Installing Versant JPA

Release 0.9

VERSANT

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Chapter 1. System Requirements

This section outlines the appropriate system requirements for V/JPA. Check your architecture, operating system release, and Java version before installing Versant JPA.

- **V/JPA is provided for 64-bit Windows and 64-bit Linux platforms**
- **V/JPA requires Java SDK 1.6**
- **The V/JPA Eclipse Plugin requires Eclipse 3.7 (or higher)**

1.1. Windows

The following outlines the V/JPA system requirements for Windows 64-bit platforms.

Hardware

- Windows AMD64 machine (x86_64) with Opteron processor
  or
  EM64T machine (x86_64) with Xeon processor, as per the requirements listed by Microsoft
- Approximately 320 MB of disk space (based on a typical installation using the default component selection—if additional components are selected, the required disk space will be greater)

Operating System

- Windows 7
  or
  Windows XP Professional SP3
  or
  Windows Vista
  or
  Windows Server 2008
  or
  Windows Server 2008 R2
- Microsoft TCP/IP for Windows must be installed

1.2. Linux

The following information is specific to Red Hat Enterprise Linux (RHEL 5.4/6.0) for 64-bit.

Hardware

- AMD64 machine (x86_64) with Opteron processor
  or
  EM64T machine (x86_64) with Xeon processor
- Approximately 460 MB of disk space
- Although there is no absolute minimum system memory requirement, a minimum of 32 megabytes is strongly recommended
- A recommended swap space to RAM ratio of 3 to 1
- If your application will connect to multiple databases, you may need to increase the number of shared memory segments over a standard hardware configuration. To do this, run the **sysctl** utility and change the following under the kernel subsystem.

  ```
  shmmni 4096
  ```

  You will need to reboot the system for this change to take effect. The values shown above for `shmmni` are examples and the defaults on your system may be different.

Operating System

V/JPA for Red Hat Enterprise Linux 5.4/6.0 for 64-bit has the following system software requirements.

- Red Hat Enterprise Linux 5.4 for 64-bit

  or,

- Red Hat Enterprise Linux 6.0 for 64-bit
- TCP/IP network protocol (if you want to connect to a remote database or make more than one connection to a local group database)

Chapter 2. Running the Installer

This chapter explains how to use the installation Setup Wizard to install Versant JPA. V/JPA is provided for 64-bit Windows and 64-bit Linux platforms. If you have not verifed that you can run V/JPA on your machine, refer to Chapter 1, *System Requirements* [p. 1]. V/JPA comes with a common, integrated installer which offers a single GUI interface to install the various components that make up Versant JPA.

In most cases, to install Versant JPA you need simply run the Setup Wizard and follow the prompts. If you are new to V/JPA, just use the defaults provided by the Wizard. A step-by-step walk-through of the installation process, a little later in this chapter, is also provided.

Upgrading a previous V/JPA installation

You can upgrade a previous Versant JPA installation by installing to the same directory.

If you are installing Versant JPA over an existing installation, stop all databases by using the **stopdb** utility. (For information about using **stopdb**, refer to the chapter *Database Utilities* in the *Versant Object Database Administration Manual*.) Then proceed with the installation as normal.

Using V/JPA with an existing V/OD installation

It is recommended that you install Versant JPA on a machine without a previous Versant Object Database installation. If you have V/OD already installed you must install V/JPA to a different directory. (The V/JPA installer will not allow you to install V/JPA over an existing V/OD installation.) If you want to install V/JPA on a machine with an existing V/OD installation, be sure to refer to Appendix A, *Using V/JPA and V/OD in Parallel* [p. 23].

Location of Temporary Files

During the installation a temporary directory is created for the installer executable files. By default, this directory is created in the same directory where you are running the installation script. To create this directory in a different location you can set an evironment variable, `INSTALL4J_TEMP`, to the desired location *before* running the installer. For example, setting `setenv INSTALL4J_TEMP` to `/tmp` will cause the installation temporary files to be created in the `/tmp` directory.

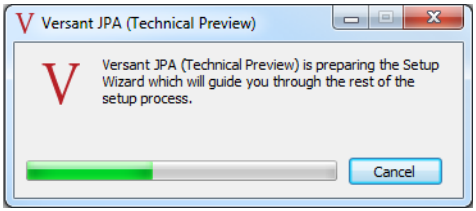
Installation Log File

The installer produces a log file in the directory used for the temporary files. The log file has a name following the pattern `i4j_log_VOD_*.log`. If the installation fails to complete successfully, the log file may provide help in determining the reason. (If the installation is successful the log file is cleaned up along with the other temporary files.)

The Setup Wizard Step-by-step

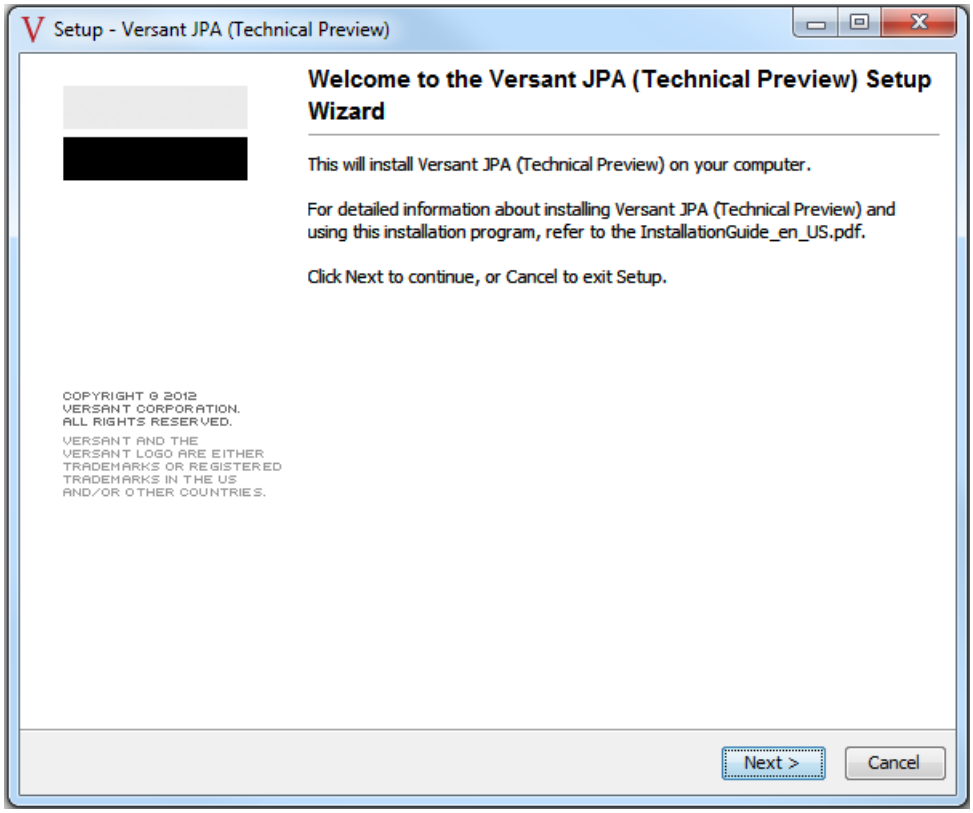
This section takes you step-by-step through the installation process using the setup wizard.

