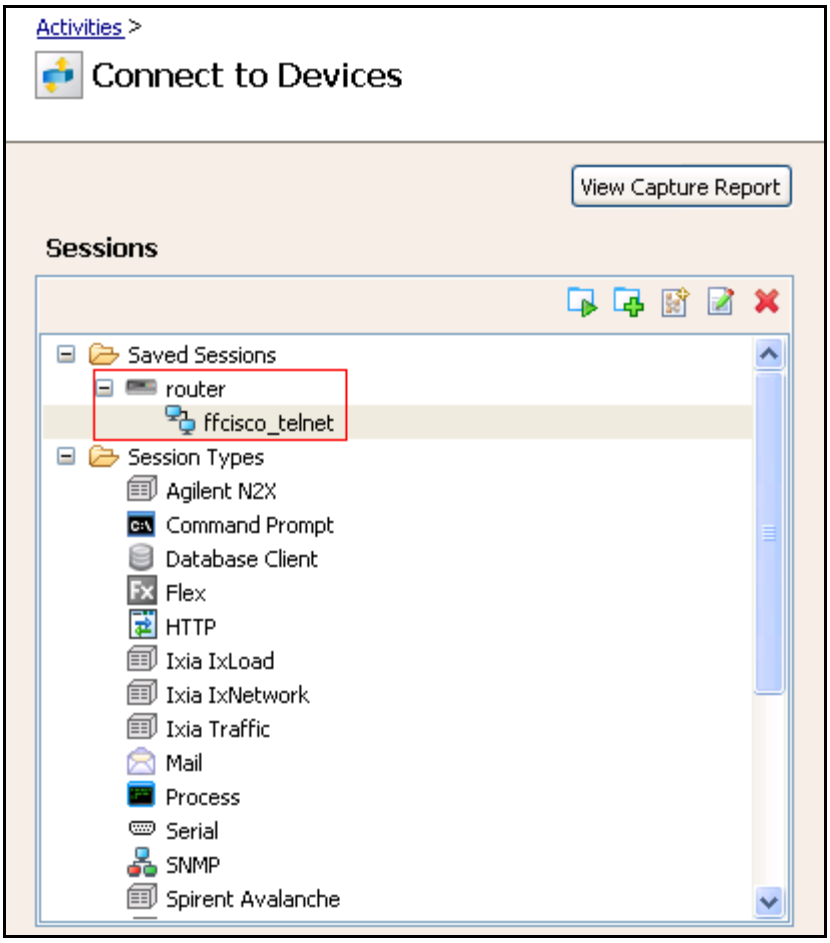
Finally at the very bottom Unknown Prompts During Execution



This is what control how iTest has to behave when it encounters the prompts it has not seen during the execution run. essentially, what will happen is that iTest will wait for 15 seconds and if after 15 seconds it does not recognize the prompt, iTest will pop up the message to ask If you want to learn the prompt or not. at that point you can go ahead and say Learn the Prompt and the test will continue and when the test is finish running, you will be able to add that prompt and edit it to make it more generic. If you have not responded in 30 seconds then test will stop and abort. it is important that you adjust these settings. We will talk about it more when we get into writing the actual test cases.

Once again, the whole purpose of this is to train iTest as to what specific prompts, completion criteria and the terminators are for this device are. We will cover this in the advance training modules.

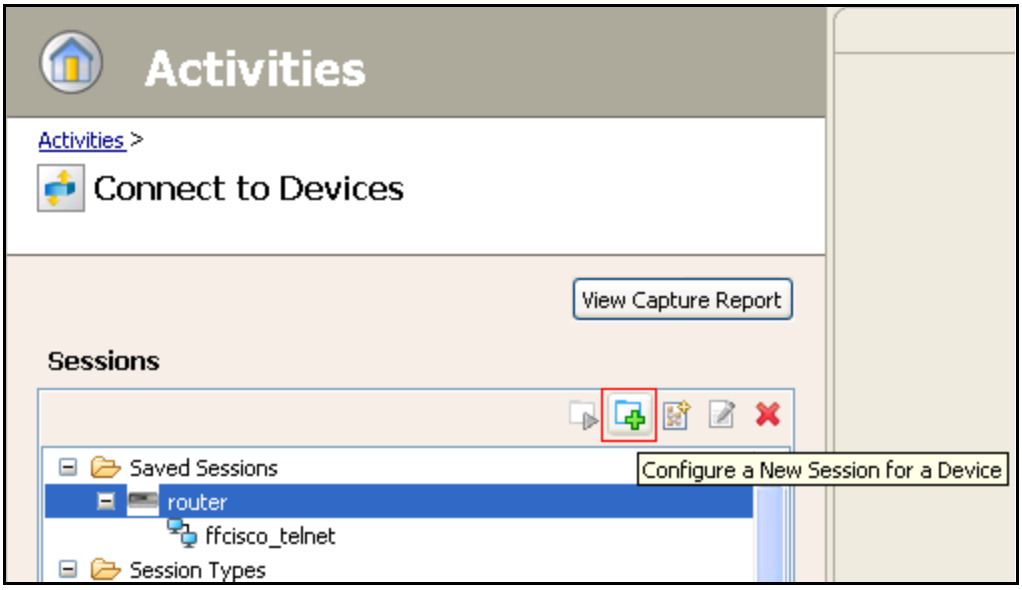
7. Now at this point, I am going to click the save button. As you click save, Notice of a few things on the left side in the Session window.



