OpenEdge Management and
OpenEdge Explorer:
Getting Started
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Preface

This Preface contains the following sections:

- Purpose
- Audience
- Organization
- Using this manual
- Typographical conventions
- Examples of syntax descriptions
- OpenEdge messages
Purpose

This manual describes how to get started using OpenEdge® Management and OpenEdge Explorer.

Audience

This manual is intended for users and administrators of OpenEdge Management and OpenEdge Explorer.

Organization

Chapter 1, “Introducing OpenEdge Management and OpenEdge Explorer”

Provides an introduction to working with OpenEdge Management Management and OpenEdge Explorer. Included are details about OpenEdge Management architecture, deployment options, and remote monitoring. Also provided is a feature comparison between OpenEdge Management and OpenEdge Explorer.

Chapter 2, “Setting Up OpenEdge Management or OpenEdge Explorer for the First Time”

Describes how to select initial configuration options and how to start OpenEdge Management or OpenEdge Explorer.

Chapter 3, “Using the Console”

Describes the management console, which is common to both OpenEdge Management and OpenEdge Explorer. The chapter also describes the Database Administration Console, which you use to work with databases enabled for multi-tenancy.

Chapter 4, “Setting up Remote Resource Monitoring and Configuration”

Provides information about how to set up resources for remote monitoring by OpenEdge Management and remote configuration by OpenEdge Explorer.

Chapter 5, “Administering OpenEdge Management and OpenEdge Explorer”

Provides information about administering OpenEdge Management and OpenEdge Explorer after installation: reviewing or changing configuration options, setting up users as operators or administrators, setting other preferences if applicable, and using the command-line interface.
Chapter 6, “Setting Up Secure Communications”

Describes how to set up OpenEdge Management to use the HTTPS protocol with the OpenEdge Management Trend Database (when trending to a remote database) and how to set up both OpenEdge Management and OpenEdge Explorer to use the HTTPS protocol with the Web server. The chapter explains the process of creating a keystore; requesting, obtaining, and then importing a signed certificate; and then adding the signed certificate to the keystore.

Chapter A, “Third Party Acknowledgements”

Using this manual

OpenEdge® provides a special purpose programming language for building business applications. In the documentation, the formal name for this language is **ABL (Advanced Business Language)**. With few exceptions, all keywords of the language appear in all **UPPERCASE**, using a font that is appropriate to the context. All other alphabetic language content appears in mixed case.

For the latest documentation updates, see the OpenEdge Product Documentation category on PSDN ([http://communities.progress.com/pcom/docs/DOC-16074](http://communities.progress.com/pcom/docs/DOC-16074)).

References to ABL compiler and run-time features

ABL is both a compiled and an interpreted language that executes in a run-time engine. The documentation refers to this run-time engine as the **ABL Virtual Machine (AVM)**. When the documentation refers to ABL source code compilation, it specifies **ABL or the compiler** as the actor that manages compile-time features of the language. When the documentation refers to run-time behavior in an executing ABL program, it specifies **the AVM** as the actor that manages the specified run-time behavior in the program.

For example, these sentences refer to the ABL compiler’s allowance for parameter passing and the AVM’s possible response to that parameter passing at run time: “ABL allows you to pass a dynamic temp-table handle as a static temp-table parameter of a method. However, if at run time the passed dynamic temp-table schema does not match the schema of the static temp-table parameter, the AVM raises an error.” The following sentence refers to run-time actions that the AVM can perform using a particular ABL feature: “The ABL socket object handle allows the AVM to connect with other ABL and non-ABL sessions using TCP/IP sockets.”
References to ABL data types

ABL provides built-in data types, built-in class data types, and user-defined class data types. References to built-in data types follow these rules:

- Like most other keywords, references to specific built-in data types appear in all **UPPERCASE**, using a font that is appropriate to the context. No uppercase reference ever includes or implies any data type other than itself.
- Wherever `integer` appears, this is a reference to the `INTEGER` or `INT64` data type.
- Wherever `character` appears, this is a reference to the `CHARACTER`, `LONGCHAR`, or `CLOB` data type.
- Wherever `decimal` appears, this is a reference to the `DECIMAL` data type.
- Wherever `numeric` appears, this is a reference to the `INTEGER`, `INT64`, or `DECIMAL` data type.

References to built-in class data types appear in mixed case with initial caps, for example, `Progress.Lang.Object`. References to user-defined class data types appear in mixed case, as specified for a given application example.

Typographical conventions

This manual uses the following typographical conventions:

<table>
<thead>
<tr>
<th>Convention</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bold</strong></td>
<td>Bold typeface indicates commands or characters the user types, provides emphasis, or the names of user interface elements.</td>
</tr>
<tr>
<td><em>Italic</em></td>
<td>Italic typeface indicates the title of a document, or signifies new terms.</td>
</tr>
<tr>
<td><strong>SMALL, BOLD CAPITAL LETTERS</strong></td>
<td>Small, bold capital letters indicate OpenEdge key functions and generic keyboard keys; for example, <code>GET</code> and <code>CTRL</code>.</td>
</tr>
<tr>
<td><strong>KEY1+KEY2</strong></td>
<td>A plus sign between key names indicates a <strong>simultaneous</strong> key sequence: you press and hold down the first key while pressing the second key. For example, <code>CTRL+X</code>.</td>
</tr>
<tr>
<td><strong>KEY1 KEY2</strong></td>
<td>A space between key names indicates a <strong>sequential</strong> key sequence: you press and release the first key, then press another key. For example, <code>ESCAPE H</code>.</td>
</tr>
<tr>
<td><strong>Syntax:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Fixed width</strong></td>
<td>A fixed-width font is used in syntax statements, code examples, system output, and filenames.</td>
</tr>
<tr>
<td><strong>Fixed-width italics</strong></td>
<td>Fixed-width italics indicate variables in syntax statements.</td>
</tr>
<tr>
<td><strong>Fixed-width bold</strong></td>
<td>Fixed-width bold indicates variables with special emphasis.</td>
</tr>
</tbody>
</table>
Examples of syntax descriptions

In this example, ACCUM is a keyword, and aggregate and expression are variables:

Syntax

ACCUM aggregate expression

FOR is one of the statements that can end with either a period or a colon, as in this example:

FOR EACH Customer NO-LOCK:
  DISPLAY Customer.Name.
END.

In this example, STREAM stream, UNLESS-HIDDEN, and NO-ERROR are optional:
Syntax

```
DISPLAY [ STREAM stream ] [ UNLESS-HIDDEN ] [ NO-ERROR ]
```

In this example, the outer (small) brackets are part of the language, and the inner
(large) brackets denote an optional item:

Syntax

```
INITIAL [ constant [, constant ] ]
```

A called external procedure must use braces when referencing compile-time
arguments passed by a calling procedure, as shown in this example:

Syntax

```
( &argument-name )
```

In this example, EACH, FIRST, and LAST are optional, but you can choose only one of
them:

Syntax

```
PRESELECT [ EACH | FIRST | LAST ] record-phrase
```

In this example, you must include two expressions, and optionally you can include
more. Multiple expressions are separated by commas:

Syntax

```
MAXIMUM ( expression , expression [, expression ] ... )
```

In this example, you must specify MESSAGE and at least one expression or SKIP [ (n)
], and any number of additional expression or SKIP [ ( n ) ] is allowed:

Syntax

```
MESSAGE { expression | SKIP [ ( n ) ] } ...
```

In this example, you must specify {include-file, then optionally any number of
argument of &argument-name = "argument-value", and then terminate with }:

Syntax

```
( include-file
  [ argument | &argument-name = "argument-value" ] ... )
```
Long syntax descriptions split across lines

Some syntax descriptions are too long to fit on one line. When syntax descriptions are split across multiple lines, groups of optional and groups of required items are kept together in the required order.

In this example, `WITH` is followed by six optional items:

Syntax

```
WITH [ ACCUM max-length ] [ expression DOWN ]
[ CENTERED ] [ n COLUMNS ] [ SIDE-LABELS ]
[ STREAM-IO ]
```

Complex syntax descriptions with both required and optional elements

Some syntax descriptions are too complex to distinguish required and optional elements by bracketing only the optional elements. For such syntax, the descriptions include both braces (for required elements) and brackets (for optional elements).

In this example, `ASSIGN` requires either one or more `field` entries or one `record`. Options available with `field` or `record` are grouped with braces and brackets:

Syntax

```
ASSIGN  { [ FRAME frame ] { field [ = expression ] } [ WHEN expression ] } ... 
| { record [ EXCEPT field ... ] }
```
OpenEdge messages

OpenEdge displays several types of messages to inform you of routine and unusual occurrences:

- **Execution messages** inform you of errors encountered while OpenEdge is running a procedure; for example, if OpenEdge cannot find a record with a specified index field value.

