

IBM WebSphere Application Server Communications Enabled Applications

Setup guide

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What this exercise is about

The objective of this lab is to walk through the setup process for the Communications Enabled Applications (CEA) feature of WebSphere Application Server. You will first install the sample IP-PBX (recommended for test purposes only) included in the CEA samples package that you can download from the WebSphere Application Server Samples site,

http://www14.software.ibm.com/webapp/wsbroker/redirect?version=matt&product=was-nd-mp&topic=welcome_samples

Then you will install and configure two different third-party (non-IBM) soft phones (recommended for test purposes only).

This lab is provided **AS-IS**, with no formal IBM support.

Lab requirements

This lab requires you to have a machine that has a microphone, speakers and to have the following software required to complete the lab:

- WebSphere Application Server Version 8.0

What you should be able to do

At the end of this lab you should be able to complete the following tasks:

- Set up the Communications Enabled Applications (CEA) feature and other third-party products required to explore the capabilities of the feature.

Introduction

The CEA feature enables your organization to easily and rapidly add dynamic web communications to any application or business process.

CEA is a suite of integrated telephony and collaborative web assets that extend the interactivity of enterprise and web commerce applications. It allows enterprise solution architects and developers to use a single core application to enable multiple modes of communication. With a short ramp to implementation, enterprise developers do not need to have extensive knowledge of telephony or SIP. The communications enabled application delivers call control, notifications, and interactivity and provides the platform for more complex communications.

Using this simplified programming model for adding web-based communications, enterprise developers can do the following:

- Enable any application to quickly add communications support (click-to-call integration)
- Enable shared sessions between users and the company
- Push relevant session data (for example, customer telephone number) for application use
- Deliver automated notifications and instant messaging support
- Provide enterprise-grade security, scalability, and high availability
- Integrate with a private branch exchange (PBX)

The CEA feature also supports the JSR 289 SIP Servlet 1.1 specification. JSR 289 introduces several enhancements to SIP servlets:

- Application routing which provides a mechanism for removing application composition logic from applications and simplifying integration of application components.
- Annotations which speed up SIP servlet application development and reduce the need for deployment descriptors.
- Other API changes, like improved support for converged applications and the B2buaHelper class, which also simplify application development.

In this lab, you will install the sample IP private branch exchange (PBX) application that is included in the CEA samples package that you can download from the WebSphere Application Server Samples site, http://www14.software.ibm.com/webapp/wsbroker/redirect?version=matt&product=was-nd-mp&topic=welcome_samples

The sample IP-PBX is in the form of an enterprise application archive (EAR) file and is for test purposes only. An IP-PBX is a business telephone system designed to deliver voice over a data network and interoperate with the Public Switched Telephone Network (PSTN). Then you will install two softphones that are needed to test out communications enabled applications. A softphone works like a telephone to let you make calls through your computer, using Voice over IP. You can call anyone by way of the internet who has installed it (or any other SIP softphone). For test purposes only you will install everything on one system and on one WebSphere Application Server profile.

Exercise instructions

This lab is Windows® operating-system specific. If you plan on running the lab on an operating-system other than Windows, you will need to run the appropriate commands and use appropriate files (.sh or .bat) for your operating system. This lab requires the installation of WebSphere Application Server Version 8.0.0.0. For test purposes it is suggested that your WebSphere Application Server is set up to use the default profile with the default settings and security does not need to be enabled.

The following table is related to what your environment should look like:

Reference variable	Example: Windows locations	Example: Linux locations	Input your values
<SERVER_NAME>	server1	Server1	
<WAS_HOME>	C:\Program Files\IBM\WebSphere\AppServer	/opt/IBM/WebSphere/AppServer	
<HOSTNAME>	localhost	localhost	
<BOOTSTRAP_PORT>	2809	2809	
<SIP_DEFAULTHOST>	5060	5060	
<PROFILE_NAME>	AppSrv01	AppSrv01	

Part 1: Verify installation of WebSphere Application Server

In this section of the lab you will verify that you have WebSphere Application Server Version 8.0.0.0 installed and that your application server profile is configured with the default port numbers.