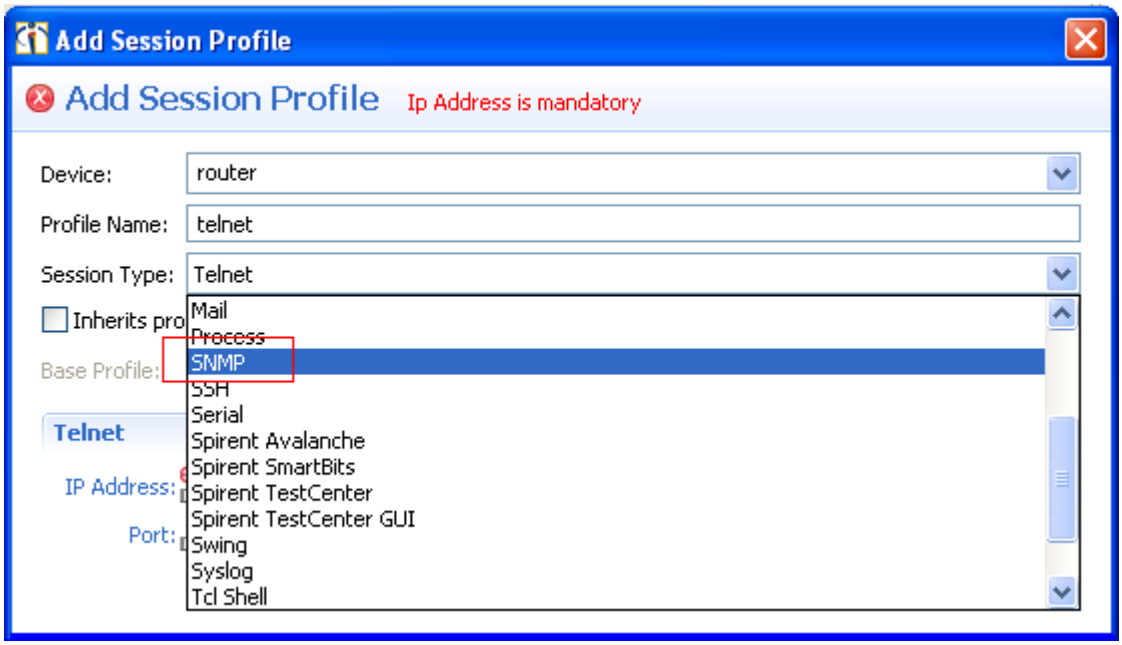
You will notice that a new **Saved Session Group** got created. In this group, you will see the device with device name 'router' that includes the session configuration for session type telnet. now a device 'router' has been associated with session configuration for later use. Now you can add a new session configuration of different session types to connect to the device.

As we mentioned above, many devices have multiples session types – the ways to get into that. For instance there can be a telnet interface, GUI Interface or SNMP session to interact to the same device.

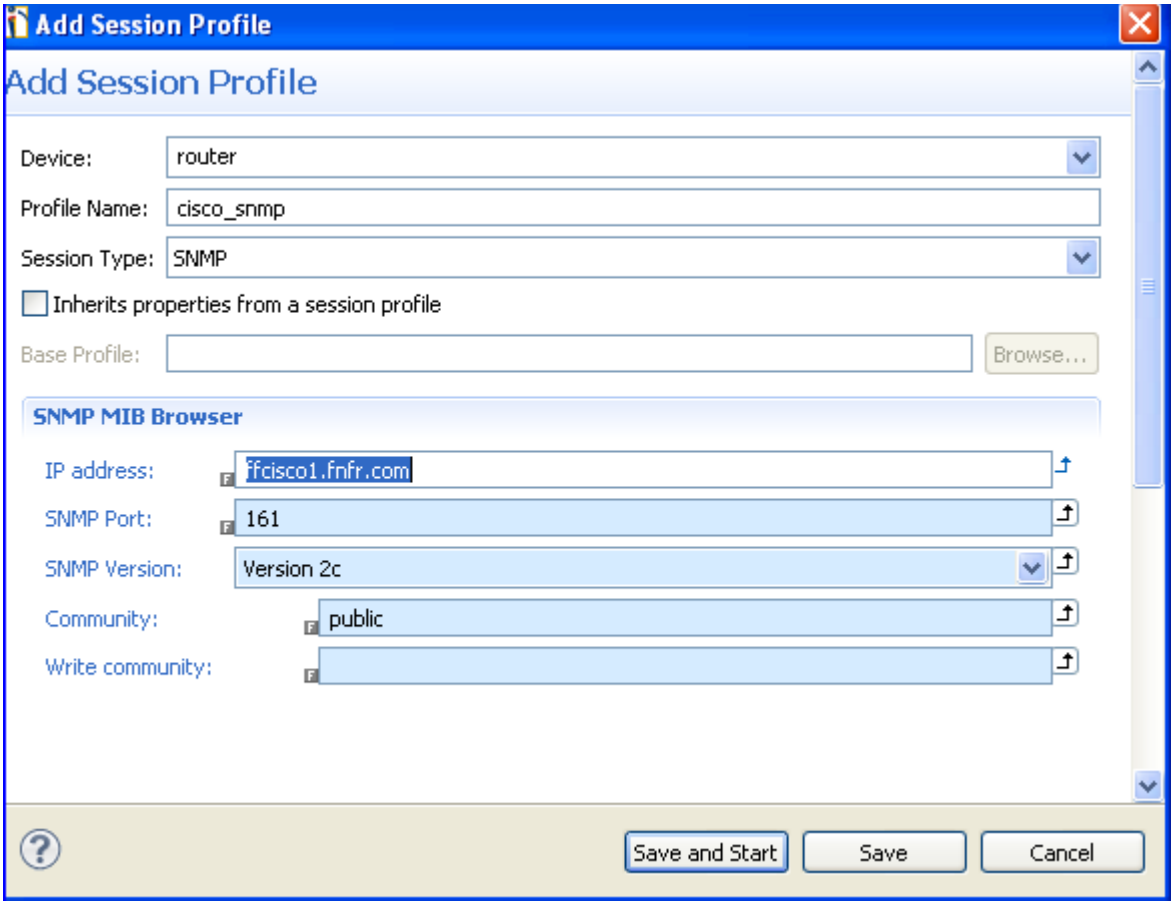
1. To add a new session configuration under the existing 'device' select the device in the **Saved Sessions** group and click **Configure a New Session** . The **Add Session Profile** wizard starts (it looks just like the **Start Session** wizard).