- **Compile messages** inform you of errors found while OpenEdge is reading and analyzing a procedure before running it; for example, if a procedure references a table name that is not defined in the database.

- **Startup messages** inform you of unusual conditions detected while OpenEdge is getting ready to execute; for example, if you entered an invalid startup parameter.

After displaying a message, OpenEdge proceeds in one of several ways:

- Continues execution, subject to the error-processing actions that you specify or that are assumed as part of the procedure. This is the most common action taken after execution messages.

- Returns to the Procedure Editor, so you can correct an error in a procedure. This is the usual action taken after compiler messages.

- Halts processing of a procedure and returns immediately to the Procedure Editor. This does not happen often.

- Terminates the current session.

OpenEdge messages end with a message number in parentheses. In this example, the message number is **200**:

```
** Unknown table name table. (200)
```

If you encounter an error that terminates OpenEdge, note the message number before restarting.
Obtaining more information about OpenEdge messages

In Windows platforms, use OpenEdge online help to obtain more information about OpenEdge messages. Many OpenEdge tools include the following Help menu options to provide information about messages:

- Choose Help → Recent Messages to display detailed descriptions of the most recent OpenEdge message and all other messages returned in the current session.

- Choose Help → Messages and then type the message number to display a description of a specific OpenEdge message.

- In the Procedure Editor, press the HELP key or F1.

On UNIX platforms, use the OpenEdge pro command to start a single-user mode character OpenEdge client session and view a brief description of a message by providing its number.

To use the pro command to obtain a message description by message number:

1. Start the Procedure Editor:

   ```
   OpenEdge-install-dir/bin/pro
   ```

2. Press F3 to access the menu bar, then choose Help → Messages.

3. Type the message number and press ENTER. Details about that message number appear.

4. Press F4 to close the message, press F3 to access the Procedure Editor menu, and choose File → Exit.
Introducing OpenEdge Management and OpenEdge Explorer

OpenEdge Management helps you monitor the availability and performance of supported OpenEdge resources. You can also set configuration properties and view the status and log file data for certain resources.

OpenEdge Explorer runs within the OpenEdge Management console, which runs in a Web browser. Using OpenEdge Explorer, you can set resource configuration properties, start or stop, and view the status of log files for various OpenEdge resources. You can use OpenEdge Explorer without OpenEdge Management, or with OpenEdge Management if you have OpenEdge Management installed.

The following sections provide information to help you get started using OpenEdge Management and OpenEdge Explorer:

- OpenEdge Management overview
- OpenEdge Explorer overview
- Understanding OpenEdge Management architecture and deployment
- Configuring or monitoring resources on a remote AdminServer
- Choosing an OpenEdge Management deployment strategy
- OpenEdge Management CPU and memory requirements
- Optionally configuring the OpenEdge Management Trend Database
- System requirements
- Accessing OpenEdge Management and OpenEdge Explorer documentation
- Getting started with OpenEdge Management tasks
OpenEdge Management overview

OpenEdge Management includes the following key features and benefits:

- Provides centralized monitoring of the OpenEdge environment to present a comprehensive picture of the health and performance of your OpenEdge application.

- Can be used immediately to monitor local log files and resources running on a local machine. You can also use OpenEdge Management to monitor resources running under an AdminServer on a remote machine.

- Allows you to make configuration changes to resource instances. These changes are then automatically reflected in the corresponding property file—conmgr.properties for a database and ubroker.properties for the remaining resources.

- Allows you to create collections and custom views from the My Dashboard page. You can create and use a collection to better organize and operate on resources. You can also optionally create one or more custom views in OpenEdge Management and specify exactly what types of information you want to see. The information provides, sometimes in a graphical format, a customized view of your various resources’ status.

- Offers a graphical display of database views, which allows you to see at a glance what is happening in the database. The graphics appear in several different, easy-to-understand charts whose display you can open as a separate window and customize in style and size.

  A graphical representation of data also appears in the summary information for other resources—such as OpenEdge server resources, or memory, CPU, disk, file, or file system resource—and for several AppServer- and WebSpeed-related performance views.

- Enables you to configure alerts to notify appropriate IT personnel of problems with your OpenEdge applications. For example, you can configure alerts to send e-mail notifications to IT personnel and to execute scripts.

- Allows you to view, print, and save reports showing historical and trend data related to all of the monitored resources. Each report instance that you create and run is based on a report template, either one of the over 20 provided by OpenEdge Management, or one of your own creation. You can also write custom reports with ABL or use other reporting tools, such as Crystal Reports. Use this feature to help with capacity planning and forecasting.

  OpenEdge-related reports include a graphical and an HTML display of information.
OpenEdge Management overview

- Is easy to deploy, configure, and use. A multi-platform user interface allows you to configure and use OpenEdge Management through any compatible Web browser.

- Allows you to define batch-style application programs using your existing scripts as OpenEdge Management jobs, both locally and remotely. You can schedule the jobs for execution at regular intervals. OpenEdge Management also provides historical reports of the jobs.

- Is non-intrusive. You are not required to make any changes to the network applications you choose to monitor.

- Allows you to use Secure Sockets Layer (SSL) when you are setting up:
  - Remote trending of data to the OpenEdge Management Trend Database
  - The OpenEdge Management Web server

- Allows you to query a running AppServer to see a list of client systems to which the AppServer is currently connected. This information may be helpful in identifying application components that may have malfunctioned.

- Supports TCP/IP versions 4 and 6.

- Includes the Database Administration Console, which allows you to manage and work with databases enabled for multi-tenancy.
OpenEdge Explorer overview

You can use OpenEdge Explorer within the graphical user interface console also used by OpenEdge Management. The console runs in a browser, making it accessible in Windows and on supported UNIX platforms.

OpenEdge Explorer allows you to:

• Create and delete new instances of licensed resources
• Set or modify properties for these instances
• Start or stop the instances (where applicable)
• View a real-time status of the instances
• View an instance’s log file
• Work with databases enabled for multi-tenancy

OpenEdge Explorer is installed with OpenEdge for the following products:

<table>
<thead>
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<th>4GL Development System</th>
<th>OpenEdge Enterprise, Workgroup, or Personal database</th>
</tr>
</thead>
<tbody>
<tr>
<td>NameServer</td>
<td>OpenEdge DataServer for ODBC, Oracle, or MS SQL Server</td>
</tr>
<tr>
<td>WebSpeed Workshop</td>
<td>OpenEdge Development Server</td>
</tr>
<tr>
<td>Progress Developer Studio for OpenEdge</td>
<td>OpenEdge Application Server Basic</td>
</tr>
<tr>
<td>OpenEdge Studio</td>
<td>OpenEdge Application Server Enterprise</td>
</tr>
</tbody>
</table>

OpenEdge Explorer feature availability

As you work with OpenEdge Explorer within the console, you might see that certain links and functionality are not available. In general, the settings you can establish and the options you can access when using OpenEdge Explorer (and OpenEdge Management) are determined both by the platform you are using and the products that you are licensed to use. If you notice that a particular property setting is dimmed in the OpenEdge Explorer console and not available for modification, it is because that property has no meaning within your operating environment or your licensed configuration.
Understanding OpenEdge Management architecture and deployment

As you work with OpenEdge Management, it is helpful to understand its architecture and deployment options, as described in the following sections:

- OpenEdge Management system architecture
- OpenEdge Management deployment

OpenEdge Management system architecture

OpenEdge Management consists of the following:

- A Web-based management console, which provides a central location for viewing and configuring resources that are monitored by OpenEdge Management.
- Components to monitor supported OpenEdge resources.
- The Database Administration Console, which allows you to manage and work with databases enabled for multi-tenancy.
- A database called the OpenEdge Management Trend Database that stores all data collected by agents for use in reporting.
- The OpenEdge Management process, running as a thread in the AdminServer. The AdminServer is a background process that provides a common point of management for the resources managed by OpenEdge Management or OpenEdge Explorer. (For more information about the AdminServer, see OpenEdge® Management and OpenEdge Explorer: Getting Started.)
- The Orient DB database, which stores monitoring plans and resource definitions.
- OpenEdge Explorer, which allows you to set or modify configuration properties for certain resources, as well as to view their status and log file data.
OpenEdge Management deployment

You can deploy OpenEdge Management by installing it on:

- A single host
- Multiple hosts

Deploying OpenEdge Management on a single host

The simplest way to deploy OpenEdge Management is to install it on a single host where only local resources are to be monitored. A local resource is a system, network, file, or OpenEdge server resource that exists on the same host as OpenEdge Management.

A database on the same host as OpenEdge Management is a managed database, provided that the database is recognized by the AdminServer also running OpenEdge Management. OpenEdge Management can also monitor scripted databases, which are not under AdminServer control, whether on the same host as OpenEdge Management or on other machines.