Start the installer program. A small dialog is displayed showing the progress as the installation setup wizard is initialized.



Welcome

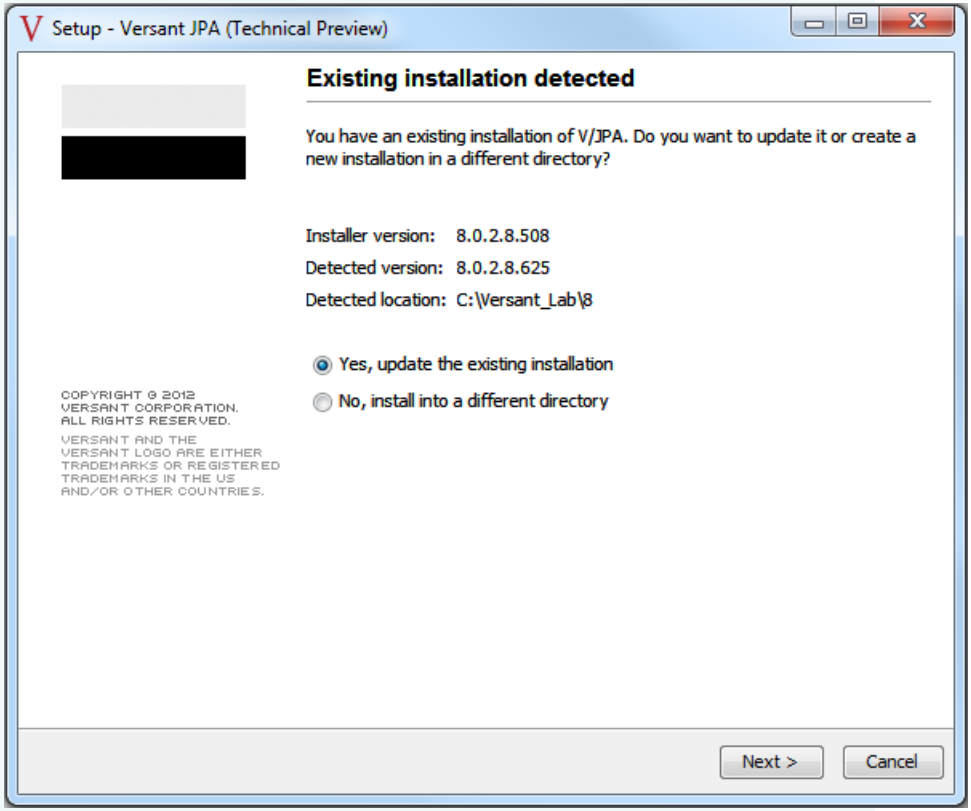
The next screen simply welcomes you to the Versant JPA Setup Wizard and gives you the choice to continue to the next screen or cancel the installation.



Click **Next>** to proceed to the next screen.

Patching or Replacing an Existing Installation

If the installer detects a previous installation of V/JPA the following dialog is displayed.

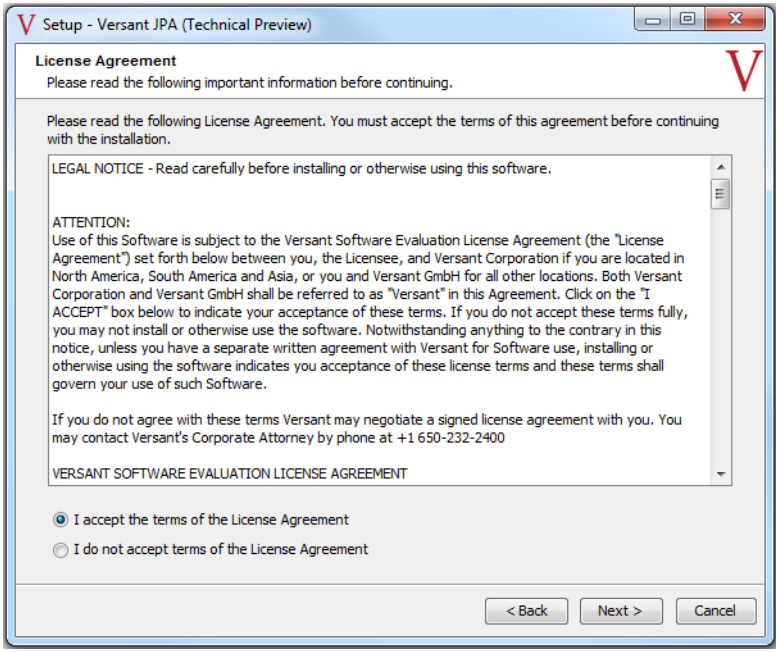


Here you can choose to update the existing installation or specify a different directory for a new installation. If you choose to update, the installer will skip the step Specify the Installation Directory and subsequent dialogs will reflect the settings in the existing installation.