2. Lets select a new session type called SNMP



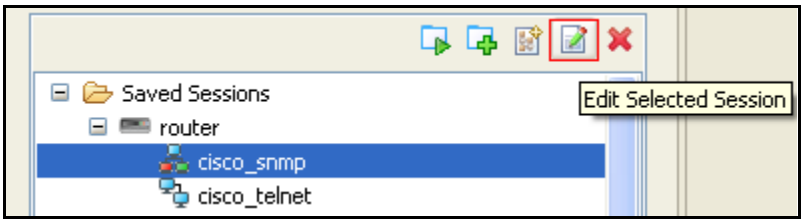
3. Lets provide the Profile name as cisco_snmp and the IP address as ffcisco1.fnfr.com. Leave the SNMP port, SNMP version and Community values to default values



4. Click Save

5. You will notice that the device name ‘router’ now includes the session configuration for session type telnet and SNMP. These are the two session types to connect to the device.

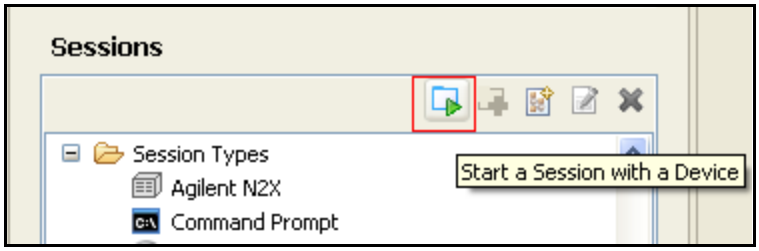
6. To edit an existing session configuration on this page, navigate to the session configuration for a device and select the session, Click Edit.



It opens up the Edit Session Profile Wizard. You can rename and edit session configurations as needed. If you modify a setting, you must save the session configuration before starting the session.

SSH session type

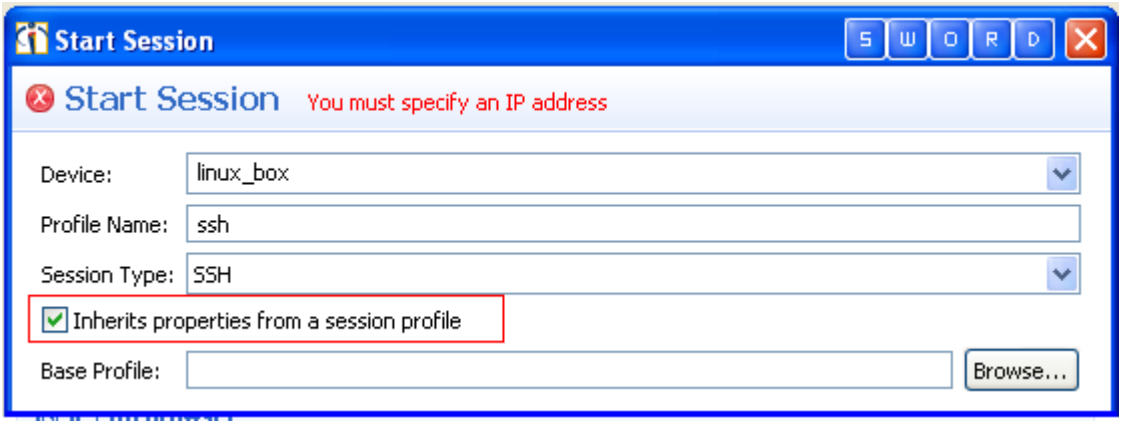
1. Let’s configure another session for SSH session type. Double-click the ‘SSH’ session type or click **Start** a session with a Device button in the Session Window



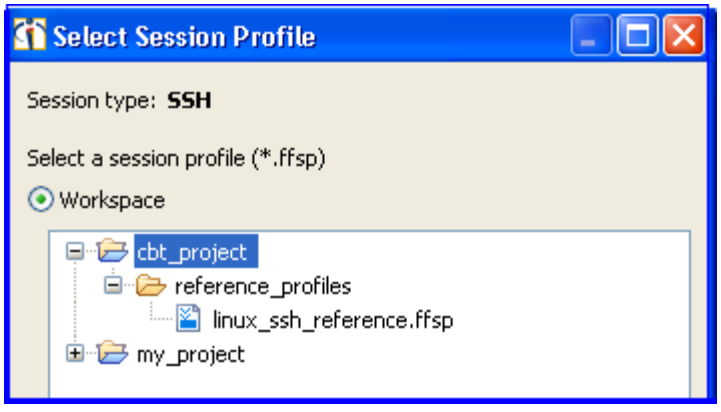
2. Type the device name as **linux_box.**

3. Enter the profile Name as **linux_ssh**

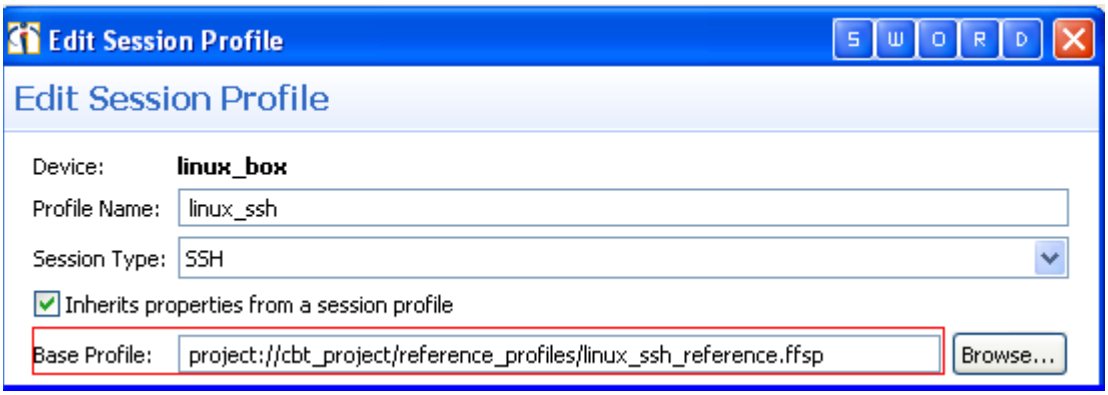
2. Check the box Inherit properties from the session profile and then click Browse to tell where you need to inherit the properties from.