In the scenario shown in Figure 1, all components of OpenEdge Management exist on the same host, Machine A.

![Diagram of single-host OpenEdge Management installation]

**Figure 1: Single-host OpenEdge Management installation**

OpenEdge Management is running inside the AdminServer on Machine A. The OpenEdge Management Trend Database and all monitored resources are also on Machine A.

On Machine B are a dbagent and a scripted database, which is running outside of the AdminServer on Machine A.
Deploying OpenEdge Management on multiple hosts

A slightly more complex way to deploy OpenEdge Management is to install it on each host where resources are to be monitored. In this scenario, each install of OpenEdge Management monitors only those resources local to the host on which it is installed. Each install of OpenEdge Management uses its own OpenEdge Management Trend Database, as illustrated in Figure 2.

Figure 2: Multiple-host OpenEdge Management installation

Figure 2 illustrates three separate installs of OpenEdge Management, one each on Machine A, B, and C. Each install uses its own OpenEdge Management Trend Database, and each install is monitoring only local resources. A possible negative aspect of the deployment shown in Figure 2 is that you have multiple OpenEdge Management Trend Databases.
As an alternative, you could configure each install of OpenEdge Management to use a shared OpenEdge Management Trend Database, as shown in Figure 3.

Figure 3: Multiple-host installation with shared OpenEdge Management Trend Database

Figure 3 illustrates three separate installs of OpenEdge Management, one each on Machine A, B, and C. Each install is sharing a single OpenEdge Management Trend Database on Machine B, and each install is monitoring only local resources.

In the deployments shown in Figure 2 and Figure 3, there is a separate install of OpenEdge Management on each host where resources are to be monitored. Neither takes advantage of OpenEdge Management's remote resource monitoring.
Configuring or monitoring resources on a remote AdminServer

If you have OpenEdge Management installed, you can monitor and configure resources running on a remote AdminServer. You can use OpenEdge Explorer to set configuration properties for (but not monitor) remote resources.

To configure or monitor a remote resource, you identify the resource’s container. A container represents a named instance of an AdminServer that is running OpenEdge Management or OpenEdge Explorer. A remote container can be one of the following:

- A container that you set up to be configured or monitored remotely by OpenEdge Management
- A container that you have set up to be configured remotely by OpenEdge Explorer

There is typically a one-to-one relationship between the host name and the container name, unless there are multiple AdminServers running OpenEdge Management or OpenEdge Explorer on the same host.

For details about setting up remote containers, see Chapter 4, "Setting up Remote Resource Monitoring and Configuration."

Configuring remote resources with OpenEdge Explorer

When you add a resource to OpenEdge Explorer, you identify the location of the resource in either a local container or a remote container.

You can set or modify configuration properties for a resource that is either local or remote, provided that:

- An AdminServer is available and running on the remote resource’s host machine.
- You have disabled OpenEdge Explorer on the remote resource’s host machine. This is not a mandatory step, but we highly recommend that you have the Explorer disabled.

See the "Setting up for remote monitoring or configuration" section on page 89 for details.
Configuring and monitoring remote resources with OpenEdge Management

With OpenEdge Explorer, you can configure resources running on a remote machine. With OpenEdge Management, you can configure and also monitor resources on a remote machine provided that:

- An AdminServer is available and running on the remote resource’s host machine.
- You have disabled OpenEdge Management (and OpenEdge Explorer) on the remote resource’s host machine. This is not a mandatory step, but we highly recommend that you have the Explorer disabled.

See the “Setting up for remote monitoring or configuration” section on page 89 for details.

Remote configuration and monitoring provide numerous benefits, the greatest of which is the ability to view the status of all your resources and alerts through a single OpenEdge Management console. Remote resource monitoring also simplifies deployment because OpenEdge Management need not be installed on each host where the resources are to be monitored.

For monitoring resources remotely, OpenEdge Management uses the remote monitoring framework, which is a very fast and reliable messaging system.

Resources that support remote monitoring

You can deploy OpenEdge Management to monitor the following remote resources:

- **Databases** — OpenEdge Releases 11.3 and greater.
- **OpenEdge servers** — AppServer, WebSpeed, OE Web Server and NameServer.
- **System resources** — CPU, memory, disk, and file system.
Figure 4 shows a deployment in which OpenEdge Management is monitoring resources on a remote machine.

The illustration shown in Figure 4 presents a single installation of OpenEdge Management on Machine A, which is monitoring the following resources on Machine B:

- **Scripted and managed databases** — A *scripted database* is a database whose broker cannot be managed by the AdminServer in any way. A *managed database* is a database that the AdminServer recognizes and manages.

- **Supported OpenEdge servers** — A supported OpenEdge server can be an AppServer, a NameServer, or a WebSpeed Transaction Server.

- **System resources** — System resources are CPU, disk, memory, and file system.
You can extend the deployment model shown in Figure 4 to multiple hosts, as shown in Figure 5.

![Figure 5: Monitoring of resources on two machines](image)

The illustration shown in Figure 5 presents a single install of OpenEdge Management on Machine A, which is monitoring databases (scripted and managed), supported OpenEdge servers, and system resources on Machine B and Machine C.

The number of remote hosts you monitor from the OpenEdge Management install on Machine A is limited only by the power of Machine A, the number of remote resources monitored, and the frequency with which they are polled.

This deployment model is very effective in that it allows you to install OpenEdge Management on a non-production machine—that is, a machine other than one where your OpenEdge or other critical application resources run. The benefit of this deployment model is that it minimizes the impact of using OpenEdge Management to monitor your production machines.
More about monitoring scripted and managed databases

You can configure OpenEdge Management to monitor both scripted and managed databases. Using the dbagent, OpenEdge Management can monitor a database that is running on the same host as OpenEdge Management or on a different host, regardless of whether the database is managed (recognized by the AdminServer) or scripted (not under AdminServer control).

Currently OpenEdge Management can monitor:

- A managed database (that OpenEdge Management has autodiscovered) running under a remote-enabled AdminServer.

- A scripted database that is running through a remote-enabled AdminServer.

- A scripted database that is running outside of the AdminServer in which OpenEdge Management is running. In this case, the AdminServer is not remote-enabled.

Monitoring a scripted database through a remote-enabled AdminServer

When OpenEdge Management monitors a scripted database that is running through a remote-enabled AdminServer, the scripted database communicates directly with that AdminServer, which then uses the remote monitoring framework infrastructure to communicate with OpenEdge Management. The advantage to setting up monitoring in this way is that the scripted database can connect right into an AdminServer that is remote-enabled for all resources; it is not necessary for the dbagent to open a separate port into OpenEdge Management.

You configure OpenEdge Management and the remote-enabled AdminServer by using the OpenEdge Management Remote Monitoring Configuration Utility. For details, see Chapter 4, "Setting up Remote Resource Monitoring and Configuration."

Monitoring a managed database through a remote-enabled AdminServer

OpenEdge Management can monitor a managed database that has been autodiscovered running under a remote-enabled AdminServer.

Monitoring scripted databases outside the AdminServer running OpenEdge Management

OpenEdge Management can monitor scripted databases that are running outside of the AdminServer in which OpenEdge Management is running. In order to monitor a database that is scripted, you must create a remote database resource.
To monitor a scripted database once you migrate it, OpenEdge Management uses the dbagent installed with your OpenEdge database. This deployment is shown in Figure 6.

Consider you have database B running on Machine B and database C running on Machine C. It would make sense for the dbagent on Machine B to connect to the AdminServer on Machine B, since doing so would provide the most versatility (for the log file viewer and increased performance, for example).

Since there is no AdminServer running on Machine C, the dbagent can decide whether to connect to the AdminServer on Machine A or Machine B.

See *OpenEdge Management: Database Management* for more information.
Choosing an OpenEdge Management deployment strategy

The best strategy for deploying OpenEdge Management depends on your requirements. There is no one strategy that works bests for all environments. You may find that a combination of approaches works best for your needs. Some factors to consider when deciding on a deployment strategy include:

- Do you want to minimize the impact of OpenEdge Management on your production machines? If so, you should consider installing OpenEdge Management on a machine dedicated to running OpenEdge Management and use OpenEdge Management remote resource monitoring capabilities.

- Do you want to view the status of all your resources from a single OpenEdge Management console? If so, you should consider using OpenEdge Management's remote resource monitoring capabilities.

- Do you need to run jobs on remote machines? OpenEdge Management provides support for remote jobs.

- Will you be monitoring resources outside of your network firewall? If so, you will need to perform the appropriate tunneling to allow OpenEdge Management through the firewall.

The default port for monitoring remote OpenEdge and system resources is 6835.