Choosing to install to a new directory will take you through a normal installation process. When you are prompted to select the destination directory choose a directory other than the current installation location.

License Agreement

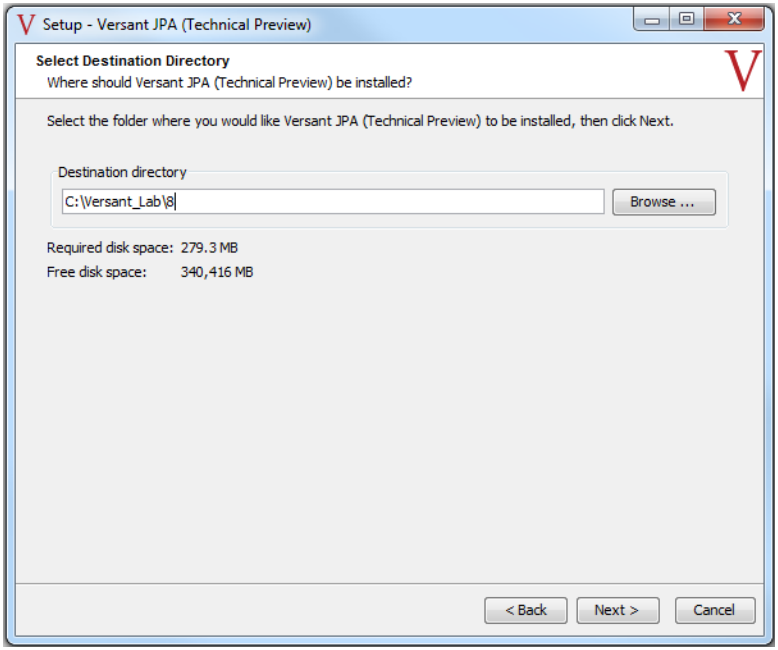
The license agreement is displayed. If you are not sure what your rights and responsibilities are regarding the use of the Versant JPA and Versant JPA software, you can read about them here.



You must explicitly click **I accept the agreement** to proceed with the installation. If you are not in agreement, you may cancel the setup wizard. Signify that you accept the agreement and click **Next>** to continue.

Specify the Installation Directory

You can choose where you want to install Versant JPA. In most cases, just use the default. This is `C:\Versant_Lab\8` for Windows and `/opt/Versant_Lab/8` for Linux.



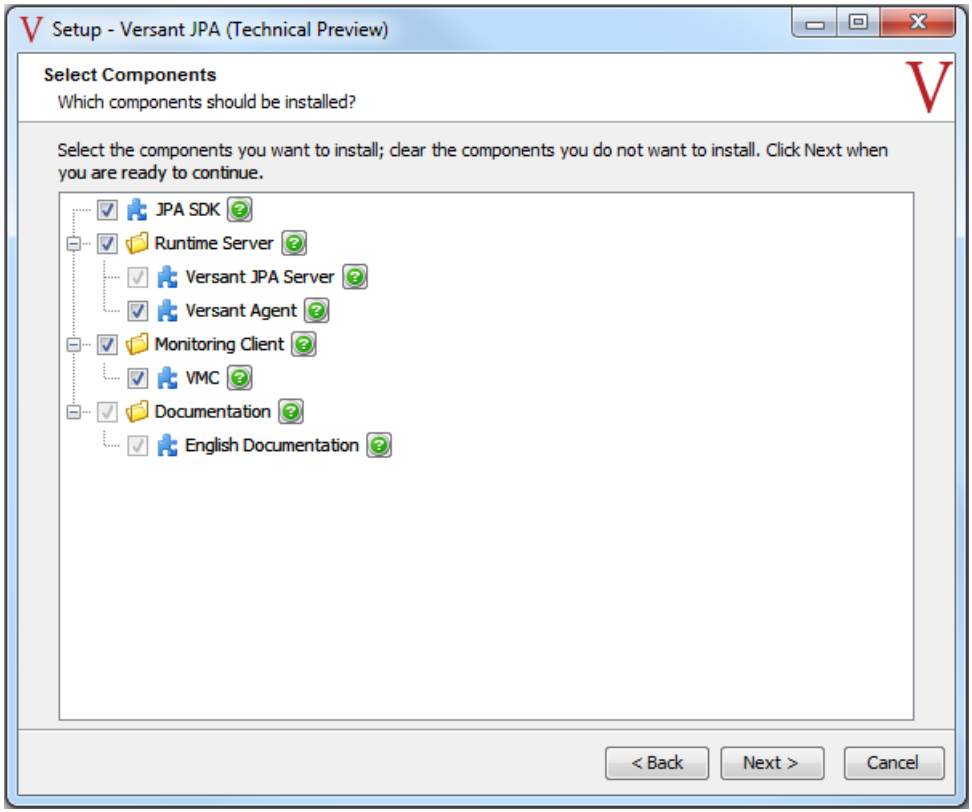
If you want to change the installation location from the default provided, type in a new location in the **Destination Directory:** box or click the **Browse...** button to navigate to your preferred location.

(This dialog is not displayed if you are updating an existing installation. Refer to Patching or Replacing an Existing Installation [p. 5], above.)

> The database directory root path may not contain space characters. This is particularly important to keep in mind if you are installing Versant JPA on a machine running Windows.

Select Components

This screen shows the components that will be installed for Versant JPA. Though you can customize the installation here, it is recommended that you choose the default component set provided and simply press **Next>**.