3. Select '**cbt_project'** and select '**reference_profiles'** and now it shows up my linux reference profile.

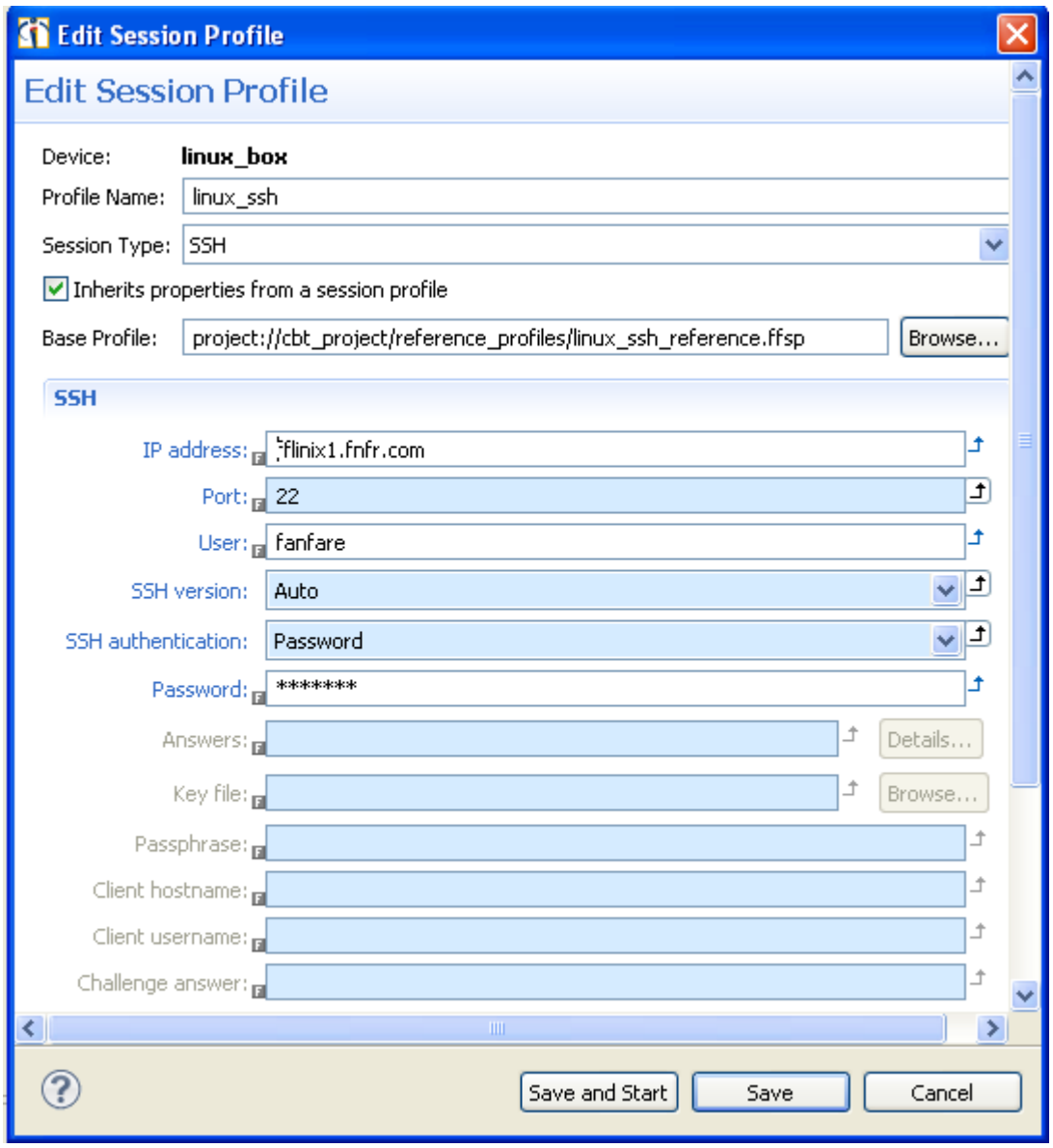


4. Click **OK**. Now you notice the Reference session profile listed here in the Base Profile field.



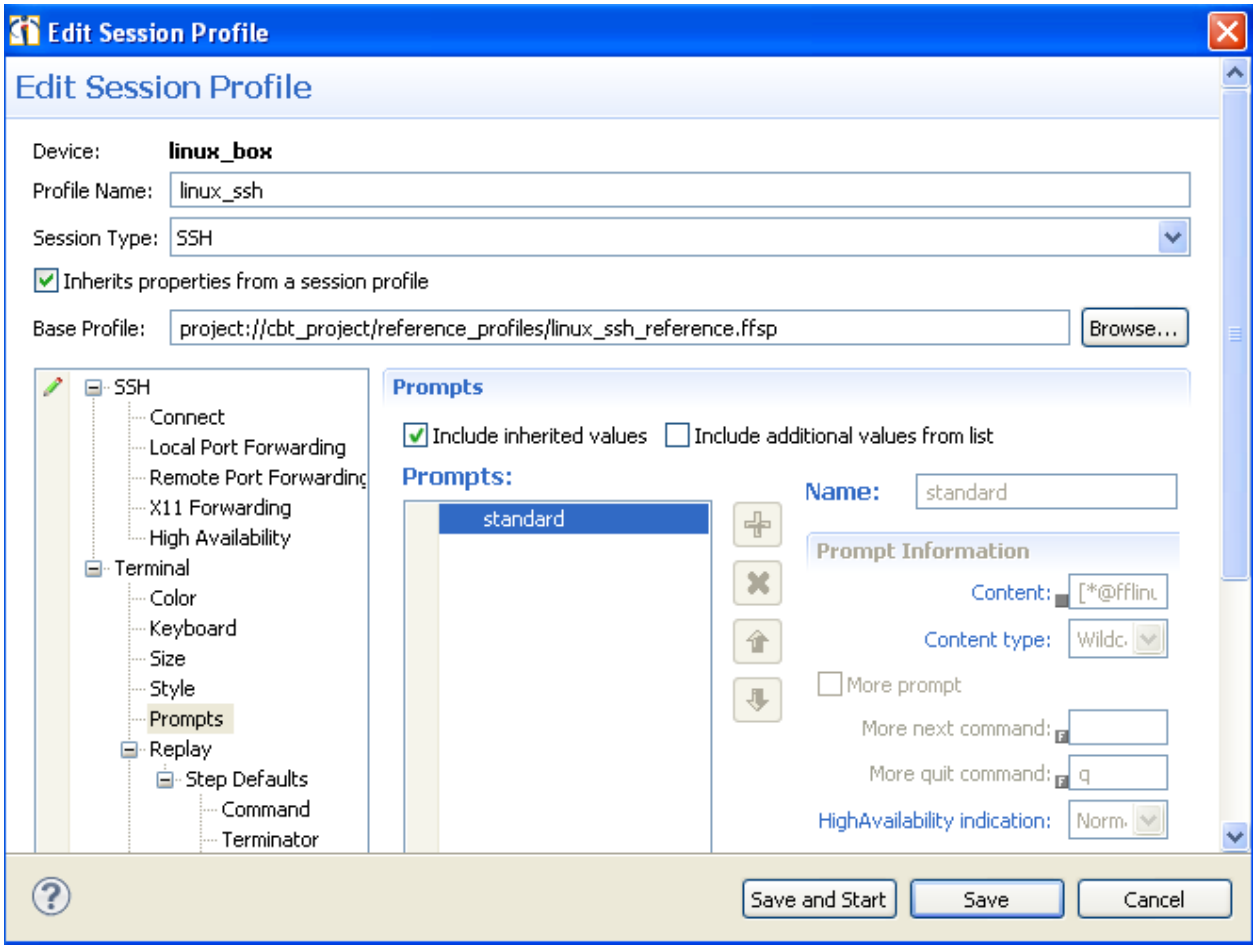
6. Let's enter the IP address as **fflinux1.fnfr.com**

7. User : fanfare, Password : fanfare



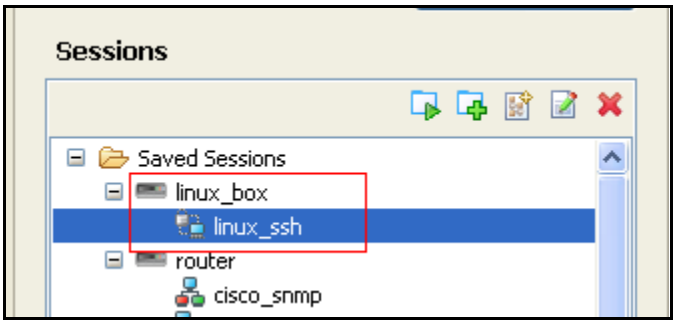
8. Click the 'More' button and take a look at the prompts. There is one prompt being inherited down from the master profile. You will notice that the checkbox Include inherited values is checked out and the prompt values are

grayed out, meaning that the prompts are being inherited from the Reference session profile.



9. Also, you will notice that all the session properties like completion, terminator are being inherited from the Reference session profile.

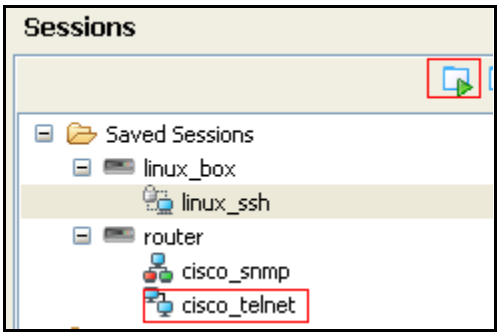