For more information about using OpenEdge Management with resources being managed by a remote AdminServer, see Chapter 4, “Setting up Remote Resource Monitoring and Configuration.”
OpenEdge Management CPU and memory requirements

OpenEdge Management consumes both CPU and memory on the system where it is running. The amount consumed varies based on the number and types of resources being monitored, the frequency with which they are polled, and the processing power of the host system.

CPU use

OpenEdge Management CPU utilization should typically be in the range of 1-5% (with possible spikes as noted below). Factors that might result in greater levels of CPU utilization include:

- **A very high number of monitored resources relative to the processing power of the host system** — The number of resources you can monitor with OpenEdge Management before it introduces an unacceptable CPU load is very dependent upon the processing power of the host system.

  On most systems monitoring a moderate number of resources such as 10 databases, 20 system resource monitors, and 20 network resource monitors, the CPU load of OpenEdge Management should be minimal. Host systems with greater processing power will be able to support greater resource counts.

- **A very short polling interval on monitored resources** — Each poll of a resource requires a small measure of CPU utilization. Polling a lot of resources with very short polling intervals will increase OpenEdge Management load on the CPU. Using the default OpenEdge Management polling interval should minimize this problem.

  If OpenEdge Management CPU utilization becomes a problem, you can reduce it by increasing the polling interval of monitored resources. For example, rather than polling databases every 5 minutes, you can set them to poll every 15 minutes.

- **A very high level of user interaction with OpenEdge Management through the management console** — Each page displayed in the console needs to be produced by OpenEdge Management, and, therefore, requires a small measure of CPU utilization. A very high level of user interaction with the console will increase OpenEdge Management load on the CPU. This is especially true of any page that displays graphical data.

  One feature to be particularly conscious of is the OpenEdge Management Auto Refresh capability. This feature allows you to configure the OpenEdge Management console such that the displayed pages are automatically refreshed at a specified rate. Automatically refreshing pages with lots of graphical data at a high frequency will increase OpenEdge Management load on the CPU. For details about the Auto Refresh feature, see the “Setting the OpenEdge Management page refresh option” section on page 116.
OpenEdge Management CPU and memory requirements

- **Very high levels of report execution** — OpenEdge Management uses an OpenEdge database for storing trend information and ABL for running reports. This combination makes OpenEdge Management historical reports very efficient; however, running reports very frequently or against a large volume of historical data will increase OpenEdge Management load on the CPU.

  You should use the OpenEdge Management scheduling facility to schedule reports to run at off-peak hours. You can also install a copy of OpenEdge Management on a nonproduction host and use it as the trend database for the OpenEdge Management install on your production hosts. Doing this will allow you to offload the management of trend data and run historical reports from your production host.

- **A large number of jobs** — Like reports, jobs can put a heavy load on the CPU. The scheduling algorithm of your operating system might give all available CPU time to execute jobs or reports, which can cause a spike in CPU utilization while the job or report is running. You should schedule CPU-intensive jobs, such as database backups, to run at off-peak hours to minimize the chances of introducing too much overhead during peak system times. Offloading jobs to nonproduction systems is another option.

**Memory use**

OpenEdge Management memory utilization is directly related to the number and types of resources being monitored. The AdminServer with OpenEdge Management loaded but no resources defined requires 25MB to 35MB of RAM memory. This requirement can vary based upon the platform and the number of other OpenEdge products installed.

As you add resources to OpenEdge Management, the memory requirements increase. Each monitored database requires about 2MB of memory. Other monitored resource types require much less, typically in the range of 10KB to 100KB per resource.

OpenEdge Management allows you to store the data being used for graphs. This increased storage can cause a significant increase in memory usage.
Factors you can control to manage OpenEdge Management memory utilization include:

- **The number of monitored resources** — If OpenEdge Management is consuming an unacceptable amount of memory, you can reduce the number of monitored resources. You can also choose to install an instance of OpenEdge Management on a nonproduction host and use that host to monitor network and log file resources. This would remove the load from your production hosts, leaving on them only the monitoring of local system resources and databases.

- **Use of the OpenEdge Management remote database monitoring agent** — Using an instance of OpenEdge Management on a nonproduction host in conjunction with the remote database monitoring agent will allow you to greatly minimize overhead on your production systems. In this configuration, the majority of OpenEdge Management activity is off-loaded to a nonproduction host. Only the overhead of the remote database agent will be incurred on your production systems. This overhead is minimal.

- **Adding remote monitoring on the OpenEdge Management machine** — The addition of remote monitoring will substantially increase memory use.

- **Working with the Database Administration Console** — When you are working with the Database Administration Console (and depending on how it is configured), there may be one or more copies of _progress.exe_ actively running. These copies of _progress_ may connect and disconnect from any monitored databases to perform tasks needed for the Database Administration Console.
Optionally configuring the OpenEdge Management Trend Database

After you install OpenEdge Management and before you begin the configuration in the OpenEdge Management console (as described in Chapter 2, “Setting Up OpenEdge Management or OpenEdge Explorer for the First Time”), you can preallocate file system space in the OpenEdge Management Trend Database. This preallocation step is optional; however, it will make the database run more efficiently if you create fixed length extents before the database is created.

To preallocate file system space:

1. Copy the OpenEdge Management Trend Database structure file (fathom.st) that exists in `<OpenEdgeManagement-install-dir>\db` to the directory where the database will reside. (The default OpenEdge Management install directory is Progress\oemgmt.)

2. Edit the file, and add fixed length data extents to area 7.

3. Continue with the configuration as described in Chapter 2, “Setting Up OpenEdge Management or OpenEdge Explorer for the First Time.” When the OpenEdge Management Trend Database is created, the database uses the structure file that exists in the directory where the database is being created.

For more information about editing .st files, see OpenEdge Data Management: Database Administration.
System requirements

Most of the system requirements for OpenEdge Management or OpenEdge Explorer are the same as those for OpenEdge. For more information, see OpenEdge® Management and OpenEdge Explorer: Getting Started.

Browser support

A Web browser is required to run the OpenEdge Management or OpenEdge Explorer graphical user interface known as the management console.

The following browsers are supported in Windows platforms:

- Firefox (minimum Version 3.6 required)
- Google Chrome
- Internet Explorer (minimum Version 8 required)
- Opera
- Safari

On UNIX platforms, the following browsers are supported:

- Firefox (minimum Version 3.6 required)
- Google Chrome
- Opera

On the Macintosh platform:

- Firefox
- Google Chrome
- Opera
- Safari

Although you may find either other browsers or earlier versions of the browsers listed here that you can use with OpenEdge Management or OpenEdge Explorer, those versions/browsers may present limited functionality or rendering problems.
Accessing OpenEdge Management and OpenEdge Explorer documentation

OpenEdge Management and OpenEdge Explorer documentation is available as follows:

- From the Help→Documentation link.
- From the context-sensitive Help icon (the question mark) in the toolbar.

If no context-sensitive help link exists for a particular page, the Welcome to OpenEdge Management and OpenEdge Explorer topic opens. From there, you can use the Search tab or the Index tab in the left pane of the management console to search for the specific details you want.

- In the Documentation and Samples (doc_samples) directory of the OpenEdge Product ESD.
- In PDF and HTML format from the following location:

  http://communities.progress.com/pcom/docs/DOC-16074

For best results when using the PDF files, install the Acrobat Reader. You can download the Reader from the following location on the Adobe Web site:

  http://www.adobe.com/products/acrobat/readstep2.html

In addition to this manual, the following documents comprise the OpenEdge Management and OpenEdge Explorer document set:

- **OpenEdge® Management and OpenEdge Explorer: Getting Started**

  Describes how to establish property and configuration settings for OpenEdge databases, DataServers (for ODBC, Oracle, and MS SQL Server), NameServers, AppServers, AppServer Internet Adapters, Web Services Adapters, WebSpeed® Transaction Servers, WebSpeed Messengers, OE Web Server, and ActiveMQ® Adapters in OpenEdge Management and OpenEdge Explorer. In addition, this manual also includes details about viewing status and log files.

- **OpenEdge Management: Resource Monitoring**

  Provides detailed information about the management console; the procedures to set up and run resource monitors, jobs, job templates; and the procedures to perform OpenEdge Management-based import and export activities.

- **OpenEdge Management: Database Management**

  Describes how to use OpenEdge Management to monitor and manage OpenEdge database resources.
• **OpenEdge Management: Alerts Guide and Reference**

Presents alert concepts and procedures and provides a comprehensive reference section to assist you in working with the OpenEdge Management alerts feature.

• **OpenEdge Management: Servers, DataServers, Messengers, and Adapters**

Describes how OpenEdge Management supports monitoring and managing specific resources associated with the OpenEdge server products (AppServer, WebSpeed Transaction Server, and NameServer), DataServers (ODBC, Oracle, and MS SQL Server), WebSpeed Messengers, and Adapters (AppServer Internet Adapter, SonicMQ Adapter, OE Web Server, and Web Services Adapter).

