

# Installation Guide

*Sun ONE Application Framework*

**Version 2.0**

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# About This Guide

This *Sun™ ONE Application Framework Installation Guide* describes the environment required and the steps you need to follow to install the Sun ONE Application Framework within the Sun™ ONE Studio.

This preface addresses the following topics:

- Who Should Use This Guide
- Using the Documentation
- How This Guide Is Organized
- Related Information
- Documentation Conventions
- Product Support

## Who Should Use This Guide

The intended audience for this guide is the developer who is at least somewhat familiar with building Web applications using existing J2EE Web Technologies (servlets and JSPs).

## Using the Documentation

The Sun ONE Application Framework manuals are available as online files in Portable Document Format (PDF) and Hypertext Markup Language (HTML) formats, at:

<http://www.sun.com/docs>

The following Sun ONE Application Framework Documentation Roadmap table lists concepts described in the Sun ONE Application Framework documentation. The left column lists the concepts, and the right column lists the corresponding documents.

<b>For information about</b>	<b>See the following</b>
Late-breaking information about the Sun ONE Application Framework software and documentation	Release Notes
An introduction to the Sun ONE Application Framework Web application and discussion of developmental issues of a J2EE Web application	Sun ONE Application Framework Overview
An introduction to the user of the Sun ONE Application Framework and the Forte tool plugin, with a description of the mechanics and techniques used to build, deploy and test a Web application using this powerful tool	Sun ONE Application Framework Getting Started
A description of the environment and steps required to install the Sun ONE Application Framework within the Sun ONE Studio	Sun ONE Framework Installation Guide
Wizard-based concepts and components	Sun ONE Application Framework Online Help (installed with the product)

## How This Guide Is Organized

This guide contains the following documentation components:

- Install the Software
- Database Connectivity
- Install the Sun ONE Application Framework Software

## Related Information

In addition to the information in the Sun ONE Application Framework documentation collection listed in Using the Documentation, the following resources may be helpful:

- **J2EE Specifications**  
<http://java.sun.com/products/>
- **Enterprise JavaBeans Specification, Version 2.0**  
<http://java.sun.com/products/ejb/docs.html#specs>
- **General EJB product information:**  
<http://java.sun.com/products/ejb>
- **Java Software tutorials:**  
<http://java.sun.com/j2ee/docs.html>
- ***Enterprise JavaBeans*, by Richard Monson-Haefel, O'Reilly Publishing, ISBN 0-596-00226-2**  
<http://www.oreilly.com/catalog/entjbeans3/>
- ***Enterprise JavaBeans Design Patterns*, ISBN 0-471-20831-0**
- ***Core J2EE Patterns*, ISBN 0-13-064884-1**

## Documentation Conventions

This section describes the types of conventions used throughout this guide.

### General Conventions

The following general conventions are used in this guide:

- **File and directory paths** are given in UNIX<sup>®</sup> format (with forward slashes separating directory names). For Windows versions, the directory paths are the same, except that backslashes are used to separate directories.
- **URLs** are given in the format:  
<http://server.domain/path/file.html>

In these URLs, *server* is the server name where applications are run; *domain* is your Internet domain name; *path* is the server's directory structure; and *file* is an individual filename. Italic items in URLs are placeholders.

- **Font conventions** include:
  - The `monospace` font is used for sample code and code listings, API and language elements (such as function names and class names), file names, pathnames, directory names, and HTML tags.
  - *Italic* type is used for code variables, book titles, emphasis, variables and placeholders, and words used in the literal sense.
  - **Bold** type is used as either a paragraph lead-in or to indicate words used in the literal sense.

## Product Support

If you have problems with your system, contact customer support using one of the following mechanisms:

- The online support web site at:  
`http://www.sun.com/supporttraining/`
- The telephone dispatch number associated with your maintenance contract

Please have the following information available prior to contacting support. This helps to ensure that our support staff can best assist you in resolving problems:

- Description of the problem, including the situation where the problem occurs and its impact on your operation
- Machine type, operating system version, and product version, including any patches and other software that might be affecting the problem
- Detailed steps on the methods you have used to reproduce the problem
- Any error logs or core dumps



# Install the Software

This chapter describes what you need to know to install the Sun™ ONE Application Framework product.

This section contains the following topics:

- QA Certification
- Verify Java Version
- Install the Sun ONE Application Server 7.0 Software (Optional)
- Install the Sun ONE Application Framework Software

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**NOTE** When installing the required software on the Windows 2000 operating system, that operating system must be Service Pack 2 or higher.

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## QA Certification

- Solaris 8
- Solaris 9
- Windows 2000
- Javasoft RI and Tomcat
- Sun™ ONE Application Server 6.5 and 7.0, WebLogic, WebSphere (J2EE container testing done via WAR import export)
- Sun ONE Studio 4.1, Enterprise Edition

- Sun ONE Studio 4.1, Community Edition

## Verify Java Version

Before installing the Sun ONE Application Framework product, you must verify that you have the correct version of Java installed on your system.