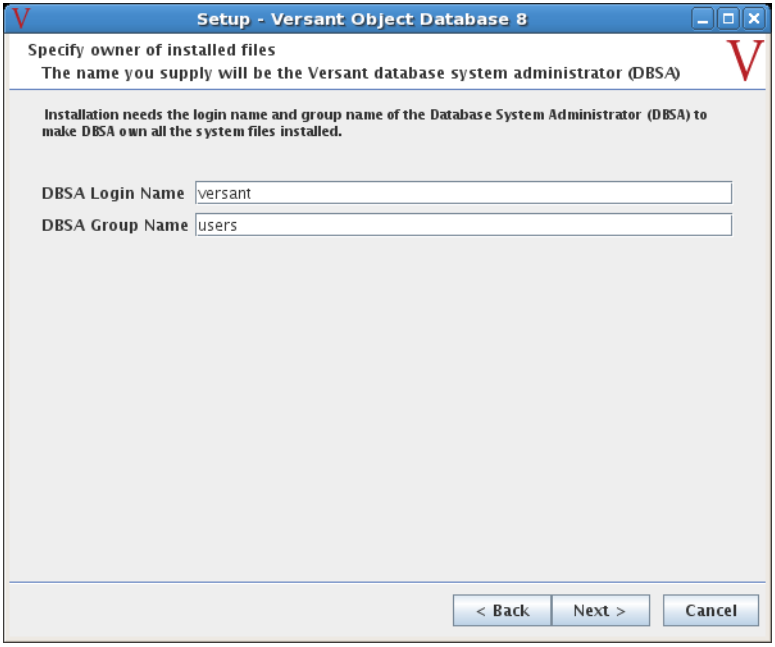


Check or un-check a main division to select all components in that division. Click the plus or minus symbol to expand or collapse the division. When the tree is expanded you can select specific components. Clicking will display information about the component.

Click **Next>** to continue.

Database System Administrator Configuration (Linux)

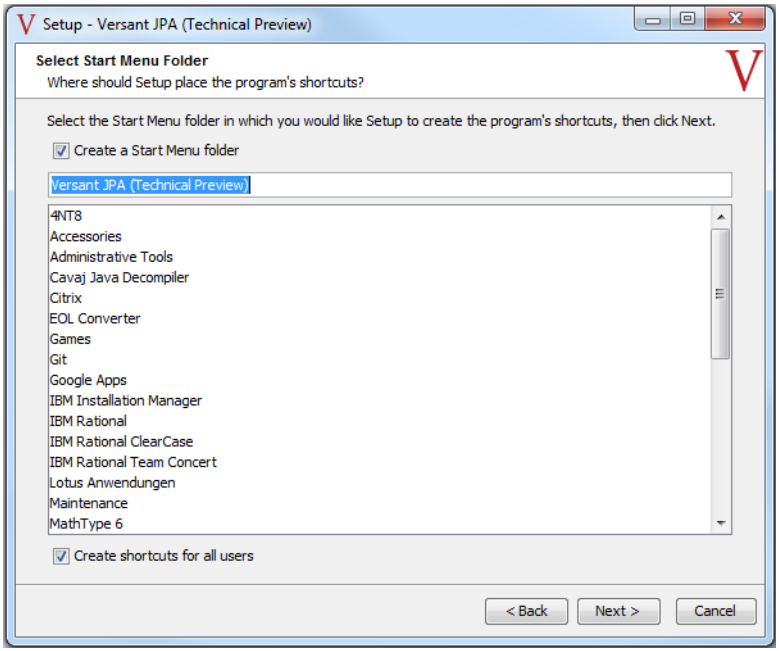
If you are installing V/JPA *as user root* on Linux, you must specify the user to be the DBSA (Database System Administrator). The DBSA is the owner of the database files and cannot be user root. The following dialog is displayed.



Provide the user name and password for the user to be assigned as the DBSA. The V/JPA installer will use this information to correctly assign file privilages for the database files. (This dialog is only displayed if you are installing V/JPA as user root.)

Select Start Menu Folder (Windows)

If this is a Windows installation, you can choose a start menu program folder for the V/JPA and Versant JPA shortcuts.



Select the options you want and click **Next>** to continue.

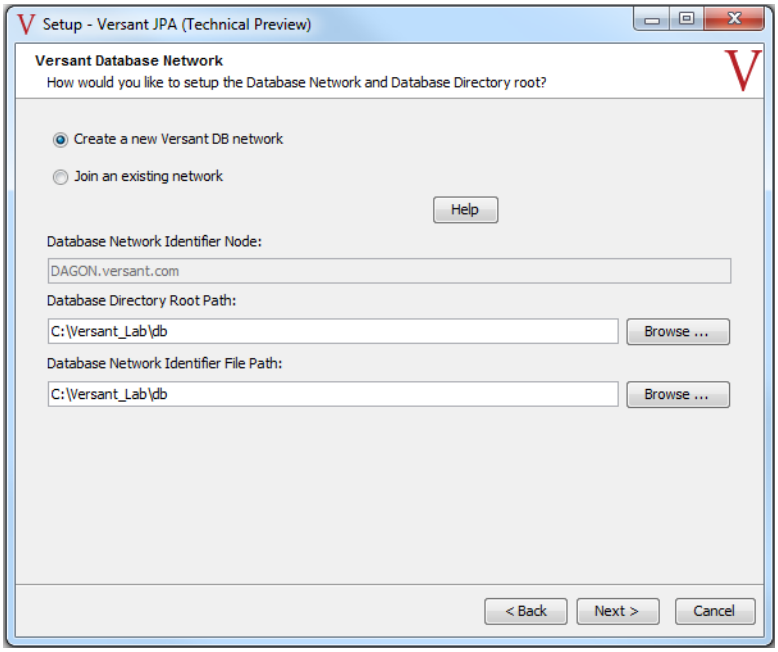
Versant Database Network

You now need to specify the database directory root and the location of the database network identifier file (`osc_dbid`). Databases that will reside on this machine will be created in the database directory root.

In this screen the information you provide depends on whether you will be creating a standalone environment, setting up a new database network with a new database network identifier file or joining an existing database network.

The installer will create database directories and information files in the *database directory root*. You can specify either a new database directory root or use an existing database directory root created from a previous installation. A default location is used if you do not specify a directory. The default is `C:\Versant_Lab\db` for Windows systems and `/opt/Versant_Lab/db` for Linux systems.