• **OpenEdge Management: Reporting**

Provides detailed information about creating and working with report instances and templates.

• **OpenEdge Management: Trend Database Guide and Reference**

Describes how to manage the OpenEdge Management Trend Database by compacting and purging data. This book also provides a detailed look at the Trend Database schema.

• **OpenEdge® Management and OpenEdge Explorer: Getting Started**

Describes how to manage and work with databases enabled for multi-tenancy. From the management console, you can perform a variety of different tasks, such as adding a local or remote database connection definition; creating new tenants and viewing their areas, domains, partitions, and schemas; uploading and previewing schema updates; making storage area and allocation decisions; filtering views; and creating and working with tenant templates and tenant groups.

You can also enable local and remote databases for multi-tenancy, convert tables to multi-tenancy, and establish and manage user and table security settings. Support for viewing, exporting, and editing values for sequences is also available.

• **OpenEdge Management and OpenEdge Explorer: Getting Started with Multi-tenancy**

Describes how to get started using multi-tenancy in the Database Administration Console.
Using online Help

You can access online help in two different ways:

- From the menu bar near the top of the management console, click the Help icon to see context-sensitive help directly related to the active console page. If no context-sensitive help link exists for a particular page, the Welcome to OpenEdge Management and OpenEdge Explorer topic opens. From there, you can use the Search tab or the Index tab in the left pane of the management console to search for the specific details you want.

- From the management console menu bar, choose Help → Documentation for an online version of the OpenEdge Management and OpenEdge Explorer guides.
Getting started with OpenEdge Management tasks

To help you get started with OpenEdge Management, Figure 7 illustrates the major OpenEdge Management tasks in the order they are typically performed. This diagram is not intended to depict all of the features or functionality in OpenEdge Management, but rather to provide a high-level view. Use the information in Table 1 to locate information on performing each task.

Figure 7: OpenEdge Management workflow overview
Table 1: Documentation for major OpenEdge Management tasks

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<thead>
<tr>
<th>For information on this task . . .</th>
<th>See . . .</th>
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<td>Developing a deployment plan before you install OpenEdge Management</td>
<td>This guide</td>
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<tr>
<td>Setting up OpenEdge Management or OpenEdge Explorer, which includes logging on and defining initial settings</td>
<td>This guide</td>
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<tr>
<td>Setting up OpenEdge Management for remote monitoring and configuration, and OpenEdge Explorer for remote configuration; and setting up users.</td>
<td>This guide</td>
</tr>
<tr>
<td>Updating initial OpenEdge Management settings related to authorized users, user preferences, the SNMP Adapter, and other configuration settings in the following categories: general, OpenEdge Management Trend Database, Web server, e-mail alerts, and resource monitoring</td>
<td>This guide</td>
</tr>
<tr>
<td>Using the HTTPS (SSL) protocol for trending to a remote database or for communication between an OpenEdge Management Web server and client</td>
<td>This guide</td>
</tr>
<tr>
<td>Creating new instances of resources, and setting or modifying their configuration properties</td>
<td>OpenEdge® Management and OpenEdge Explorer: Getting Started</td>
</tr>
<tr>
<td>Creating monitoring plans for and managing system, network, file, and OpenEdge resources in OpenEdge Management</td>
<td>OpenEdge Management: Resource Monitoring</td>
</tr>
<tr>
<td>Creating collections and custom views (My Dashboard) in OpenEdge Management</td>
<td>OpenEdge Management: Resource Monitoring</td>
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<tr>
<td>Creating and scheduling jobs in OpenEdge Management</td>
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<td>Importing and exporting configurations in OpenEdge Management</td>
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</tr>
<tr>
<td>Creating monitoring plans for and managing database resources in OpenEdge Management</td>
<td>OpenEdge Management: Database Management</td>
</tr>
</tbody>
</table>
### Table 1: Documentation for major OpenEdge Management tasks (2 of 2)

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<tr>
<th>For information on this task . . .</th>
<th>See . . .</th>
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<td>Understanding and working with OpenEdge Management alerts</td>
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<td>Getting started with multi-tenancy in the Database Administration Console</td>
<td>OpenEdge Management and OpenEdge Explorer: Getting Started with Multi-tenancy</td>
</tr>
</tbody>
</table>
Setting Up OpenEdge Management or OpenEdge Explorer for the First Time

This chapter introduces the components of OpenEdge Management and OpenEdge Explorer and describes how to set up each one, as outlined in the following sections:

- Using the management console
- Preparing to set up OpenEdge Management or OpenEdge Explorer
- Completing the initial setup process
- Starting OpenEdge Management or OpenEdge Explorer
- Choosing initial configuration options
- Setting up the Getting Started page for OpenEdge Management

Note that it is not necessary to set up OpenEdge Explorer if you have installed OpenEdge Management. The setup of OpenEdge Management is all that is required.
Preparing to set up OpenEdge Management or OpenEdge Explorer

Consider the following factors before you set up OpenEdge Management or OpenEdge Explorer for the first time:

- Determine the names and locations of the resources that you need to monitor and the properties you want to configure. You can configure properties for resources associated with local and remote AdminServers. With OpenEdge Management, you can also monitor certain resources running under a local or remote AdminServer.

- (In OpenEdge Management only) Determine whether to save monitoring information to the OpenEdge Management Trend Database and, if saving the monitoring information, decide where to locate the database.

The OpenEdge Management Trend Database stores the monitoring information that OpenEdge Management collects for databases, system resources, file resource, network resources, the AppServer, WebSpeed Transaction Server, and the NameServer. During configuration, you can choose whether to save monitoring information locally, remotely, or not at all. Before installation, you should decide if you want to save this data and where you want to save it.

OpenEdge Management automatically creates the OpenEdge Management Trend Database if you have an OpenEdge® Enterprise RDBMS, an OpenEdge® Workgroup RDBMS, or an OpenEdge® Personal database installed on the same machine where you are installing OpenEdge Management.

If you decide to save monitoring information remotely, the remote machine must have both a database (Enterprise or Workgroup) and OpenEdge Management installed. In other words, you cannot just copy a trending database to a remote machine.

The local instance of OpenEdge Management must communicate with a remote instance of OpenEdge Management to use the remote trending database.

- (In OpenEdge Management only) Determine how monitoring might affect system performance.

The more resources you monitor, the more system resources OpenEdge Management uses. If you plan to monitor a large number of database servers and network services in your configuration, you might want to consider configuring additional OpenEdge Management instances, both locally and remotely.

See the "OpenEdge Management CPU and memory requirements" section on page 34 for more information.
• Note that OpenEdge Management runs as a plug-in to the AdminServer; your resources can be administered by OpenEdge Explorer and command-line utilities, such as dbman or asbman. Therefore, you should be familiar with the AdminServer functionality. For more information, see OpenEdge® Management and OpenEdge Explorer: Getting Started.

You can access online help while working in the management console. For details about the dbman or asbman utility, see OpenEdge Data Management: Database Administration.

• If you do not preconfigure OpenEdge Management or OpenEdge Explorer to autostart, you can stop and start either one manually, as follows:

```
fathom -start
fathom -stop
```

To open OpenEdge Management/OpenEdge Explorer in a browser, select Start→Programs (or All Programs)→Progress→OpenEdge→Management Console. (If you do not have OpenEdge Management installed and are using only OpenEdge Explorer, select Start→Programs (or All Programs)→Progress→OpenEdge→OpenEdge Explorer.)

The initial user name and password are admin/admin.

For details about using command-line options with OpenEdge Management or OpenEdge Explorer, see Chapter 5, “Administering OpenEdge Management and OpenEdge Explorer.”

Using the management console

OpenEdge Explorer uses the same console as OpenEdge Management. The only difference you find when using OpenEdge Explorer is that any OpenEdge Management-specific functionality is disabled in the console when you do not have the required OpenEdge Management license.

For a complete description of the management console, see Chapter 3, “Using the Console,” which covers the console’s features and functionality in detail.

Using the Database Administration Console

OpenEdge Management and OpenEdge Explorer both include the Database Administration Console, which you use to manage and work with databases enabled or multi-tenancy.

To open the Database Administration Console in a browser, select Start→Programs (or All Programs)→Progress→OpenEdge→Database Administration Console.
Completing the initial setup process

The first time you start OpenEdge Explorer or OpenEdge Management after installation, you must make some initial setup decisions.

Setting up OpenEdge Explorer

If you are setting up OpenEdge Explorer (and not OpenEdge Management), you are prompted to make initial configuration choices the first time you start it in the browser after the OpenEdge installation, when the OpenEdge Explorer Configuration page automatically appears. Once you fill in all the fields and click Submit, you can begin using OpenEdge Explorer.