- The Sun ONE Studio and Sun ONE Application Server require JDK™ 1.4.0\_02 (minimum).
- The Sun ONE Application Framework applications can be run in any Servlet 2.2/JSP 1.1-compliant J2EE container and require JDK 1.2 (minimum).

If, for example, you have JDK 1.4.1 and Tomcat/Sun ONE Application Server installed for testing, you can deploy on iPlanet Web Server 4.1, iPlanet Web Server 6.0, or iPlanet Application Server 6.x.

## Install the Sun™ One Studio 4.1 Enterprise Edition Software

For installation instructions for the Sun ONE Studio, go to the following Web site:

<http://www.sun.com/docs>

## Install the Sun ONE Application Server 7.0 Software (Optional)

Install the Sun™ ONE Application Server 7 software, the preferred J2EE container for working with the Sun ONE Application Framework. It provides the greatest integration for the automated testing and deployment features of the Sun ONE Application Framework.

If you do not want to use the Sun ONE Application Server Version 7, you can alternatively use the imbedded Tomcat container in the Sun ONE Studio. However it requires manual coding for the testing of the Sun ONE Application Framework models which use JDBC.

For installation instructions for the Sun ONE Application Server 7, go to:

<http://www.sun.com/docs>

# Install the Sun ONE Application Framework Software

This chapter describes the steps you must follow to install the Sun™ ONE Application Framework tool software within the Sun™ ONE Studio.

This section contains the following topics:

- Start the Sun ONE Studio 4.1
- Add the .NBM File

## Start the Sun ONE Studio 4.1

Double-click the Sun ONE Studio 4 Enterprise Edition icon from your computer desktop area.

## Add the .NBM File

1. Click Tools.
2. Click Update Center.

The Select Location of Modules page appears (first page of the Wizard).

3. Select Install Manually Downloaded Modules (.nbmFiles).
4. Click Next.

The Select Modules to Install (Continued) page appears.

On this page you need to add the path to the NBM file.

5. Click Add.

The Select Directory Containing Module Distribution Files page appears.

6. Locate and select the NBM file.
7. Click OK.
8. Click Next.

## Updating the IDE

You can dynamically update the IDE using the Update Center feature.

When you connect to the Update Center, the IDE checks to see if there are new modules or new versions of already installed modules available. If new or updated modules are available, you can select which ones you would like. Those modules are then downloaded and installed in your IDE.

The AutoUpdate Wizard enables you to install modules from the Update Center or to install modules (in the form of .nbm files) that have been previously downloaded to your system.

If you choose to use the Sun ONE Studio Update Center, you need to:

1. Enter your Update Center login.
2. Enter your Update Center password.

If you do not have an Update Center login and password, you need to obtain one by clicking on the Account Maintenance button on the wizard and by following the instructions provided.

If you do not register, you can leave the Login and Password fields blank and you can still connect to the Update Center and see generally available free modules. However, to obtain access to Early Access and upgraded third party or Enterprise Editions, you must register. The Update Center uses this login and password to track user entitlements to various products and modules. The IDE sends the login and password over HTTP when you connect to the Update Center. When you register with the Developer Resources Web site to get the login and password, you are asked for some personal information. However you can choose to not be contacted by Sun. For more information on Sun's privacy policy, see the Developer Resources Site FAQs at <http://forte.sun.com/ffj/feedback/sitefaq.html>.

You can also chose to download a local distribution of upgraded modules and update your IDE (see To Update the IDE Offline below). This does not require a login or password, but not all modules are available this way.

If you need to set a proxy to get through a firewall, you can click Proxy Configuration on the first page of the wizard.

You can also update modules in the IDE without having to connect to an Update Center server.

## To Update the IDE Offline

1. Manually download the NBM file of the module you want to update.
2. Choose Tools-->Update Center from the main window.
3. In the first page of the Wizard, select Install Manually Downloaded Modules.
4. Proceed according to the instructions in the rest of the Wizard.

By default, the IDE periodically asks you whether you want to connect to the Update Center to check for new updates. You can set the interval for this prompt or turn it off completely.

## To Set the Frequency That you are Prompted to Check for Updates

1. Choose Tools-->Options from the main window.
2. Select the Update Center node and set the Check Period property

---

**NOTE** See the Sun ONE Studio core IDE help for Updating the IDE.

This is found in the core IDE help - Configuring the Environment-->Managing Modules -->Updating the IDE

---

Install the Sun ONE Application Framework Software

# Database Connectivity

This chapter describes the steps that you need to follow to set up the database connectivity in an application server for use with Sun ONE Web Applications developed within the Sun™ ONE Studio.

This section contains the following topics:

- Configure the JDBC™ (Java Database Connectivity) Driver
- Sun ONE Application Server Configuration
- Define the JDBC Resource
- Oracle Type 4 JDBC Driver
- Configure Application for Execution Through Tomcat

## Configure the JDBC™ (Java Database Connectivity) Driver

The JDBC configuration involves:

- Setting up a JDBC driver
- Defining a JDBC connection pool
- Registering the JDBC resources used by your application

Because the application server installation already includes the PointBase Server drivers, you do not need to configure any drivers for use with the sample PointBase database.