If you are going to be the sole user of the Versant JPA installation and the databases created by this installation, you can choose a database directory root of your own choice. If others are going to use this installation, then you should choose a directory visible to others on a network. If the database directory root is remote, you must be able to access it with the same user name that you use on your local machine.



> The database directory root path may not contain space characters. This is particularly important to keep in mind if you are installing Versant JPA on a Windows machine.

Creating a standalone environment

If you are creating a new standalone environment, select **Create a new Versant DB network**. Databases that will reside on this machine will be created in the database directory root specified in the **Database Root Path:** box. Use the supplied default for the **Database Directory Root Path** or provide a location of your choice. The database network identifier file will, by default, be created in the directory you chose for the database root (this is the recommended location).

Creating a new database network

If you are creating a new database network with this machine as the location of database network identifier file select **Create a new Versant DB network**. Databases that will reside on this machine will be created in the database directory root specified in the **Database Directory Root Path:** box. Use the supplied default for the **Database Directory Root Path** or provide a location of your choice. This directory should be visible to the other machines in the database network. The database network identifier file will, by default, be created in the directory you chose for the database root (this is the recommended location). If you want the database

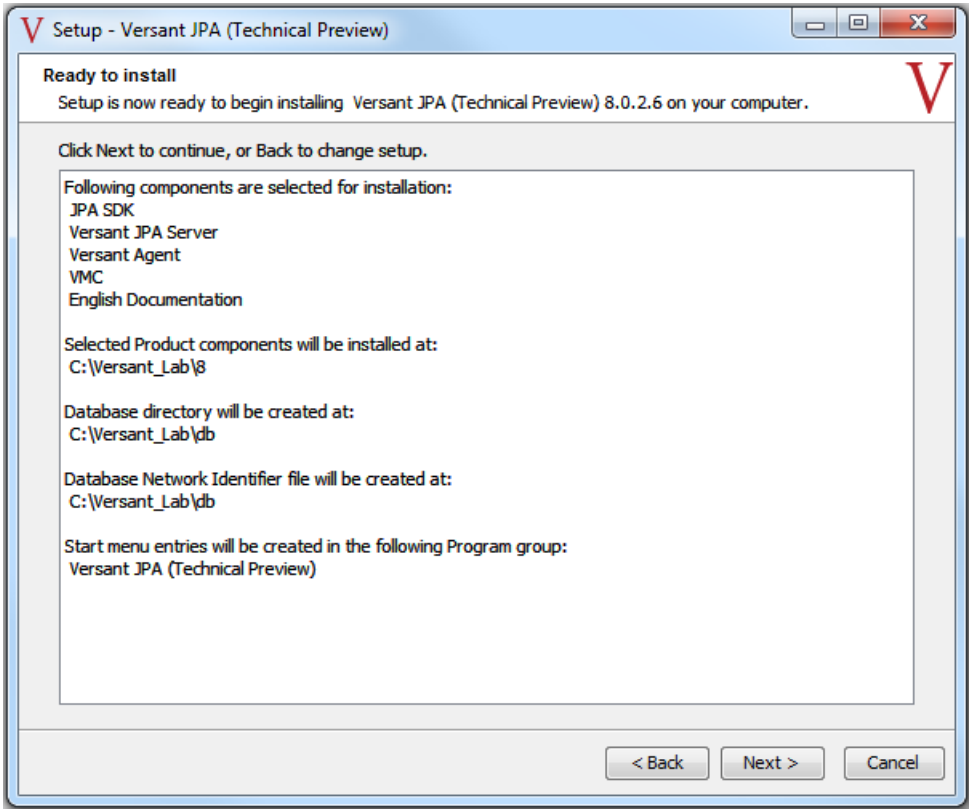
network identifier file to be in another location, supply the path in the **Database Network Identifier File Path:** box. This location should be visible to the other machines in the database network.

Joining an existing database network

If you are joining an existing database network, select **Join an existing network**. Specify the name of the server that is hosting the database network identifier file in the **Database Network Identifier Node:** box. Databases that will reside on this machine will be created in the database directory root specified in the **Database Directory Root Path:** box. Use the supplied default for the **Database Directory Root Path** or provide a location of your choice. This directory should be visible to the other machines in the database network.

Ready to Install

This screen displays a summary of the options you have selected.

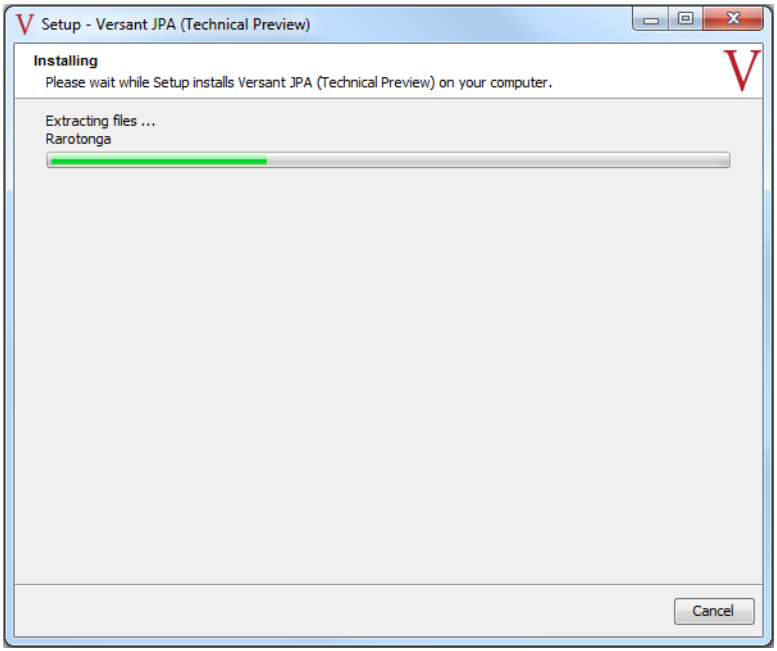


Review the selected installation components and options. If you want to correct anything click the **<Back** button(s) as needed to return to the appropriate screen and supply the corrected information. If all is in order, click **Next>**.