Setting up OpenEdge Management

If you install OpenEdge Management, you are prompted to make initial configuration choices the first time you start it in the browser after the OpenEdge installation. The OpenEdge Management configuration process involves making choices on these two OpenEdge Management console pages:

- OpenEdge Management Configuration
- Getting Started

Once you fill in all the fields and click Submit on the OpenEdge Management Configuration page, OpenEdge Management is partially initialized; and the Getting Started page appears. The Getting Started page allows you to define monitors for files, disks, and scripted databases.

After you make your initial configuration choices, you can access and change certain configuration options at any time.
Starting OpenEdge Management or OpenEdge Explorer

Whenever you start OpenEdge Management or OpenEdge Explorer in the browser window, you provide the applicable URL in the address or location field and then log on.

The URL you enter is http://host:port, where the host is the name of a machine OpenEdge Management or OpenEdge Explorer is installed on, and port is the Web server port (by default, this port is 9090).

To start OpenEdge Management or OpenEdge Explorer:

1. Be sure that the AdminServer is running on the machine where you want to start OpenEdge Management or OpenEdge Explorer.

2. Choose one:
   - Open a Web browser, and enter the URL http://host:port in the address or location field.
   - From the Windows Desktop on your local host, select Start→Programs (or All Programs)→Progress→OpenEdge→Management Console to start OpenEdge Management/OpenEdge Explorer. If you have only OpenEdge Explorer installed, select Start→Programs (or All Programs)→Progress→OpenEdge→OpenEdge Explorer.

The logon window appears:

The logon window requires you to enter your user name and password, as described in the “Entering the default user name and password” section on page 50.

Note: The specific appearance of the window can depend on the browser you are using.
Entering the default user name and password

The first time you log on to OpenEdge Management or OpenEdge Explorer, you must use the default user name, which is admin, and the default password, which is admin.

To enter the default user name and password:

1. Type admin in both the User name and the Password fields.

2. Click OK. One of the following occurs:

   • If you are logging on to OpenEdge Management, the OpenEdge Management Configuration page opens in the management console, allowing you to set the necessary initial options.

   • If you are logging on to OpenEdge Explorer, the OpenEdge Explorer Configuration page opens in the management console, allowing you to set the necessary initial options.

Note: After you make your initial configuration choices, you can access and change certain configuration options at any time.

Keep in mind the following details related to the default password admin:

• You use the default password admin only once—the first time you log on to OpenEdge Management or Open Edge Explorer. The configuration page that opens at the initial login requires you to change the default password before you can submit your initial setup choices and before you can use OpenEdge Management or OpenEdge Explorer.

• The new password you provide on the configuration page does not take effect until you stop and restart OpenEdge Management or OpenEdge Explorer. You do this by either shutting down and restarting the host machine or using the appropriate command-line interface (CLI) commands. See the "Using the command-line interface" section on page 123 for more information.

You can now make initial configuration choices, as described in the "Choosing initial configuration options" section on page 51.
Choosing initial configuration options

When you log on to OpenEdge Management or OpenEdge Explorer for the first time, you must make some initial configuration choices.

Remember that:

- As you use the console to establish your configuration, required fields appear in red. Configuration does not proceed if you leave a required field blank.
- You can subsequently change your initial configuration decisions.
- OpenEdge Management and OpenEdge Explorer support the implementation of the Secure Sockets Layer (SSL) protocol for HTTP.

When you complete the initial configuration of OpenEdge Explorer, you can further modify your settings by choosing SSL support when setting up the Web server. You have the option of setting up either the HTTP or the HTTPS protocol; you also have the option of setting up both protocols.

When you complete the initial configuration of OpenEdge Management, you can further modify your settings by choosing SSL support when setting up the Web server and when trending to a remote OpenEdge Management Trend Database.


Setting initial configurations for OpenEdge Explorer

When you log on to OpenEdge Explorer the first time, use the OpenEdge Explorer Configuration page that appears in the browser to make the following initial choices:

- Specifying the Admin Password
- Specifying the AutoStart option
- Specifying the Web server port

Each of these options is described in the following sections.

When you finish setting all the options on the page, click Submit.
Chapter 2: Setting Up OpenEdge Management or OpenEdge Explorer for the First Time

Setting initial configurations for OpenEdge Management

When you log on to OpenEdge Management for the first time, use the OpenEdge Management Configuration page that appears in the browser to make the following initial choices:

- Specifying the Admin Password
- Specifying the AutoStart option
- Specifying the location of the OpenEdge Management Trend Database
- Specifying the Web server port
- Specifying the OpenEdge Management e-mail server and default operator

Each of these options is described in following sections.

When you finish setting all the options on the page, click Submit.

Specifying the Admin Password

OpenEdge Management and OpenEdge Explorer both initialize with a default user name and password for the administrator. The default value for both the user name and the password is admin.

You must change the password on the Configuration page after you log in for the first time, and you should change it at frequent intervals thereafter. To change the password at any time other than during initial configuration, do so from the Authorized Users page. See the “Adding users as administrators or operators” section on page 98 for more information.

The new password you provide on the Configuration page does not take effect until you stop and restart OpenEdge Management or OpenEdge Explorer, by either shutting down and restarting the host machine or using the appropriate command-line interface (CLI) commands. See the “Using the command-line interface” section on page 123 for more information.

To change the administrator password:

1. Enter your new administrator password in the Password field of the Admin password section:

   ![Password field](image)

2. Confirm the new password by typing it in the Confirm password field. When you stop and restart OpenEdge Management or OpenEdge Explorer, remember to use the new password.

   Note that the default user name of admin remains valid.
3. Continue to the next section on the Configuration page, where you indicate if you want to start OpenEdge Management or OpenEdge Explorer automatically when the AdminServer starts. (You should delay clicking Submit until after reviewing and/or selecting all options on the Configuration page.)

Specifying the AutoStart option

If you select the Autostart OpenEdge Management or Autostart OpenEdge Explorer option, OpenEdge Management or OpenEdge Explorer will start automatically when the AdminServer starts. The Autostart check box is selected by default, as shown in the example for OpenEdge Management in Figure 8.

> Figure 8: Autostart OpenEdge Management option

If you clear this box, you must use the command-line interface to start OpenEdge Management or OpenEdge Explorer. See the “Using the command-line interface” section on page 123 for details.

Specifying the location of the OpenEdge Management Trend Database

OpenEdge Management allows you to store trend data, which is the monitoring information OpenEdge Management maintains, in either a local or remote OpenEdge Management Trend Database. These storage options appear in the Trend database location section, shown in Figure 9.

> Figure 9: Trend database location

If you choose to send trend data to a local database (which is the default), you must specify the trend database location and the port used to connect to that database. If you choose to use a remote database, you must specify the host name and Web server port of the remote OpenEdge Management Web server. The trend database must be locally configured at the remote location. All values you enter for either option are validated.
If you are trending to a remote database and want to establish secure transmission of data, you can choose to use the HTTPS protocol. See Chapter 6, “Setting Up Secure Communications,” for more information.

**Note:** You can elect to store trend data in a remote OpenEdge Management Trend Database only if you install OpenEdge Management on both the local machine and the remote machine.

To specify the location of the OpenEdge Management Trend Database:

1. Go to the **OpenEdge Management Configuration** page’s **Trend database location** section, as shown in Figure 9.

2. To store trend data locally:
   a. Select the **Store trend data in a local OpenEdge Management database** option.
   b. Specify the **Trend database location**. You can confirm the predefined explicit path, which matches where the trend database is located by default, or you can type a different path to the database.
   
   Note that if you enter a path location for the OpenEdge Management Trend Database that is different from the explicit path provided by default, you must also copy the OpenEdge Management Trend Database to the new location. You must use either the **procopy** or **prodb** command to preserve the schema integrity.

   For more information about either command, see *OpenEdge® Management and OpenEdge Explorer: Getting Started*.

   The configuration name of the trending database is OpenEdge Management Trend Database. The name of the physical database must be **fathom**.
   c. Enter the port number in the **Trend database port** field.
3. To store trend data remotely:

   a. Select the **Store trend data in a remote OpenEdge Management database** option.

   b. Enter the host name of the machine in the **Remote OpenEdge Management database hostname** field. This is the host name where the remote database is installed. The name can be either a valid IP address or a name; it does not have to be fully qualified.

   c. Enter the HTTP port number in the **Remote OpenEdge Management web server port** field. This is the port number that the OpenEdge Management Web server uses to connect to the remote OpenEdge Management system.

   When you choose to store trend data on a remote OpenEdge Management database, the assumption is that you have already configured the OpenEdge Management Trend Database on the remote system. OpenEdge Management displays a warning message if it cannot verify that the remote database is properly configured.