___ 1. Change to the <WAS_HOME>\bin directory.

___ a. Windows example:

```
cd C:\Program Files\IBM\WebSphere\AppServer\bin
```

___ b. Linux example:

```
cd /opt/IBM/WebSphere/AppServer/bin
```

___ 2. Run the **versionInfo** command.

___ a. Windows example:

```
versionInfo.bat
```

___ b. Linux example:

```
./versionInfo.sh
```

___ 3. Verify the output includes WebSphere Application Server V8.0.0.0.

___ 4. If you already have an application server profile created, verify that it is configured to use the default ports. If you do not have an application server profile, create one now using the Profile Management Tool or the `manageprofiles` command.

___ 5. Follow the procedures outlined below to verify several key port numbers. If your profile is not configured to use the default port numbers, be sure note the values, as they will be required during various parts of the lab. (It is strongly recommended that you use the default port numbers.)

___ a. You can look at your `serverindex.xml` file to find this information (DO NOT EDIT THIS FILE). One of the locations of the **serverindex.xml** file is listed below.

1) Windows:

```
<WAS_HOME>\profiles\<yourprofile>\config\cells\<yourcell>\nodes
\<yournode>
```

2) Linux:

```
<WAS_HOME>/profiles/<yourprofile>/config/cells/<yourcell>/nodes
/<yournode>
```

___ b. The default port numbers are listed below. If yours are different, be sure to note the values.

```
<specialEndpoints xmi:id="NamedEndPoint_1183122129646"
endPointName="WC_adminhost">
<endPoint xmi:id="EndPoint_1183122129646" host="*" port="9060"/>
</specialEndpoints>
```

```
<specialEndpoints xmi:id="NamedEndPoint_1183122129647"
endPointName="WC_defaulthost">
<endPoint xmi:id="EndPoint_1183122129647" host="*" port="9080"/>
</specialEndpoints>
```

```
<specialEndpoints xmi:id="NamedEndPoint_1183122129651"  
endPointName="SIP_DEFAULTHOST">  
<endPoint xmi:id="EndPoint_1183122129651" host="*" port="5060"/>  
</specialEndpoints>
```

```
<specialEndpoints xmi:id="NamedEndPoint_1183122129652"  
endPointName="SIP_DEFAULTHOST_SECURE">  
<endPoint xmi:id="EndPoint_1183122129652" host="*" port="5061"/>  
</specialEndpoints>
```

Part 2: Configuration steps

You can change the Communications Enabled Application (CEA) settings through the administrative console. You can enable/disable the commsrv application, set the context root, virtual host, and max hold time for the REST interface. Finally, you can set the host name, port, protocol, super username of the CTI Gateway, and set if you are using a third-party web services provider for telephony access.

___ 1. Start your WebSphere Application Server.

___ a. Log into the administrative console by navigating to <http://localhost:9060/ibm/console> in a web browser.

Note: If the default administrative port is not 9060 for your application server profile, the URL above should include the port number for your installation.

___ b. Select **Servers > Server Types > WebSphere application servers**.

___ c. Select your **server** link.

___ d. On the right side under **Communications** select **Communications Enabled Applications (CEA)**.

General Properties

Communications Enabled Applications services

Enable communications service

REST interface

* Context root
/commsvc.rest

* Virtual host
default_host

* Maximum hold time
30 seconds

Telephony access method

Use SIP CTI (ECMA TR/87) gateway for telephony access

* Host name or IP address
localhost

* Port
5060

* Protocol
TCP

Extract user name from request

Superuser name
ceouser

Use a third-party Web services provider for telephony access

Third-party Web services provider's WSDL

Apply OK Reset Cancel

1) Use the **Enable communications service** option to either enable or disable CEA services for this server; disabling this field will prevent the service from starting and save system resources.

- a) By default communication services is not enabled. **Check** next to the **Enable communications service** option to enable the communication services.

Communications Enabled Applications services

Enable communications service

- 2) Configure the **context root** for the REST interface; this setting will impact the URLs that you use to access communication services.
- 3) The **virtual host** field specifies the name of the virtual host to which the REST interface is mapped.
- 4) The **maximum hold time** field specifies the time in seconds that the REST interface will wait for new or changed data or status before timing out.
- 5) Use the **host name** field to provide the fully-qualified host name or IP address of the SIP CTI gateway to which the CEA services connect. The default value is **localhost**.
- 6) The **port** field specifies the port number of the SIP CTI gateway for connection communication services. The default value is **5060**. **Note:** If you are not using the default port then enter your port number here. For example if your port is 5065, then change the port from 5060 to 5065, as shown in the illustration.