10. Click **Save**. As you click save, you will see the device with device name 'linux_box' that includes the session configuration for session type 'SSH' gets created in the Saved Session Group



Launching a session

Now let's use the session configurations that we just configured to launch a session and then interact with it. There are two ways to launch the session -

- Navigate to the session configuration for a device and Click Start.
- Alternatively, double-click a session configuration to launch a session.

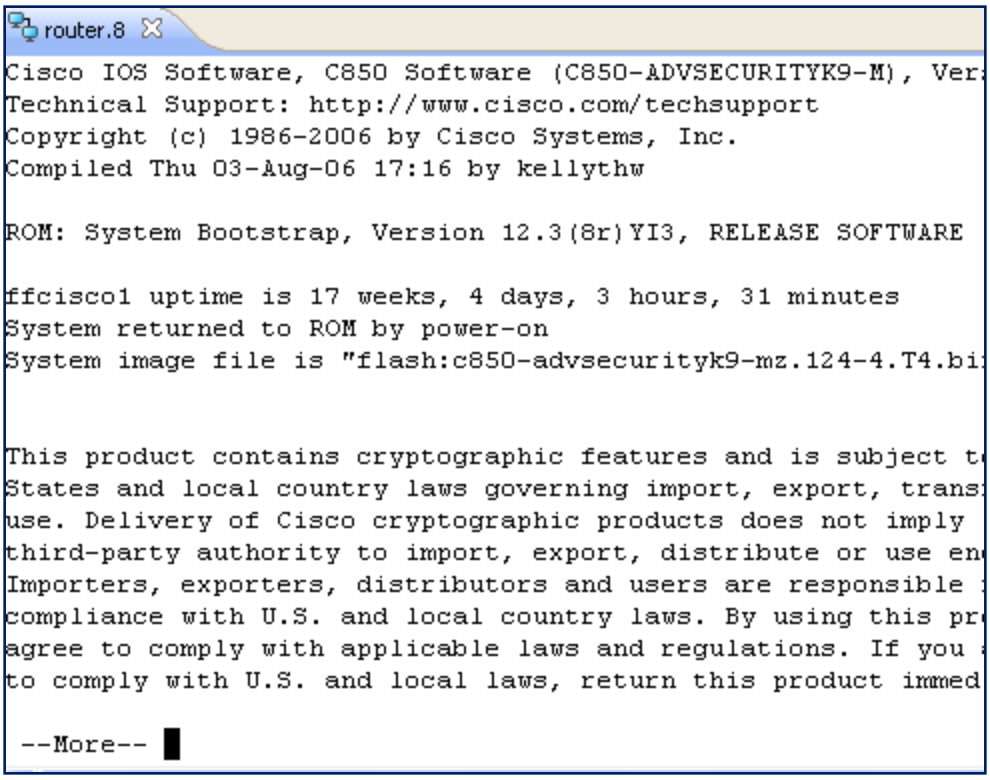


1. Click the session **cisco_telnet**. When you start the session, it uses the information in this session configuration to connect via telnet to ffcisco1.fnfr.com. And what happens is that a telnet session to that device has opened up. this is live on the device right now. The password, if you are following along on this device is just fanfare (all lowercase).