However, if you want to add another driver that is not configured by default in the Sun ONE Application Server, proceed as follows:

## Add the JDBC Driver

When you start to execute the Sun ONE Application Framework database model with the Oracle database, you must add a JDBC driver .zip or .jar file (`ojdbc14.jar`) to the corresponding Sun ONE Application Server, Sun ONE Studio 4.1, and Tomcat directories.

### For the Sun ONE Application Server

1. In the Sun ONE Application Server administrative console, select the server instance node-->JVM (Java™ Virtual Machine) Settings tab-->Path Settings sub-tab.
2. On the Path Settings sub-tab, modify the Classpath Suffix setting to reference the appropriate JDBC driver .zip or .jar file.

---

**NOTE** If you are using a Type 2 driver, also modify the Native Library Path Suffix setting to reference the appropriate native library.

---

3. Save your changes.
4. Return to the General tab of the server instance.
5. Click Apply Changes.
6. Restart the Sun ONE Application Server.

This picks up the changes.

---

**NOTE** Alternatively, place a JDBC driver's archive in the following directory:

```
install_root/appserv/domains/domain1/server1/lib/
```

---

All Java libraries that are present in the `lib/` directory of the instance are automatically added to the end of the server's classpath during the server instance restart.



For the Sun ONE Studio

Place a JDBC driver's archive in the following directory:

```
<sierra_installation>/lib/ext
```

For Tomcat

Place a JDBC driver's archive in the following directory:

```
<sierra_installation>/tomcat40/common/lib
```

# Sun ONE Application Server Configuration

## Define the JDBC Connection Pool and Resource

The sample application that you will develop is part of the tutorial and requires that a specific JDBC connection pool and resource be configured with the Sun ONE Application Server. The steps given in this section will have you:

- Define a suitable JDBC connection pool that maps to the PointBase database server that is included in the Sun ONE Application Server.
  - Define a JDBC resource that associates the JDBC references to the JDBC connection pool definition.
1. Access the Sun ONE Application Server administrative console through a Web browser.

---

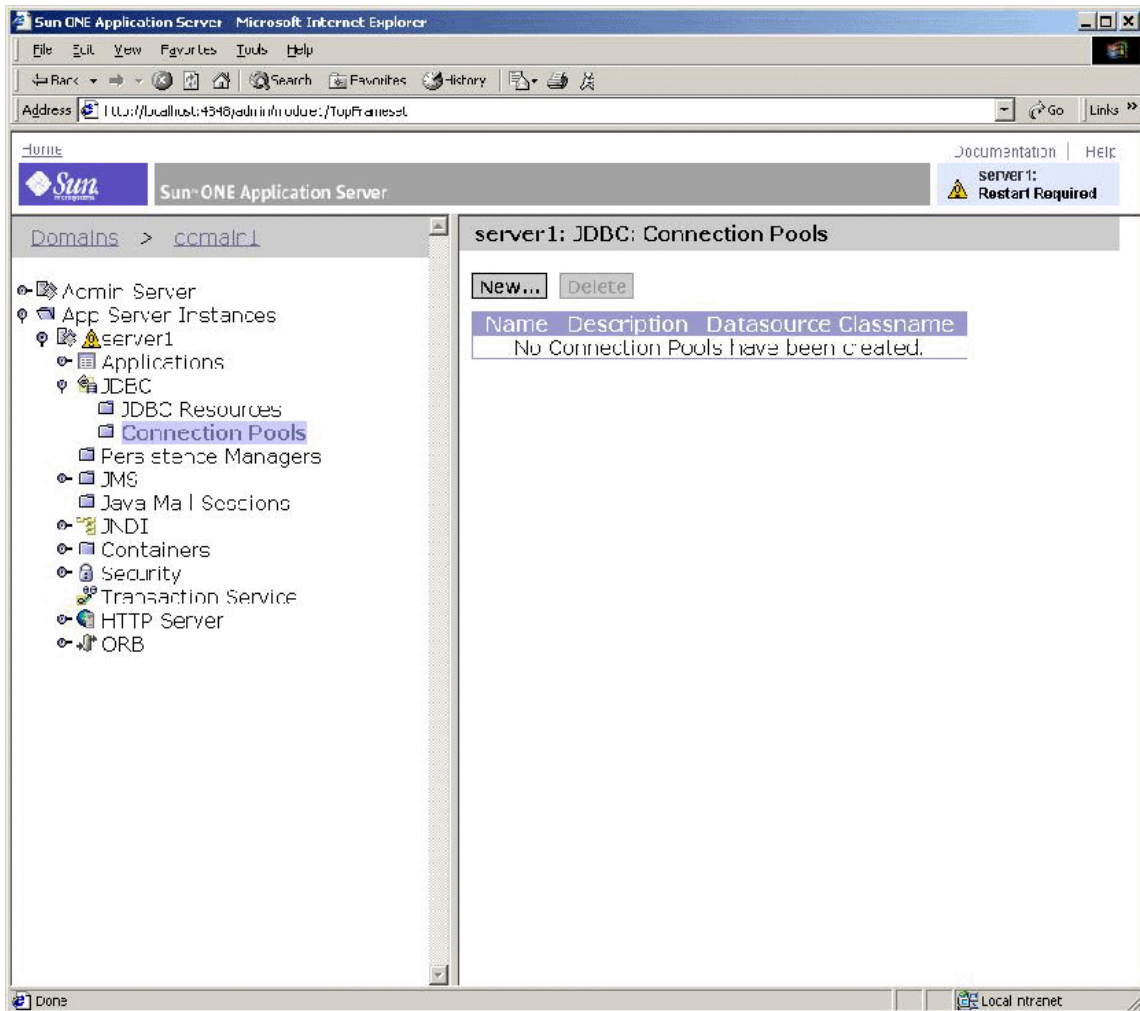
**NOTE** You need to start the application server if it is not running.