Telephony access method

Use SIP CTI (ECMA TR/87) gateway for telephony access

* Host name or IP address
localhost

* Port
5065

* Protocol
TCP

Extract user name from request

Superuser name
ceauser

Use a third-party Web services provider for telephony access

Third-party Web services provider's WSDL

- 7) Use the **protocol** field to specify the protocol to use when connecting to the SIP CTI gateway, the default is **TCP**.
- 8) The **superuser** name field specifies the name that is used when opening a new session to the gateway. The default value is **ceauser**.
- 9) The **Use a third-party Web services provider for telephony access** lets you supply the third-party web services provider's WSDL if you are using a third-party web service provider.

- ___ e. If you are using the default values and ports then you will only need to enable communication services.
- ___ f. Click **OK** and then **Save** to save your configuration.
- ___ g. **Restart** the server.

Part 3: Installing the IP-PBX sample

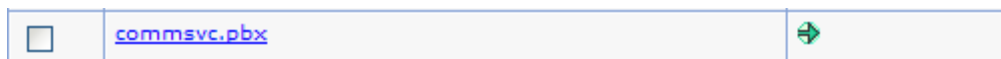
The Communications Enabled Applications (CEA) capability also requires an IP private branch exchange (PBX) as part of your infrastructure. An IP-PBX is a business telephone system designed to deliver voice over a data network and interoperate with the Public Switched Telephone Network (PSTN). A sample IP-PBX application is included in CEA samples package that you can download from the WebSphere Application Server Samples site, http://www14.software.ibm.com/webapp/wsbroker/redirect?version=matt&product=was-nd-mp&topic=welcome_samples

The sample IP-PBX is in the form of an enterprise application archive (EAR) file and is for test purposes only. In this section of the lab you will install the IP-PBX.

- ___ 1. Install the IP-PBX application
 - ___ a. Start your **WebSphere Application Server**.
 - ___ b. Log in to the administrative console by navigating to <http://localhost:9060/ibm/console> in a web browser.

Note: If the default administrative port is not 9060 for your application server profile, the URL above should include the port number for your installation
 - ___ c. From the left navigation panel of the Administrative console, expand **Applications** and select **New Application** and then select **New Enterprise Application**.

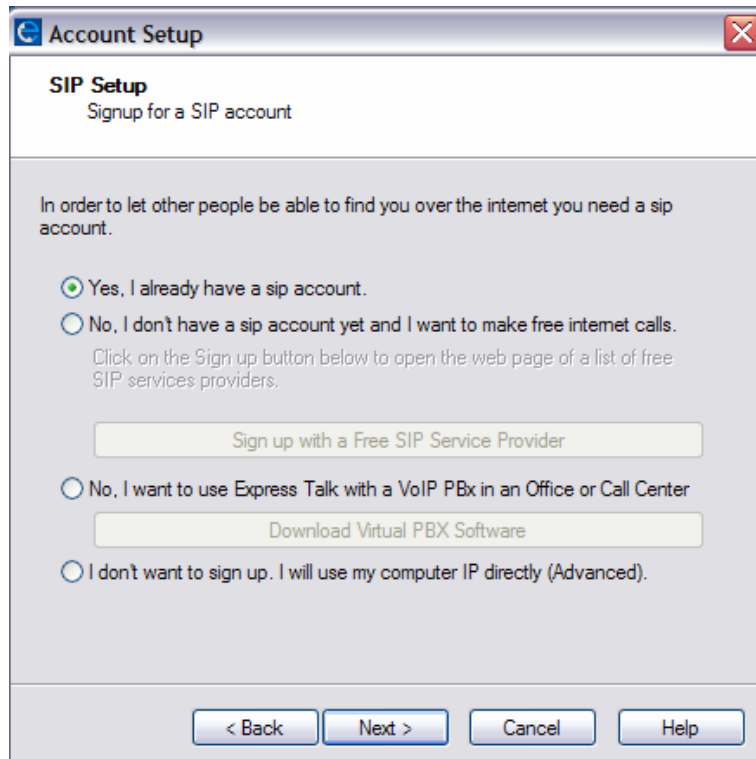
On the installation panel, specify the **Local file system option** and enter the full path or use the **Browse** button to select the **commsvc.pbx.ear** file. It is located in the installableApps directory of the CEA samples package.
 - ___ d. Click **Next**.
 - ___ e. On the next panel, choose the **Fast Path** option.
 - ___ f. Click **Next**, and then continue to click **Next** until the Summary panel, and then click **Finish**.
 - ___ g. Click the **Save** link to save your changes to the master configuration.
- ___ 2. Start the application.
 - ___ a. Return to the console screen **Applications > Application Types > WebSphere enterprise applications**.
 - ___ b. Select the check box next to **commsvc.pbx** and then click **Start**.