**Specifying the Web server port**

OpenEdge Management and OpenEdge Explorer contain a Web server. The Web server allows you to connect to either OpenEdge Management or OpenEdge Explorer through the Web-based console. By default, OpenEdge Management and OpenEdge Explorer use port 9090 for this Web server.

If port 9090 is already in use on your system, or if you prefer to use another port, you can change the port used by OpenEdge Management or OpenEdge Explorer by editing the `OpenEdge-install-dir\properties\fathom.properties` file. Change the port of the jetty Web server under the `[webserver]` section. For example:

```
[webserver]
httpport=9099
```

**Note:** If you change the port number, the Web server immediately stops and restarts on the new port. You must reconnect the console to OpenEdge Management or OpenEdge Explorer on the new port.

Once you set up the Web server port during the initial configuration, you can further modify its settings by choosing to use either the HTTP or the HTTPS protocol; you also have the option of setting up both protocols. See Chapter 6, “Setting Up Secure Communications,” for more information.
To change the port used by the OpenEdge Management or OpenEdge Explorer server:

1. Scroll to the **Web server port** section of the **Configuration** page, as shown in the following OpenEdge Management example:

   ![Web server port configuration example](image)

2. Accept the default port number 9090, or enter a different port number. Once you finish making configuration choices on this page and click **Submit**, the port number is referenced.

   If you change the Web server port, you will see the following message once you finish selecting all the configuration options and click **Submit**:

   ![Web server port change confirmation](image)

3. Click **OK** to restart the Web server. You must then reconnect to OpenEdge Management or OpenEdge Explorer, using the new port number in the browser's URL, and refresh the page.

**Specifying the OpenEdge Management e-mail server and default operator**

OpenEdge Management uses e-mail to send alerts to appropriate personnel. Alerts are messages from OpenEdge Management regarding potential irregularities in the resources you are monitoring.

If your organization has access to a paging service that reports on text-based messages that are sent by e-mail, your organization can use the e-mail action feature to initiate this message. You can determine whether the e-mail alert message is to be sent to an e-mail address or to a pager as a text message. To use alerts, you must specify the Simple Mail Transfer Protocol (SMTP) host and port that OpenEdge Management will use to send e-mail messages.

You should also identify a default user to receive alerts. This user's name will appear as the default recipient of each new alert that you define. You should choose a user who is most likely to receive most, if not all, generated alerts. However, remember that when you set up your monitors with OpenEdge Management, you can choose to override the default user.
To specify the e-mail server and the default operator you want to receive alerts:

1. Scroll to the Default alert recipient section of the OpenEdge Management Configuration page:

   ![Default alert recipient table]

   - Mail server (SMTP) host name:
   - Mail server (SMTP) port:
   - Default e-mail recipient:
   - Mail server (SMTP) authentication:
   - Mail server (SMTP) SSL/TLS:
   - Mail server (SMTP) username:
   - Mail server (SMTP) password:
   - Mail server (SMTP) confirm password:

2. Enter the SMTP host name in the Mail server (SMTP) host name field. Check with your e-mail administrator if you do not know the e-mail host name.

3. Enter the port used by the SMTP host in the Mail server (SMTP) port field. On most systems, this is port 25.

4. Enter the e-mail address of the user you want to be listed as the default recipient of alerts in the Default e-mail recipient field.

5. If you require the default e-mail recipient to enter a user name and password, select the Mail server (SMTP) authentication option. Then provide the user name and the password and confirm the password in the fields provided.

6. Select an option from Mail server (SMTP) SSL/TLS to specify if the server is SSL or TLS enabled.

When the default alert recipient information is submitted, OpenEdge Management automatically sets up a Transmission Control Protocol (TCP) network resource monitor, SMTP_MAIL, for the host and port specified using default monitoring values. The SMTP protocol is used for sending e-mail messages between servers.

Alerts generated for this resource monitor are based on host and port performance only. For more information about network resource monitors, see OpenEdge Management: Resource Monitoring.
Chapter 2: Setting Up OpenEdge Management or OpenEdge Explorer for the First Time

Specifying OpenEdge Management SNMP Adapter settings

The Simple Network Management Protocol (SNMP) Adapter allows you to run the OpenEdge Management SNMP agent and configure it to throw traps to an SNMP management console. Traps are OpenEdge Management-resource-related event notifications sent to your SNMP management console. (For more information about the SNMP Trap Action, see OpenEdge Management: Resource Monitoring.)

The SNMP agent is responsible for handling SNMP requests. All OpenEdge Management-specific SNMP variables are contained in the Management Information Base (MIB); the MIB is named PSC-FM-MIB.txt and is located in the config directory of your OpenEdge Management installation folder. By default, this location is Progress\oemgmt\config.

If you installed the SNMP Adapter, you see default adapter settings, as shown in Figure 10, as you perform the initial OpenEdge Management configuration.

![Figure 10: SNMP Adapter settings](image)

You can change these SNMP Adapter settings, which are defined as follows:

- **SNMP agent port** — The port number of the host machine on which the SNMP management agent resides. The SNMP agent translates the requests from the SNMP management console and interprets MIB variables. The default port number is 8001.

- **Default SNMP trap port** — The port number to which traps are sent. The default number is 8002.

- **Default SNMP read community** — The community that specifies who has permissions to read which variables.

- **Default write community** — The community that specifies who has permissions to write which variables. (In the case of the OpenEdge Management MIB, the values are read-only.)

- **Autostart SNMP** — The option to autostart the SNMP agent.
Submitting the OpenEdge Management or OpenEdge Explorer Configuration page

Once you make your initial configuration choices, you must save them.

To save your initial configuration options:

1. Click **Submit** at the bottom of the **Configuration** page.

   If you entered all required OpenEdge Explorer values and the values are validated, then you are asked if you want to restart the Web server.

   If you entered all required OpenEdge Management values and the values are validated, then:
   - OpenEdge Management is initialized.
   - SMTP_MAIL creation is acknowledged.
   - A reminder to use the new password (when restarting OpenEdge Management) appears.

2. Click **OK**.

   If you configured the initial OpenEdge Explorer options, you can close the browser and reopen it. Type the user name and the new password you set, and click **OK**. The **OpenEdge Explorer Resources** page appears.

   If you configured the initial OpenEdge Management options, the **Getting Started** page automatically appears. Note that this page does not appear if you are setting up only OpenEdge Explorer.

   If all the initial configuration values cannot be validated, warning messages appear. For example, if you did not update the default password, you receive the following message:

   ![warning_message]

   a. Click **OK** to erase the message, and in this instance change the admin password.

   b. Click **Submit**.
Setting up the Getting Started page for OpenEdge Management

Certain choices you make on the Getting Started page allow you to migrate scripted databases to managed databases recognized by the AdminServer and OpenEdge Management, and define monitoring and trending options for file systems and disks.

Once you establish these initial resource-monitoring options, you can set more specific monitoring criteria for individual resources. Similarly, you can also manually initiate resource discovery of TCP- and UDP-based applications. See OpenEdge Management: Resource Monitoring for more details.

Understanding managed and scripted databases

You can set up a database resource monitor in OpenEdge Management for a database that the AdminServer and OpenEdge Management commonly recognize. For example:

- A managed database is a database that the AdminServer recognizes and manages. In OpenEdge Management, you can set up resources for file systems and disks associated with managed databases.

  When OpenEdge Management starts up, all databases currently managed by the AdminServer are automatically discovered (recognized) by OpenEdge Management.

- A scripted database is a database that is not currently listed among the database resources that the AdminServer manages.

  If you want to manage a scripted database with the AdminServer, you use the Database Migration utility, which also adds the database to the conmgr.properties file.

Defining OpenEdge Management monitors for previously scripted databases

By using the Database Migration Utility, you can add a previously scripted OpenEdge database as a resource to OpenEdge Management. These databases are typically managed outside the AdminServer using parameter files (.pf) and operating system-dependent scripts.

With the Database Migration Utility, you can identify the database as manageable through the AdminServer. After the configuration migration occurs:

- OpenEdge Management creates a resource if one does not already exist.
- You can define trend and monitoring options.

Note: Before you perform the database migration process, you should shut down the database you intend to migrate. This shutdown activity enables the AdminServer to recognize the database as managed when the database is restarted through OpenEdge Management, and to create and enable the database monitor.
**Figure 11** shows the **Define monitors for external OpenEdge databases** section.

![Define monitors for external OpenEdge databases](image)

**Figure 11: Defining monitors for external OpenEdge databases section**

**Note:** When you add a managed database using the values you enter on the Database Migration Utility page and then submit the **Getting Started** page, a database configuration is created in the `conmgr.properties` file, and a database resource is created in the OpenEdge Management configuration data store.

Adding a managed database

Click **Add Database**. The Database Migration Utility page appears as shown in **Figure 12**.