Send the following commands on the session window–

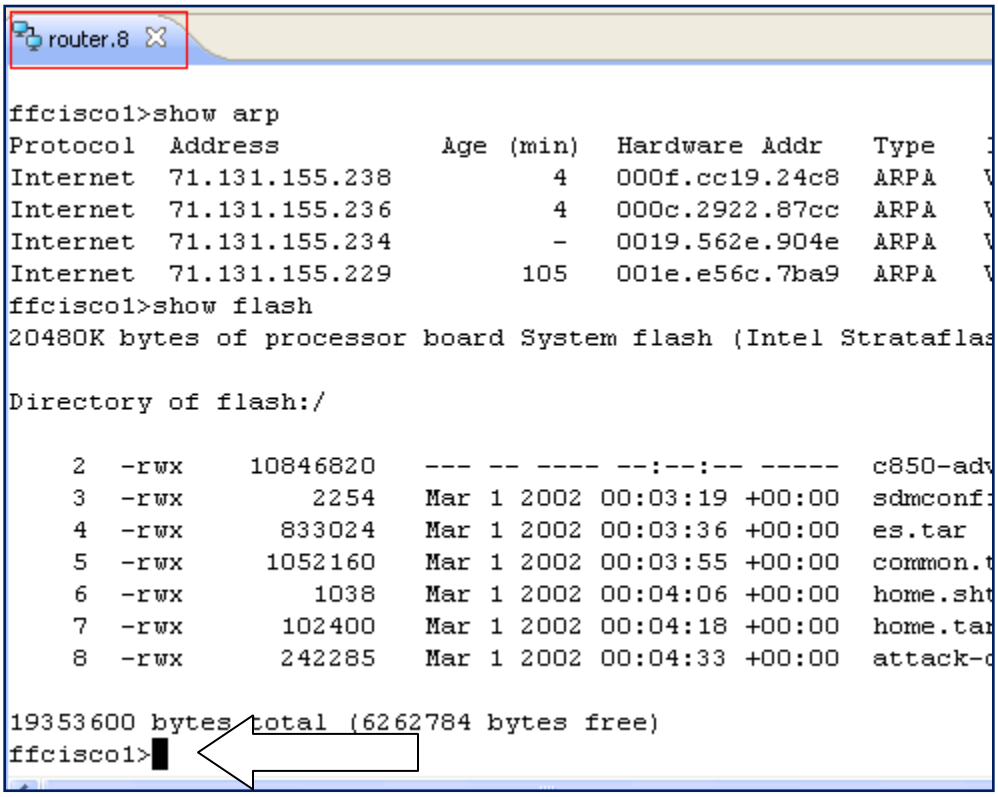
1. **show version**
2. **show arp**
3. **show flash.**

As you can see I am now in the Telnet shell to the device I can execute the '**show version'** command. And notice here that I got the more prompt as it flows off the edge of the screen I hit 'space bar' to continue.



And I can do a couple of other show commands like '**show arp'** to take a look at the arp table.

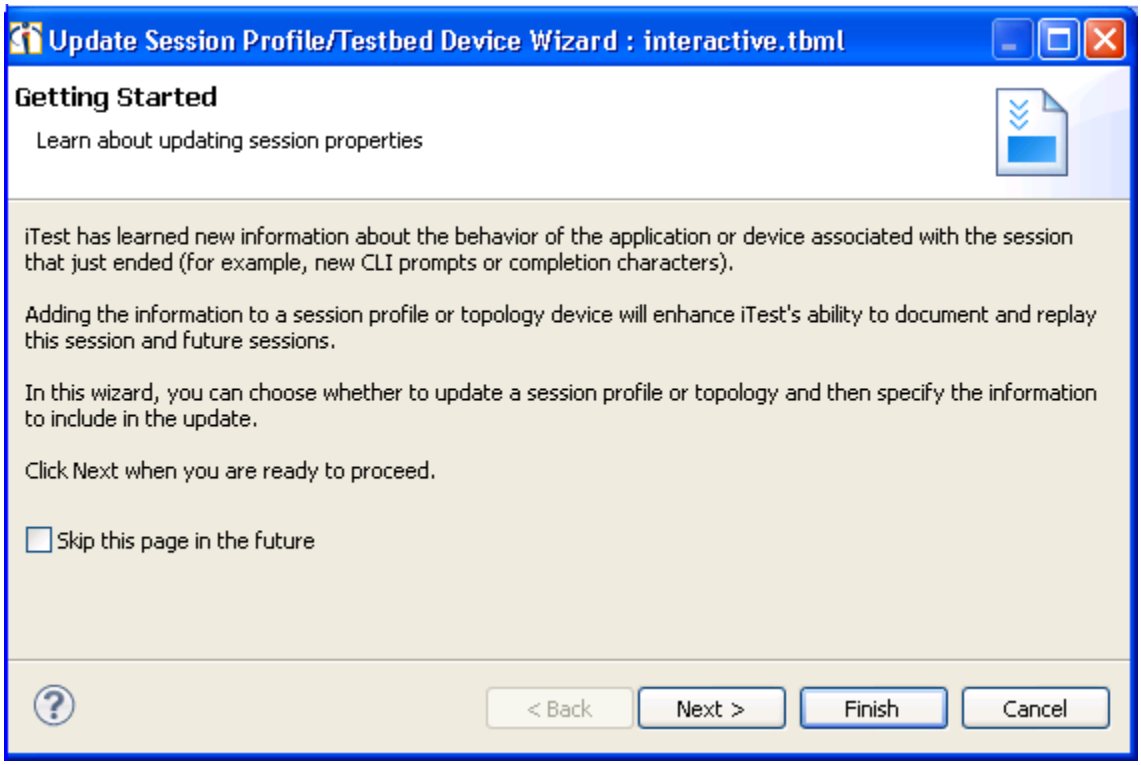
And if you are not familiar with router and switches, you can type anything here. But idea is just to prove that we are connecting to a device and we are entering commands when we see this ffcisco prompt.