> **Patching or Replacing an Existing Installation**
>
> If you are installing a patch or replacing an existing installation you cannot cancel the installation beyond this point.

Installing

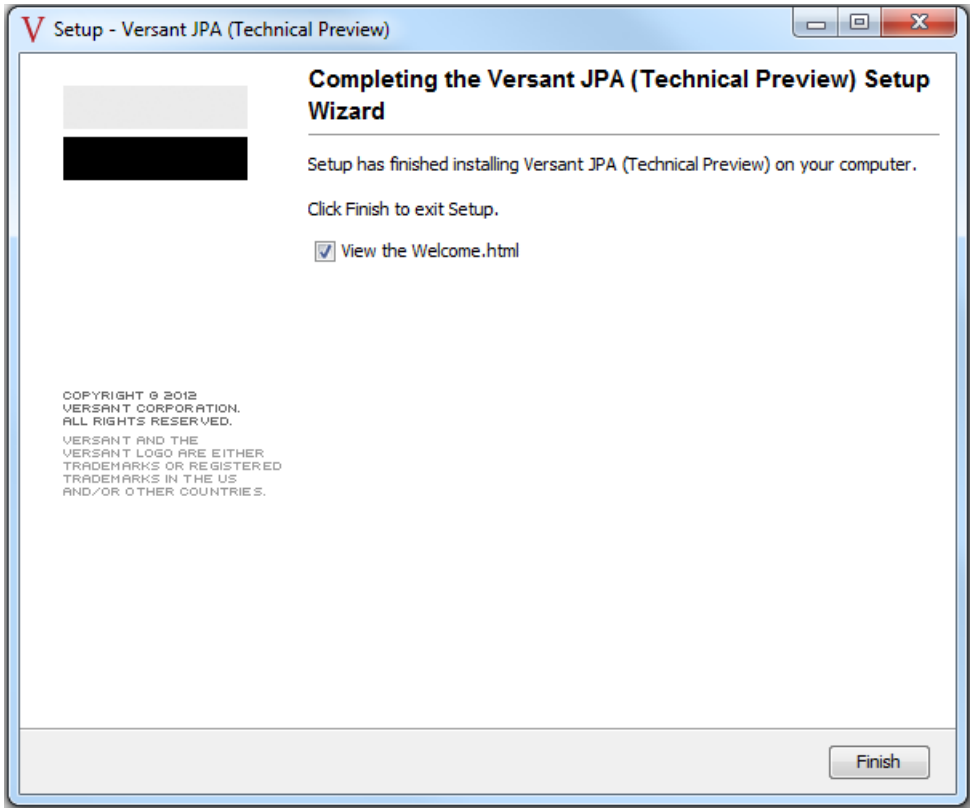
The actual installation now begins.



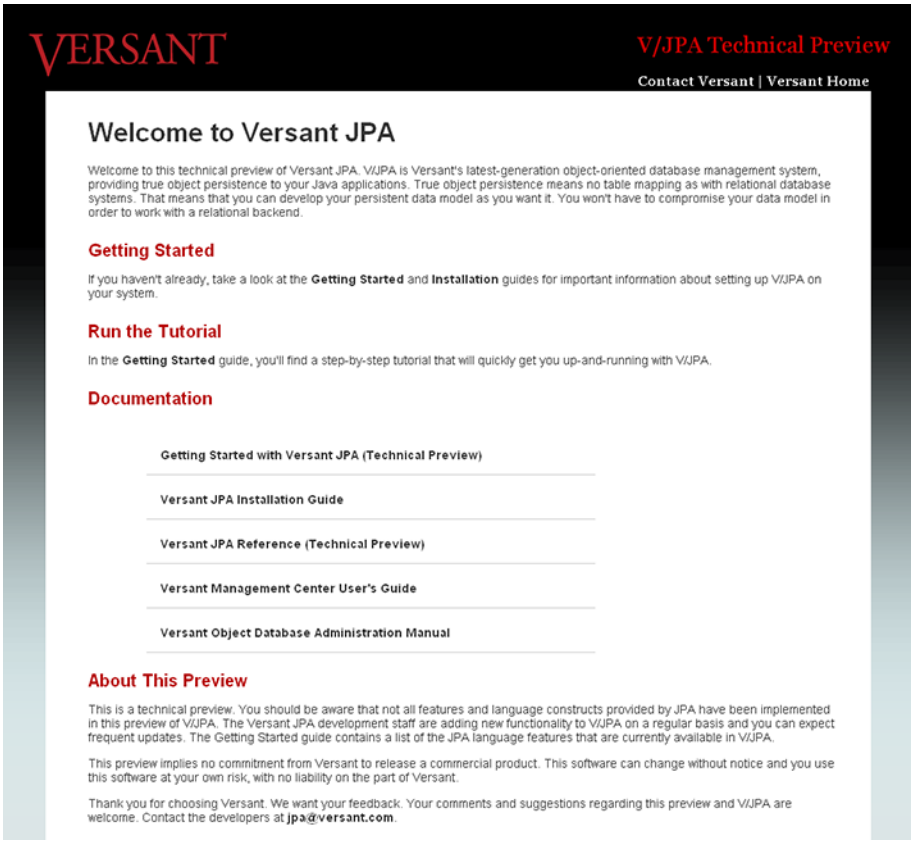
Depending on the options you have selected this can take a few minutes. The progress is displayed. If you cancel the installation during this phase, a warning dialog is displayed asking you to confirm or continue. Depending on your platform and the options you chose to install, additional screens are displayed to indicate the operations being performed.

Complete!

That's it!



Click **Finish** to exit the setup wizard. If **Display the Welcome.html** file is checked, the installation Welcome file will be displayed in your browser.



The Welcome page provides information about Versant JPA and has links to useful Versant Web-sites. The `Welcome.html` file is in your installation root directory so you can return to it at any time.