Part 4: Installing and configuring softphones

In this section you will install and configure two softphones that are needed to test out communications enabled applications. A softphone works like a telephone to let you make calls through your computer, utilizing Voice over IP. You can call anyone by way of the internet who has installed it (or any other SIP softphone). The recommended softphones are not supplied by IBM and are suitable for test purposes only. In addition, IBM does not support or endorse the softphones or the companies that produce them. Before testing the softphones, ensure that no other programs (such as Lotus Notes) are using the SIP port of the application server. (The default SIP port is 5060.) The lab is intended to install the softphones on a Windows operating system. You can choose to place your application server on a different operating system, but your softphones on Windows. If you take this approach, be sure to specify the correct host name when configuring the softphones.

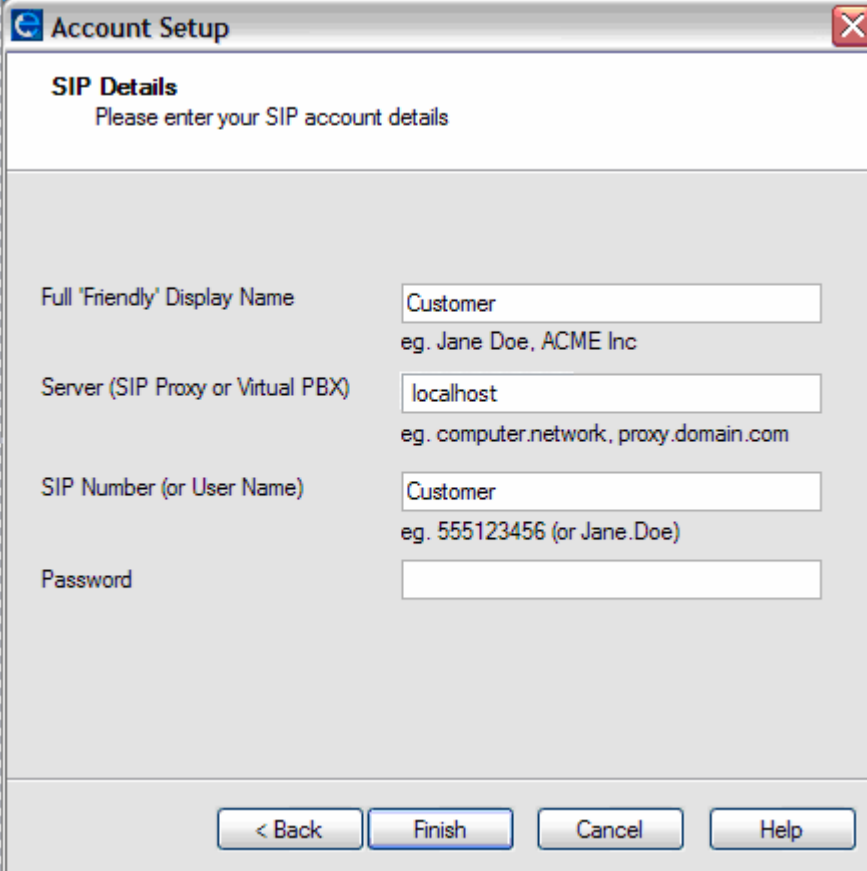
- ___ 1. Install and setup Express Talk.
 - ___ a. **Download Express Talk Basic** from the NCH software site, <http://www.nch.com.au/talk/be.html>
 - ___ b. Run the **talksetup.exe** file to install Express Talk.
 - ___ c. Follow the on-screen installation instructions, making sure your microphone and speakers work.
 - ___ d. Select **Next** until you reach the **SIP Setup** page.
 - ___ e. On the **SIP Setup** page choose the **Yes, I already have a sip account** option.



- ___ f. Select **Next**.

___ g. On the **SIP Details** page enter the following details:

- 1) Enter **Customer** for the Full 'Friendly' Display Name
- 2) Enter your **host name** of your IP-PBX for the Server field, this should be **localhost**.
Note: If your IP-PBX application is NOT listening on localhost then fill in your correct IP address.
- 3) Enter **Customer** for the SIP Number (or User Name).
- 4) Leave the Password field blank.