Finally I do **show flash**. These are just a couple of commands I entered to a telnet device, in this case, it happens to be a router. At this point, go ahead click the X to close the session.

> **Note: As we mentioned earlier, you are inheriting the session properties like prompts, terminators or completion rules from the base session profile, so your session is already aware of all the settings that are required to complete the command during the interactive session.**

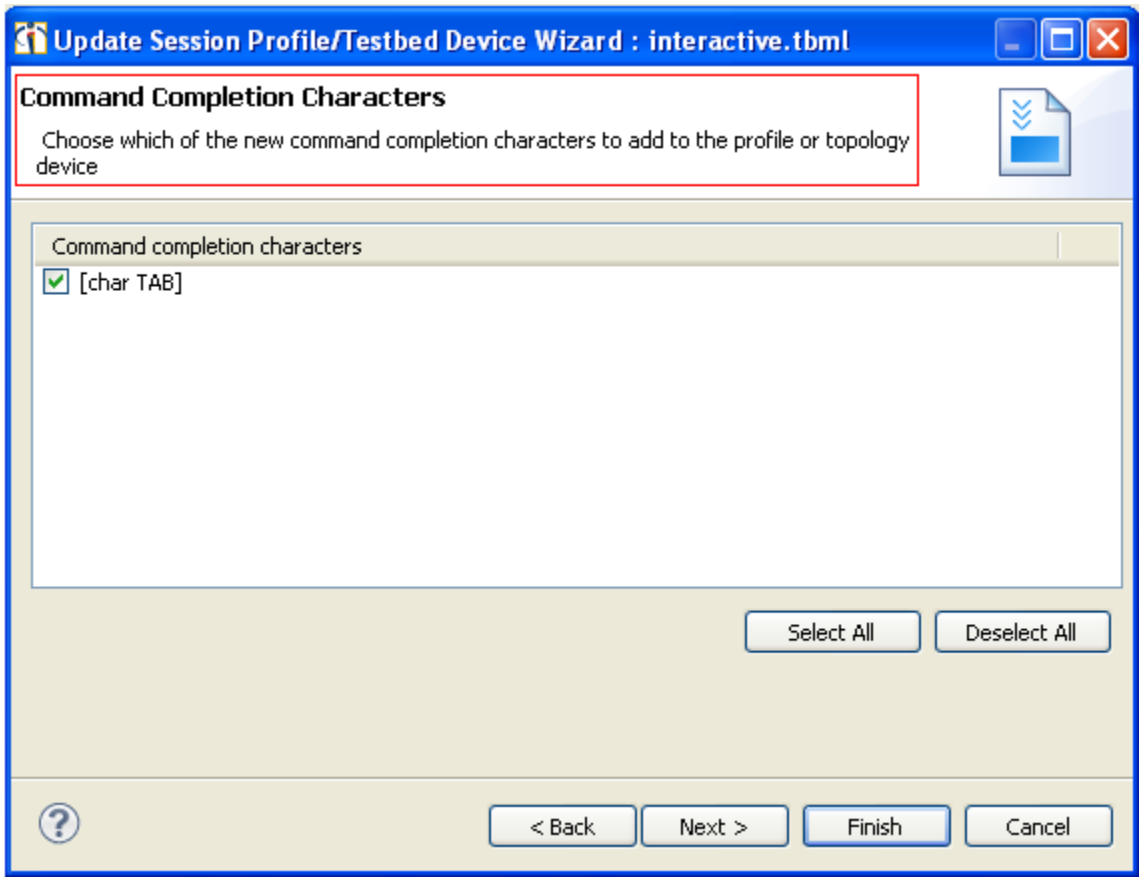
If for some reason the prompt changes on the device or its finds a new prompt that has never been defined in the in the base profile then after you close the interactive session, here is the screen that will pop up. Click 'Next' and the system will walk you through some wizards and let you add the new session properties in the base session profile.



Just to give you a quick demo on how the new property gets added into the base session profile, let's start this session again.

1. Start the Cisco_telnet session
2. Enter password: fanfare
3. Type 'sh' and then hit 'tab' —this will complete to 'show'
4. Complete the command as show version on the next line
5. Now close the session. Notice I get this wizard
6. Click 'Next'. We did not find new prompts but notice that it picked off that completion character.

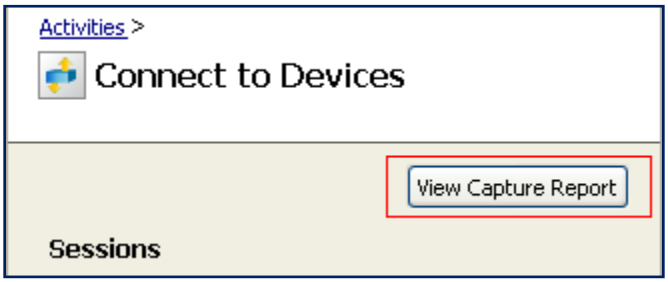
7. Now if I had done Ctl+C, I would have gotten the same thing here. (Click Next and Finish)



Note: So the iTest session wizard will only open when new property prompts, completion characters etc are encountered by iTest. So you do not see that every time. However if you do see them after interacting with the session, that will be the clue that something has been changed.