Chapter 3. Wrapping Up

There may be additional settings necessary to get Versant JPA up and running on your system. The following sections cover these settings. (These are automatically set by the Setup Wizard. If you need further help, contact V/JPA support at jpa@versant.com.)

3.1. All Platforms

Environment Parameters

Versant JPA uses the following environment parameters. These may be set as environment variables, set in the system information file, or set in the machine configuration file as indicated in the table (refer to Section 3.1, "System Information and Machine Configuration Files" [p. 17] for information about these files). For more information about V/JPA configuration, refer to the chapter *Configuration Parameters* in the *Versant Object Database Administration Manual*.

Table 3.1. V/JPA Environment Parameters

Parameter	Description	Env	Sys	Cfg
`VERSANT_ROOT`	Location of the V/JPA installation.	•		d
`VERSANT_DB`	Location of the V/JPA database root directory.	•	•	•
`VERSANT_DBID`	Location of the V/JPA database network identifier file, `osc-dbid`.	•	•	•
`VERSANT_DBID_NODE`	Name of the machine hosting the V/JPA database network identifier file, `osc-dbid`.	•	•	•

• – indicates the parameter may be set in the location; d – indicates the installation default setting location

Env – a system environment variable; Sys – the system information file; Cfg – the machine configuration file

System Information and Machine Configuration Files

The environment parameters listed in Table 3.1, "V/JPA Environment Parameters" [p. 17] may be set as environment variables, set in the system information file, or set in the machine configuration file as indicated. In most cases the simplest is to specify these parameters as environment variables. The enviroment variables will always have precedence when V/JPA resolves the parameter. In fact, the installer will set these parameters

as environment variables (as well as in the system information and machine configuration files). However, in some cases it may not be appropriate to use environment variables. Following is a brief description of the system information and machine configuration files and how V/JPA will resolve the parameter values in these files.

System Information File

The system information file is named `sysinfo` and is in the `[VERSANT_ROOT]/lib` directory. A typical system information file appears as follows (the values are based on an installation using default values).

Windows

```
VERSANT_DBID_NODE VENTURA.versant.com
VERSANT_DB C:\Versant_Lab\db
VERSANT_DBID C:\Versant_Lab\db
```

Linux

```
VERSANT_DBID_NODE VENTURA.versant.com
VERSANT_DB /opt/Versant_Lab/db
VERSANT_DBID /opt/Versant_Lab/db
```

Machine Configuration File

The machine configuration file is named and located differently depending on the system platform. The file is `C:\Windows\vr080001.ini` (Windows platforms) or `/etc/.osc080001` (Linux platforms). Following is a typical machine configuration file.

Windows

```
VERSANT_ROOT C:\Versant_Lab\8
VERSANT_DBID_NODE VENTURA.versant.com
VERSANT_DB C:\Versant_Lab\db
VERSANT_DBID C:\Versant_Lab\db
```

Linux

```
VERSANT_ROOT /opt/Versant_Lab/8
VERSANT_DBID_NODE VENTURA.versant.com
VERSANT_DB /opt/Versant_Lab/db
VERSANT_DBID /opt/Versant_Lab/db
```

Resolving the environment parameters

In general, the V/JPA executables (tools, utilities) use the following rules to resolve the environment settings.

1. If the environment variable `VERSANT_ROOT` is set, the executable looks in the system information file (`sysinfo`) for the environment parameters.
2. If the environment variable `VERSANT_ROOT` is *not* set, the executable looks in the machine configuration file (`vr080001.ini` or `.osc080001`) for the environment parameters.
3. If a parameter is set as an environment variable, this value is always used.

3.2. Windows

Environment Parameters

The environment parameters are set for you by the Setup Wizard. If you want to change some settings, you will have to set them manually. Use the Windows control panel to change an environment variable or edit the system information or machine configuration file as appropriate. For more information on the V/JPA environment parameters, refer to Environment Parameters [p. 17], above.

Application Profiles

Use the Windows User Accounts panel to specify the location of database application profile files.

Go to the Windows User Accounts panel and modify the home directory entry under the advanced properties area for each user. For more information, refer to the chapter *Database Profiles* in the *Versant Object Database Administration Manual*.

3.3. Linux

3.3.1. Automated Settings

The script files **envsettings.csh** (for **csh**/**tcsh** and similar shells) and **envsettings.sh** (for **ksh**/**bash**/**sh** shells) are located in the directory `[VERSANT_ROOT]/bin`. Using a script to source the environment variables provides an alternative to manually setting the variables (as described below). These scripts set the environment variables `PATH`, `LD_LIBRARY_PATH` and `CLASSPATH`. They also set the environment variables

VERSANT_ROOT, VERSANT_DBID, VERSANT_DBID_NODE and VERSANT_VERS. The JAVA_COMPILER variable is set to NONE.

If you carry out the installation as super-user root it will automatically set the Versant JPA service.

Following are example calls.

csh/tcsh

source ./envsettings.csh

ksh/bash/sh

. ./envsettings.sh

3.3.2. Manual Settings

After installation, you should add the Versant JPA executables directory to your system path if you want to execute Versant utilities without a path specification.

For a standard installation, the V/JPA executables directory is named bin and is located as a sub-directory of the software root directory. For example, /opt/Versant_Lab/8/bin

C Shell

If you use a C shell, the search path should be in the .login file in your home directory. To amend it to include the [VERSANT_ROOT]/bin directory, use the **setenv** command.

```
setenv PATH "[VERSANT_ROOT]/bin:$PATH"
```

Bourne Shell

If you use a Bourne shell, the search path will be in the .profile file in your home directory. Amend it to include the [VERSANT_ROOT]/bin directory for a default installation as follows.

```
export PATH="[VERSANT_ROOT]/bin:$PATH"
```

Shared library directory

You may need to set an environment variable which tells your application where to find the V/JPA shared libraries. The environment variable for shared libraries is LD_LIBRARY_PATH. The commands you need to use will vary depending upon your operating system and shell.