The screenshot shows a dialog box titled "Account Setup" with a close button in the top right corner. Below the title bar, the text "SIP Details" is displayed, followed by the instruction "Please enter your SIP account details". The dialog contains four input fields with labels and examples:

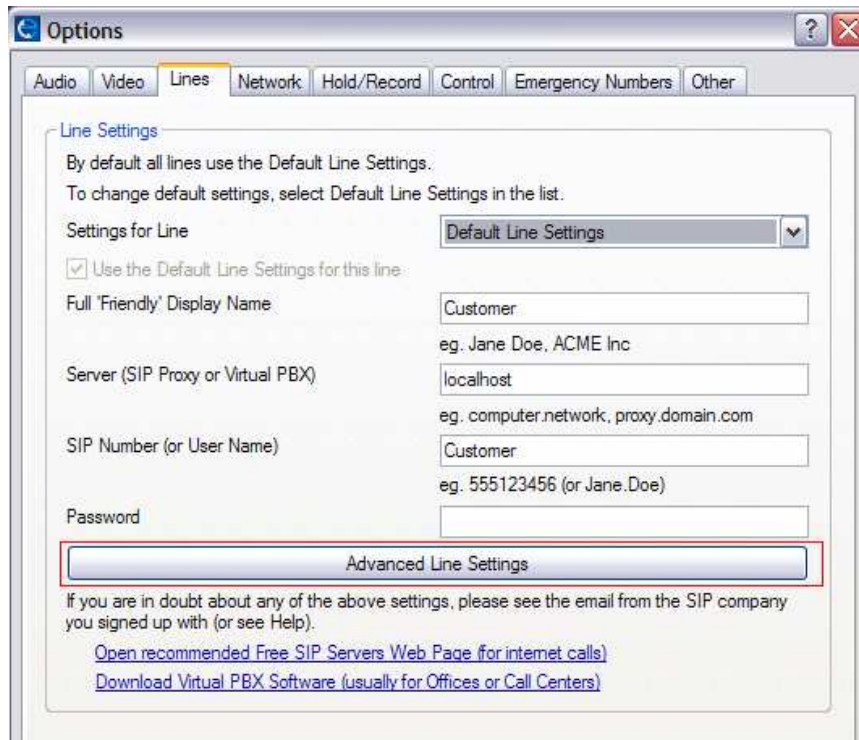
- Full 'Friendly' Display Name:** The input field contains "Customer". Below it, the example text reads "eg. Jane Doe, ACME Inc".
- Server (SIP Proxy or Virtual PBX):** The input field contains "localhost". Below it, the example text reads "eg. computer.network, proxy.domain.com".
- SIP Number (or User Name):** The input field contains "Customer". Below it, the example text reads "eg. 555123456 (or Jane.Doe)".
- Password:** The input field is empty.

At the bottom of the dialog, there are four buttons: "< Back", "Finish", "Cancel", and "Help".

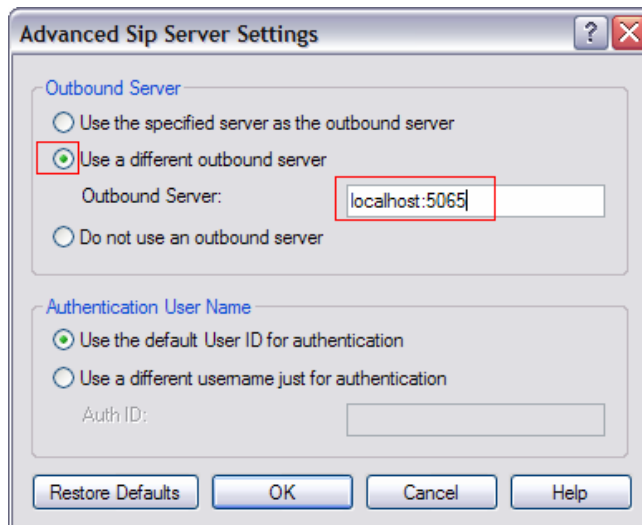
___ h. Select **Finish**.

___ i. If your IP-PBX application is NOT listening on the default port then you will need to enter in the default port into Express Talk.