---

2. Expand the JDBC node under the application server instance named *server1*.

3. Click the Connection Pools node.

The server1: JDBC: Connection Pools page appears.



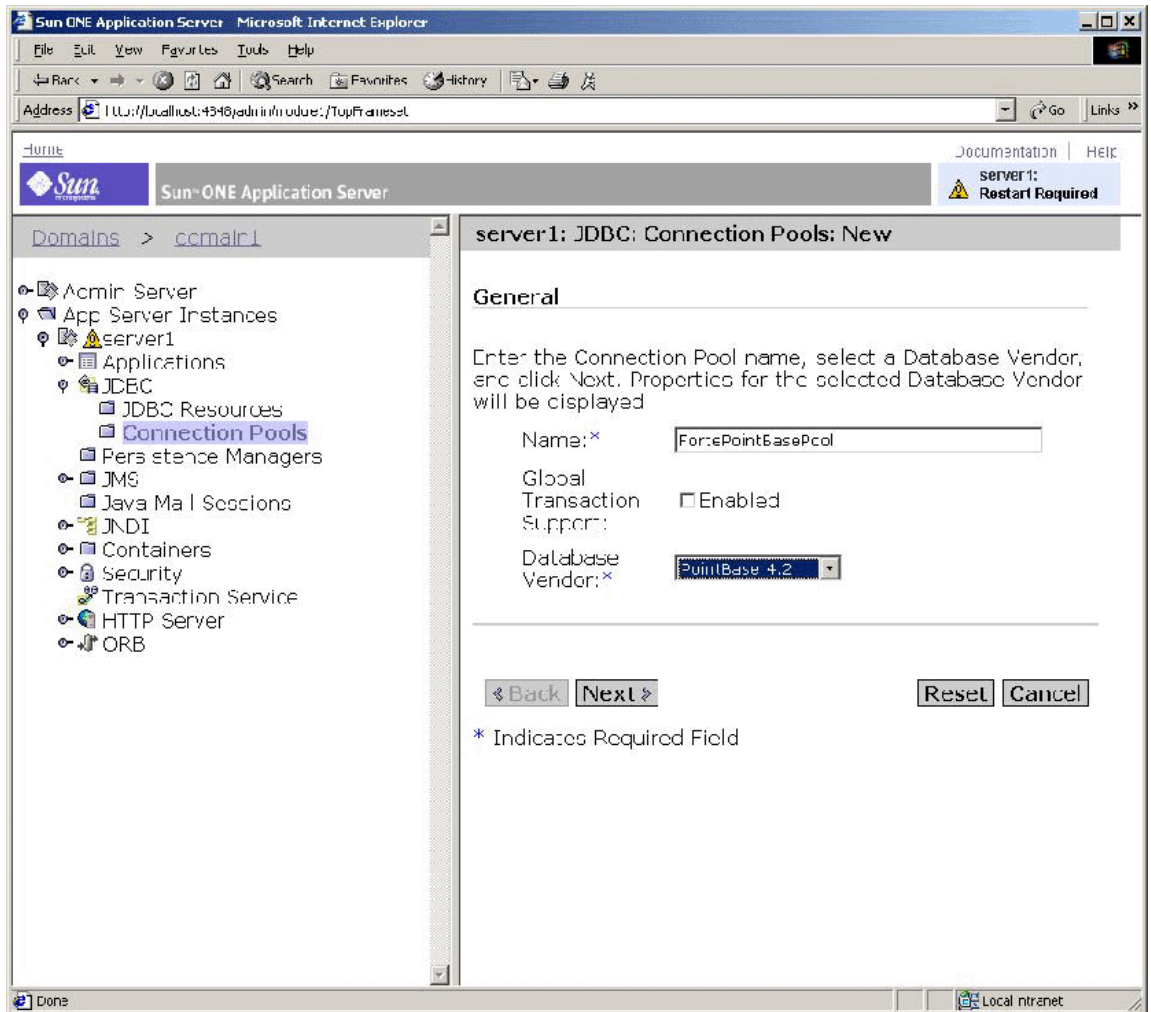
4. Click New.

This defines a new connection pool.

The server1: JDBC: Connection Pools: New page appears.