3.3.3. Shared Memory—Linux

For Linux, it may be necessary to modify the shared memory settings for the machine running V/JPA. The following briefly describes these settings. For more detailed information refer to the operating system documentation for your platform.

The shared memory parameters are `shmall` (total system shared memory in pages of size `PAGE_SIZE`), `shmmax` (maximum shared memory segment size in bytes), and `shmmni` (total system shared memory identifiers). You can determine the current settings for these parameters with the command **ipcs -lm**. The `PAGE_SIZE`, in bytes, can be determined with the command **getconf PAGE_SIZE** (you will need to know this to determine the value of `shmall`).

These parameters are set/adjusted in the file `/etc/sysctl.conf`. The following shows typical entries (the values are examples only). Reboot the machine for the changes to take effect.

```
kernel.shmmax = 536870912
kernel.shmmni = 4096
kernel.shmall = 2097152
```

(The value of `kernel.shmall` is in *pages*.)

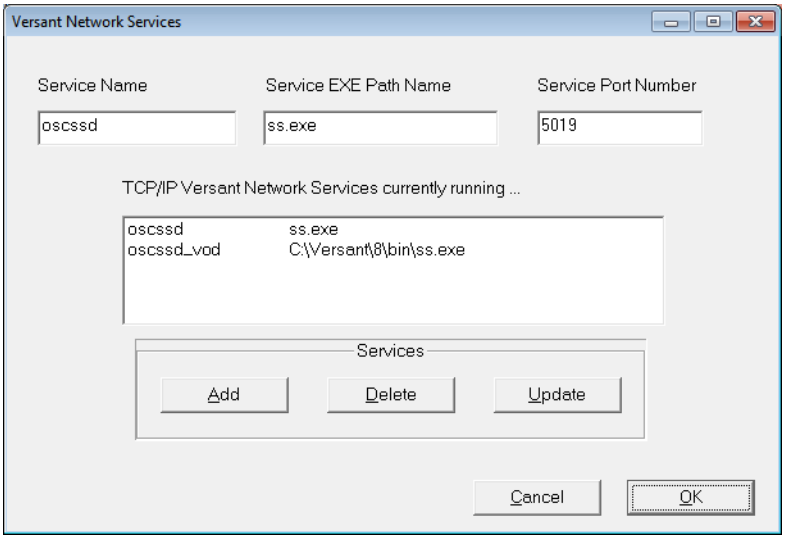
Appendix A. Using V/JPA and V/OD in Parallel

The installer for Versant JPA will create a services entry for a service named `oscssd` using port number `5019`. This is also the default name and port number used by Versant Object Database. If you want to continue using the existing V/OD installation you must create an additional services entry to be used by the existing installation. The following brief instructions describe how to do this for Windows and Linux platforms. For more detailed information, refer to your *Versant Object Database Administration Manual*, in the chapter *Configuration Parameters*.

Windows

1. Run the **networkservices.exe** program from the `bin` directory. (This must be run as admin.) You can use the **networkservices.exe** program from either your V/OD or the new V/JPA installation. Edit the **Service Name**, **Service EXE Path Name**, and **Service Port Number** fields to specify a new service for the previous version. For **Service Name**, use a name other than `oscssd`, e.g., `oscssd_vod`. For the **Service EXE Path Name** field, specify the *absolute* path to the **ss.exe** file in the previous installation. For example, `C:\Versant\8\bin\ss.exe`. The port number can be any unused port other than `5019` or `5020` (the port used by Versant SQL). Press **Add** to add the new, changed entry to the list. Finally, select **OK** to write the changes to the services file and Windows registry.

   The following figure shows the **networkservices.exe** program window with these changes.



2. Remove the following system environment variables from the server machine (the machine with both V/OD and V/JPA installed).

   VERSANT_DB
   VERSANT_DBID
   VERSANT_DBID_NODE
   VERSANT_ROOT

3. Restart your machine after making these changes.

4. The new service port number must be used by clients accessing the previous installation. Clients which need to connect to the previous V/OD version must set the environment `VERSANT_SERVICE_PORT` to the newly created service port.

> On the server machine, you will need to dynamically edit the `PATH` and `VERSANT_SERVICE_PORT` environment variables to access the new or previous V/OD server to use the appropriate database tools. The `PATH` variable includes the V/OD `bin` directory and `VERSANT_SERVICE_PORT` specifies the port number.

Linux

1. Select a service name and port number for the previous V/OD installation. The name must be other than `oscssd`. The port number can be any unused port other than `5019` or `5020` (the port used by Versant SQL). For example, `oscssd_vod` for the service name and `5021` for the port number.

2. Edit the services file, `/etc/services`, to add the selected service name and port for the previous installation. (You will need root privileges for this and the steps following.) The following shows an example of the appropriate Versant services.

```
oscssd       5019/tcp  # 8.0 installation
oscssd701    5021/tcp  # previous installation
```

3. Create a file in the `/etc/xinetd.d` directory for the renamed previous service. The file name is the name of the previous service used in the `services` file. For example, using the service name `oscssd701` from the example above, the file name is `/etc/xinetd.d/oscssd701`. Following is an example of the file content.

```
service oscssd701
{
  socket_type  = stream
  protocol     = tcp
```

```
  wait          = no
  user          = root
  server        = /opt/Versant/8/bin/ss.d
  disable       = no
}
```

4. Notify the **inetd** or **xinetd** process to refresh the configuration to reflect the changes made in the previous step. This is platform-dependent.

   Use the following command to re-start the **xinetd** process.

   /sbin/service xinetd reload

   For specific information regarding refreshing the `inetd` or `xinetd` process, refer to your operating system documentation.

5. The new service port number must be used by clients accessing the previous installation. Clients which need to connect to the previous V/OD server must set the environment variable `VERSANT_SERVICE_PORT` to the newly created service port.

   Alternatively, edit the `services` file on the appropriate client machines to add the new service name and port number for the previous installation. (The service names and port numbers for Versant services must match each other exactly on the client and server machines.) Set the `VERSANT_SERVICE_NAME` environment variable to the new service name on each client machine.