- 1) Select **Options** on Express Talk and then select **Lines** and select the **Advanced Line Settings**.



- 2) On the Advanced Sip Server Settings panel select **Use a different outbound server** and **enter in your hostname:port** and select **OK**. For example if your host name is localhost and your port is 5065 enter localhost:5065 as shown below:



- 3) On the Lines panel select **OK**.

___ j. Express Talk will now attempt to register with the PBX running on the application server.



___ k. You have now successfully installed and set up the Express Talk softphone.

___ 2. Install and setup CounterPath's X-Lite.

___ a. **Download X-Lite**, a free SIP based softphone, available for download at <http://www.counterpath.net/x-lite.html>.

___ b. **Run** the X-Lite installation file.

___ c. **Start** the softphone.

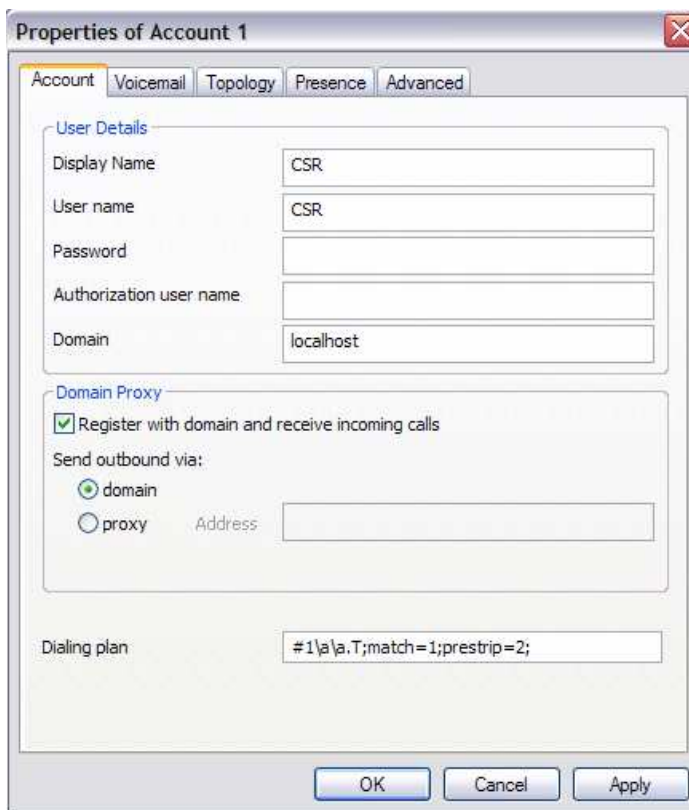
___ d. At the top of the softphone, there is a drop down in the top left. Select **SIP Account Settings**.



___ e. On the SIP Accounts page select **Add**.

__ f. On the Account details tab fill in the following:

- 1) Enter **CSR** for the Display Name (you will use CSR to represent a Customer Service Representative).
- 2) Enter **CSR** for User name. This is the same as the display name, to be used as your contact address.
- 3) Leave the **Password** and **Authorization user name** fields blank.
- 4) Enter your **host name** of your IP-PBX for the Domain field, this should be **localhost**.
Note: If your IP-PBX application is NOT on localhost then enter the correct host name or IP address.
- 5) **Check** the "Register with domain and receive incoming calls".



- 6) If your IP-PBX application is **NOT** listening on 5060 then select **proxy** under the **Send outbound via:** section and fill in the **hostname:port** of the IP-PBX application into the Address field, for example if your hostname is localhost and SIP port is 5065 then enter localhost:5065 as shown below:



- ___ g. Select **OK**.
- ___ h. You will now see your account listed. Select **Close**.
- ___ i. Given your IP-PBX is started, your softphone will now try to register. If the registration is successful the softphone will display **Ready Your username is: CSR** as shown in the picture below.



- ___ 3. **Troubleshooting Note:** If your softphones are not registering check to make sure your WebSphere Application Server is started and that your IP-PBX application is started. Check your SIP default host port and make sure that no other programs are using that port (this includes making sure Lotus Notes is not started).

What you did in this exercise

In this lab, you installed the sample IP private branch exchange (PBX) application that is included in the CEA samples package that you can download from the WebSphere Application Server Samples site, http://www14.software.ibm.com/webapp/wsbroker/redirect?version=matt&product=was-nd-mp&topic=welcome_samples

Then you installed and configured two softphones that are needed to test out communications enabled applications.