5. Enter FortePointBasePool in the Name field.

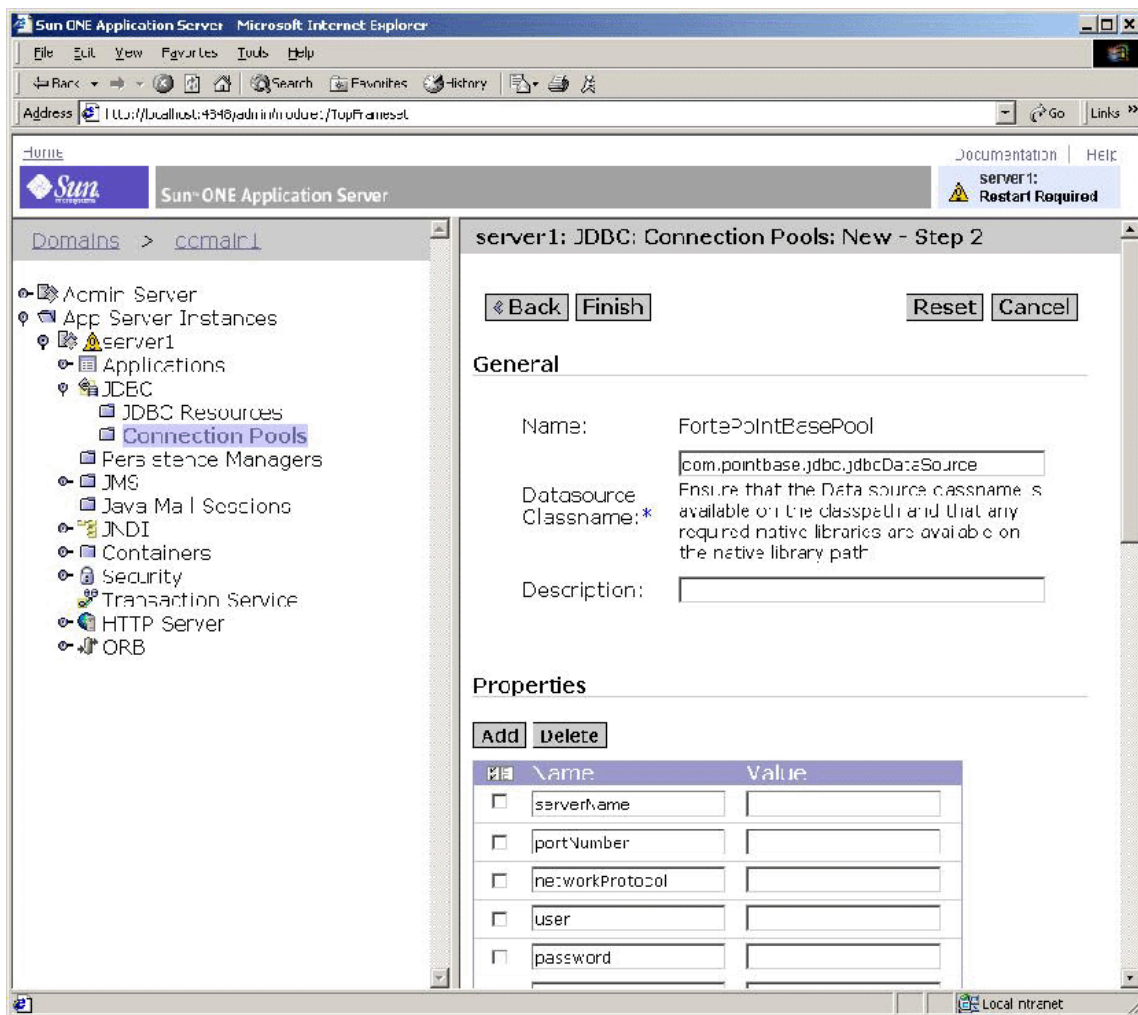
6. Select PointBase 4.2 from the Database Vendor drop-down menu.



7. Click Next.

The server1: JDBC: Connection Pools: New-Step 2 page appears.