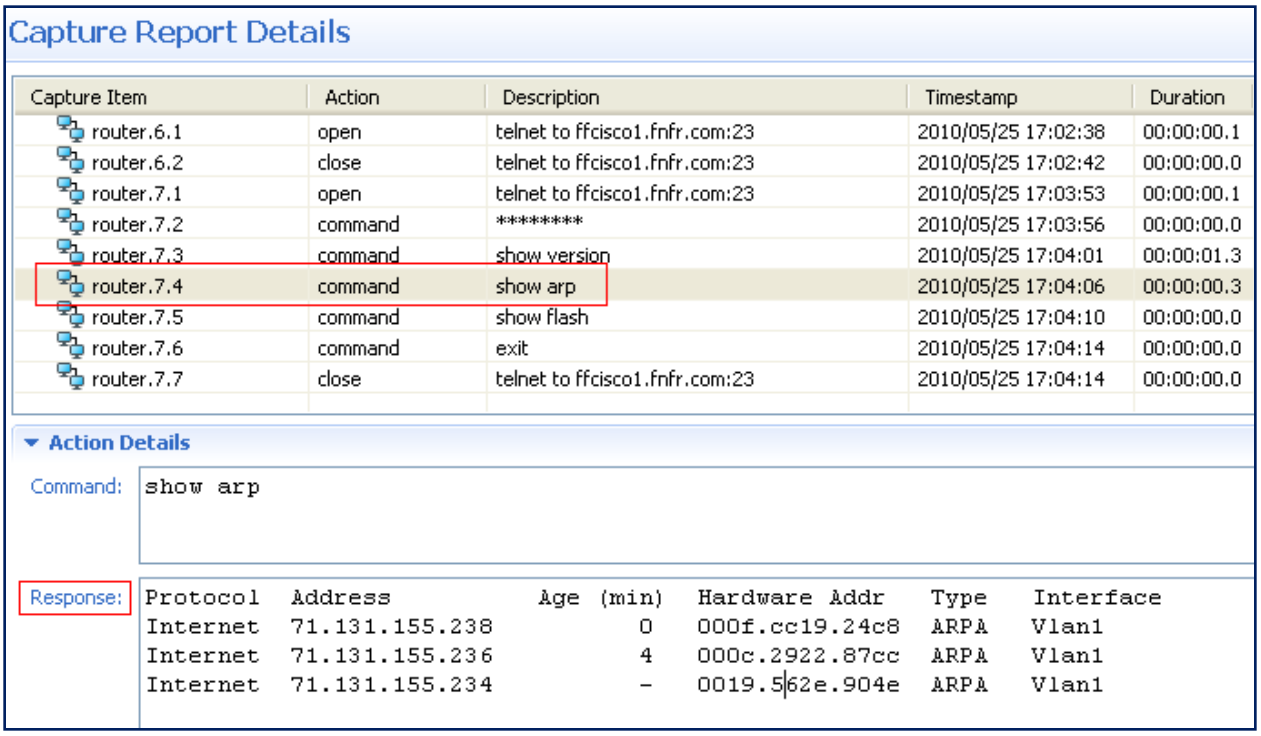
Viewing a capture report

To view the results and Capture Report, click View Capture Report



It will bring up the Capture View Details page.

Click the action item and you can see the response in the Response window.



Setting the session related preferences

To view or edit preferences, click Window > Preferences and then click iTest > Activities

Here are these two important session related preferences -

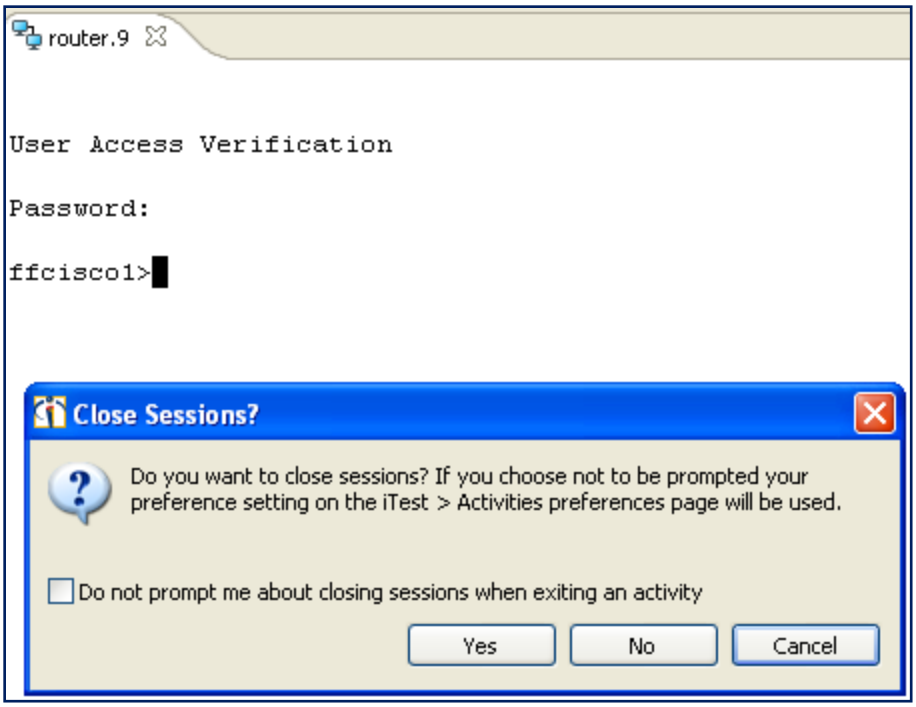
1. **Close sessions when exiting an activity**: When you navigate away from an activity page (like Connect to Devices or Build a Topology), iTest exits all sessions and closes all active session windows by default.

Default: checked

2. Do **not prompt me about closing sessions when exiting an activity**: When you navigate away from an activity page (**like Connect to Devices**), a dialog box notifies you that iTest will exit all sessions and close all active session windows by default.

Check the box to not display the dialog box as shown below.

Default: unchecked



Lab

Start the interactive sessions to connect to the available Cisco device. Execute the following CLI commands and see the capture reports -

- show ip int brief
- show ip int Vlan1
- show ip traffic