8. Scroll down to view the Properties section.



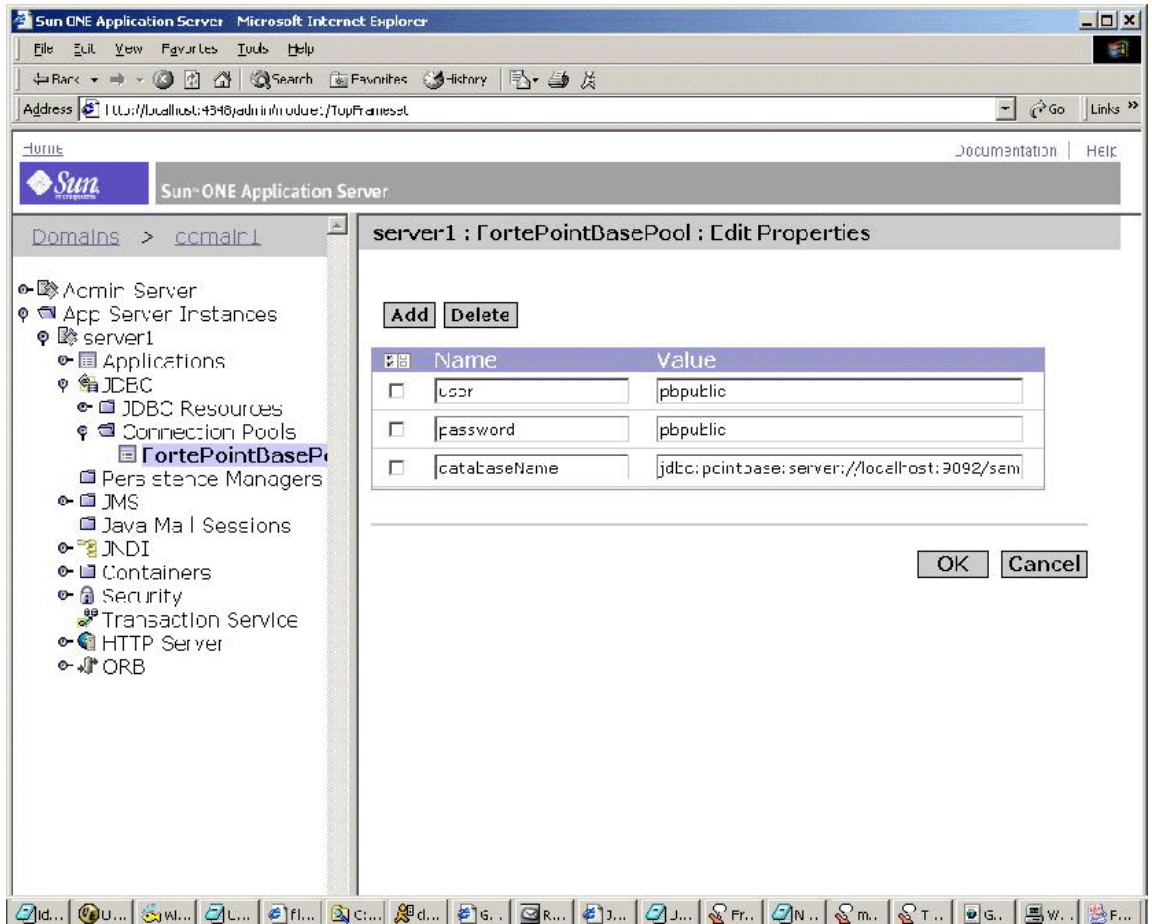
9. Enter the following values:

- o **user:** pbpublic
- o **password:** pbpublic
- o **databaseName:** jdbc:pointbase:server://localhost:9092/sample

10. If you see any additional properties in this list:

- a. Select the checkbox to the left of each of these properties.
- b. Click Delete to remove these unused properties.

Your page should appear as follows:



**11. Click OK.**

This completes the wizard.

As a result of completing the JDBC connection pool wizard, the administrative server recognizes that although changes have been made to the server's configuration, the changes have not yet been applied to the active configuration.

Consequently, several warning icons appear in the administrative console informing you that pending changes need to be applied before they take effect.

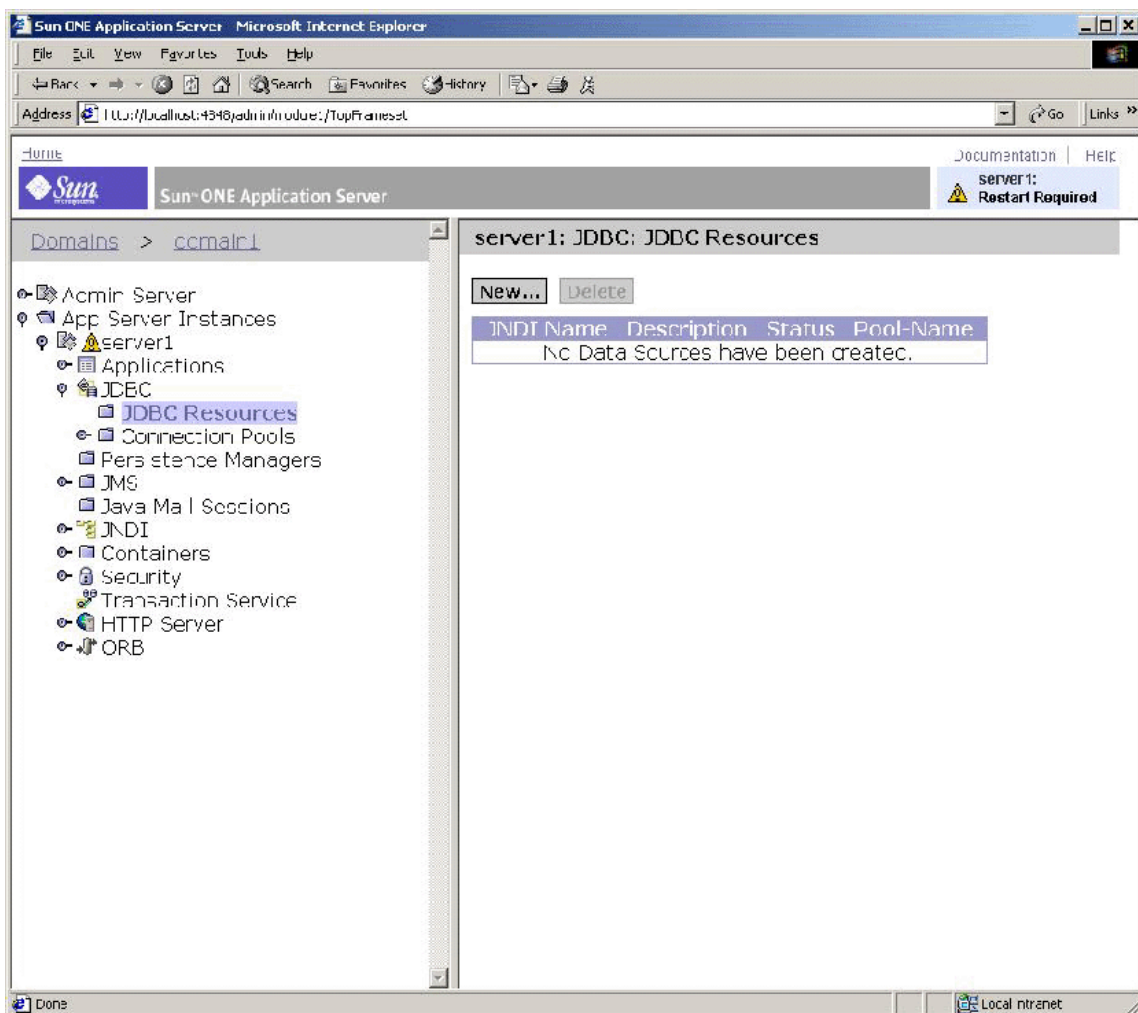
Before you apply these changes, you must define the JDBC resource for the sample (see Define the JDBC Resource below).

After defining the JDBC resource, you apply the outstanding connection pool and JDBC resource changes simultaneously.

## Define the JDBC Resource

Now that you have created the JDBC connection pool definition, you are ready to define a JDBC resource and associate it with the connection pool entry.

1. Click the JDBC Resources node that appears under the JDBC node.



**2. Click New.**

This defines a new resource entry.

You need to define a jndi name to use in the Sun ONE Studio so you can create Models in the Sun ONE Application Framework.

To configure a resource called:

`jato`

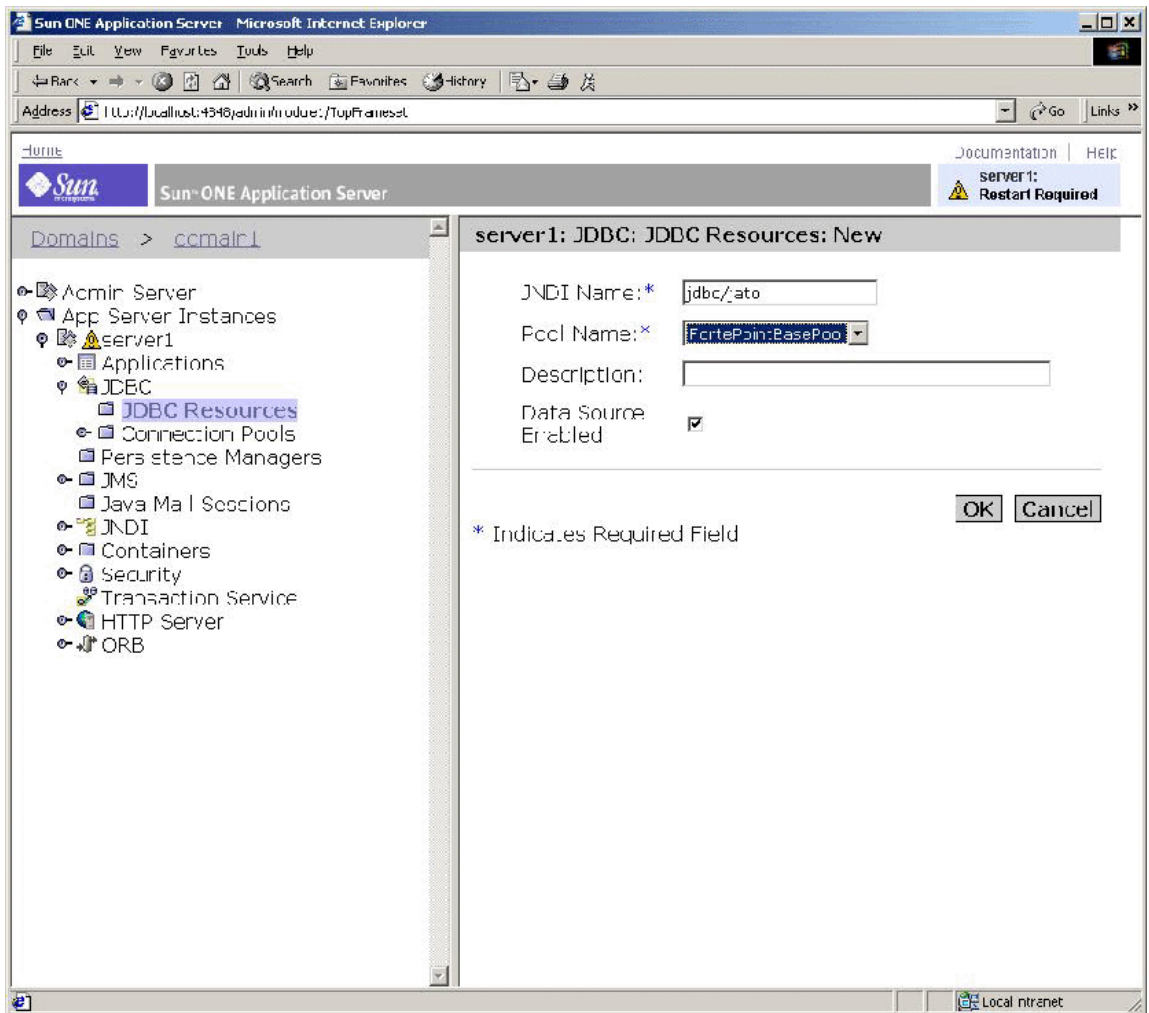
you need to define a jndi named called:

`jdbc/jato.`

**3. Enter `jdbc/jato` in the JNDI Name field.**



4. Select FortePointBasePool from the Pool Name drop-down list box.



5. Click OK.

This defines the resource.

Now that you have defined both the JDBC connection pool and resource for the sample application, you are ready to apply the changes that make the application server instance aware of the changes.

6. Select the server1 node.

7. Click Apply Changes.

This applies the outstanding JDBC connection pool and resource changes.

A message appears showing that the changes have been applied.

---

**NOTE** A server instance restart is not required in this case.

---

You are now able to execute the database model using the Sun ONE Application Server 7.0.

## Oracle Type 4 JDBC Driver

How would one use an Oracle Type 4 JDBC driver within an application?

Using another RDBMS is simple:

1. Add the Oracle Type 4 driver to the server classpath by either of the following methods:
  - o Drop the driver library into the application server instance's `lib/` directory:

```
install_root/appserv/domains/domain1/server1/lib/
```

---

**NOTE** All libraries in this directory are automatically added at the end of the server's classpath during restart.

---

Or

- o Add the driver library to the Classpath Suffix under the JVM Settings-->Path Settings area of the application server instance.
2. Create a JDBC Connection Pool object for the Oracle Type 4 driver:

Datasource Classname = `oracle.jdbc.pool.OracleDataSource`

Connection Pool Properties:

- url ; jdbc:oracle:thin:@<host>:<port>:<ORACLE\_SID> (where \$ORACLE\_SERVER and \$ORACLE\_SID must be replaced with the appropriate value for the target database. For example:  
jdbc:oracle:thin:@localhost:1521:orcl)
- user  
Set as appropriate for your database.
- password  
Set as appropriate for your database.  
Your url would look like the following:  
URL - jdbc:oracle:thin@edgewood.red.ipplanet.con:1521:B2B  
UserID - *system*  
Password - *manager*

## Bonus Work

You can also setup new jndi datasources and datapools for S1AS directly in Forte.

1. Go to the runtime tab.
2. Expand the InstalledServers --> Sun ONE Application Server Node.
3. Add new connection pools and datasources under the respective unregistered nodes.
4. After you have them defined, right-click and select &ndash; register...  
Make sure you do the connection pool before you create a datasource
5. Add the same properties outlined above in the respective property sheets.

## Configure Application for Execution Through Tomcat

1. From the Sun ONE Application Framework Explorer, open the `SQLConnectionManagerImpl` file.
2. In the Initializers section, change *true* in the line `setUsingJNDI>true`) ; to *false*:  
`setUsingJNDI>false`) ;

3. Scroll down to the *try* block.
4. Uncomment the *try* block.

---

**NOTE** If using Oracle, replace  
`com.pointbase.jdbc.jdbcUniversalDriver` with  
`oracle.jdbc.driver.OracleDriver`.

---

5. Scroll down.
6. Uncomment `addDataSourceMapping("jdbc/sample":,  
"jdbc:PointBase://localhost:0902/sample");`

---

**NOTE** If using Oracle, replace "jdbc...sample" with  
`jdbc:oracle:thin:@hostname:port#:SID`.  
The `jdbc/<name>` should be whatever name you used when  
you created the JDBC datasource name (`jdbc/<name>`)

---

## Create a Database Model.

For information on how to create a database model, see the Sun ONE Application Framework Getting Started document Tutorial—Section 2.2 Create CustomersModelClass.

## Insert Database ID and Password

1. Open the Database Model File.

```
public class saasdsad extends QueryModelBase
{
    /**
     * Default constructor
     */
    public saasdsad()
    {
```

```
        super();  
    }
```

2. Insert the following two lines immediately after `super();`:

```
        this.setDefaultConnectionUser("<userID>");  
        this.setDefaultConnectionPassword("<password>");
```

You are now able to execute the database model using the Tomcat server.



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