![Database Migration Utility](image)

**Figure 12: Database Migration Utility page**

You enter the database values on this page. Note that any field name in red requires a value; all other fields are optional.

For a description of the fields, click the **Help** icon.
To add the managed database:

1. Choose the database container in the **Container** field.
2. Enter the database display name in the **Database Display Name** field.
3. Enter the database path and filename associated with the physical database in the **Database Path and Filename** field.
4. Optionally provide values to add database arguments, using either or both of these methods:
   - In the **Parameter File Name** field, enter the name of the parameter file (.pf) that contains database argument values if you have overriding arguments defined for database brokers.
   - Enter the database argument values explicitly in the **Other Database Broker Arguments** field. If you want to specify a port for the database, type `-S` and then the port number.

   If the port specified for the database is 0, then the database is considered non-networked. It will not be monitored by OpenEdge Management.

   Note that you can enter any miscellaneous, non-AdminServer-recognized arguments using either of the previous methods.

   Values set using the parameter file method can be overridden by the values specified in the **Other Database Broker Arguments** field. Processing difficulties related to these values are handled as follows:
   - If an argument cannot be mapped to a unique property in the `conmgr.properties` file, it is appended to the **Other Args** property. (If you are working with OpenEdge Management, any unmapped arguments are displayed in an alert box when you submit the Getting Started page.)
   - If an error occurs either when the database configuration is created or when the database resource is created, the configuration is not added to the database properties file (`conmgr.properties`), and the resource is not created.

5. Select one of the **Database Broker Type** options to indicate the type of client that is allowed to connect to the broker: 4GL brokers allow only ABL client connections and SQL brokers allow SQL Explorer or other SQL client connections. The default option, **Both**, allows ABL and SQL clients.

   Remember that the client type choice you make here is honored only when you have installed the proper licenses for that client.

6. Select **AutoStart Database Broker** to start the database broker automatically when the AdminServer is started.

7. Select **Watch Dog Process (WDOG)** to start a watchdog process for the database.
The following are Enterprise-only options that are automatically started only if the database broker is also automatically started:

- Select **After Image Process (AIW)** to start an after-image writer for the database.

- Select **Before Image Process (BIW)** to start a before-image writer for the database.

- Enter a numeric value in the **Asynchronous Page Writers (APW)** field to define the number of asynchronous page writers to start. The default value is 1.

**Note:** If you are running the Workgroup database, the default value for each of the writers is zero, and you cannot change it.

### Making changes to a managed database configuration

You can view, modify, or delete a managed database configuration.

**Note:** From within OpenEdge Management or OpenEdge Explorer, you can use the Control page to start and stop a database configuration. For more information about starting and stopping the database, see *OpenEdge® Management and OpenEdge Explorer: Getting Started.*

### Defining OpenEdge Management monitoring and trending options for file systems and disks

OpenEdge Management can create resource monitor and trending options for all file systems and disks on a system where OpenEdge Management is installed.

As shown in Figure 13, you can specify whether you want OpenEdge Management to monitor only those file systems and disks used by OpenEdge databases, or all file systems and disks.

You can also choose whether or not OpenEdge Management should collect and store trend data on the file systems and disks. If you prefer, you can opt not to set up monitors for file systems and disks at all. These file system and disk resource monitors are created with default settings, helping you to expedite the resource monitoring setup activities.
Chapter 2: Setting Up OpenEdge Management or OpenEdge Explorer for the First Time

Monitoring and trending considerations

Consider the following before you add monitors for file systems and disks in OpenEdge Management for your OpenEdge databases:

- If a file system monitor or resource does not already exist, a new file system resource or monitor is configured. The monitor or trend process is enabled for each file system that is accessed by a managed database or any of its extents.

- If a disk monitor or resource does not exist, a new disk resource or monitor is added. The monitor or trend process is enabled for each disk on the system that is accessed by a managed database or any of its extents.

Choose one of the following options to define monitors for file systems and disks:

- Select Do not define any file system or disk monitors to bypass any monitoring and trending options.

- Select Define monitors for file systems and disks used by OpenEdge databases to add monitors only for file systems and disks.

- Select Define monitors for file systems and disks used by OpenEdge databases and collect and store trend data to add monitoring and trending activities for file systems and disks used by your OpenEdge databases.

- Select Define monitors for all file systems and disks to define monitors for all file systems and disks, not just those used by OpenEdge databases.

- Select Define monitors for all file systems and disks and collect and store trend data to add monitoring and trending activities for all file systems and disks, not just those used by your OpenEdge databases.

Submitting the Getting Started page for OpenEdge Management

When you finish making your selections on the Getting Started page, click Submit. OpenEdge Management starts the monitoring database agent for each managed database for which you selected the monitoring option. CPU and memory resources are created as well.

The OpenEdge Management console appears with a confirmation that OpenEdge Management is ready to use, as shown in Figure 14.

![OpenEdge Management Successfully Configured]

Your OpenEdge Management system is now ready for use. Begin by exploring the navigation menu above to see the initial monitor definitions. To see any outstanding alerts, select Alerts. Once OpenEdge Management has been running for at least one day, you may begin using the OpenEdge Management reports by selecting Reports.

We hope you find OpenEdge Management a valuable asset in managing your Progress environment. If you have questions please consult the online help accessible via the Help button provided on most pages or the Help option in the navigation menu above. You can also contact Progress technical support at support.progress.com.

Figure 14: OpenEdge Management Configuration success
The browser-based management console is the graphical user interface for OpenEdge Management and OpenEdge Explorer.

This chapter provides an introduction to the console, as outlined in the following sections:

- Starting OpenEdge Management or OpenEdge Explorer
- Using the management console
- Navigating the console
- Additional console details

The management console also contains the Database Administration Console. For information about the Database Administration Console, see OpenEdge Management and OpenEdge Explorer: Configuring Multi-tenancy.
Starting OpenEdge Management or OpenEdge Explorer

The management console is the Web-based graphical user interface that you use to work with OpenEdge Management or OpenEdge Explorer. You access this console from any browser that OpenEdge Management and OpenEdge Explorer support. (See the "Browser support" section on page 38 for specifics about which browsers are supported.)

You use the management console to access all OpenEdge Management and OpenEdge Explorer functionality. In addition, you can access the Database Administration Console (to work with databases enabled with multi-tenancy) that is also available from the management console.

Logging on

After you log on to OpenEdge Management or OpenEdge Explorer for the first time, you must establish some initial configuration settings before you can use it.

Depending on whether you are accessing the management console from a Web browser or locally, choose either of the following methods:

- To access OpenEdge Management or OpenEdge Explorer from a Web browser, enter the URL http://host:port in the Address or Location field. The host is the name of a machine on which OpenEdge Management or OpenEdge Explorer is installed, and the port is the Web server port (by default, this port is 9090). A logon window appears.

- To access OpenEdge Management or OpenEdge Explorer locally from the Windows Desktop, do one of the following:
  - If you have OpenEdge Management/OpenEdge Explorer installed, choose Start→Programs (or All Programs)→Progress→OpenEdge→Management Console.
  - If you have only OpenEdge Explorer installed, choose Start→Programs (or All Programs)→Progress→OpenEdge→OpenEdge Explorer.

To access the Database Administration Console and work with multi-tenancy, choose Start→Programs (or All Programs)→Progress→OpenEdge→Database Administration Console.
The default browser appears in the background. The logon window appears in the foreground, as shown in Figure 15:

![Logon window](image)

**Figure 15:** Logon window

**Note:** The specific appearance of the logon window depends on the browser you are using.

If you are logging on for the first time, type the user name `admin` and the password `admin` in the appropriate fields, and click **OK**. The **OpenEdge Management Configuration** or **OpenEdge Explorer Configuration** page appears when the console opens.

When you log on after the first time, you use a new password you created. For OpenEdge Management, the console opens to **My Dashboard**, as shown in Figure 16:
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For OpenEdge Explorer, the console also opens to the My Dashboard page but displays only the Multi-tenancy Tasks viewlet, as shown in Figure 17:

Figure 17: My Dashboard page in OpenEdge Explorer

The viewlet allows you to see a list of transactions related to multi-tenancy as they are committed to the database. For more information, see OpenEdge® Management and OpenEdge Explorer: Getting Started.
In addition to **My Dashboard**, the menu bar in the management console consists of the following functional areas as individual tabs: **Resources, Alerts, Library, Reports, Jobs, Database Administration, Options**, and **Help**. Each tab provides access to a dropdown list of the relevant actions you can perform.

As shown in **Figure 18**, the **Resources** menu bar tab provides access to various tasks from its dropdown list, including the creation of a new OpenEdge resource, such as a database or an AppServer, for monitoring and/or configuration in the console.

![Resource menu options](image_url)

**Figure 18:** Resource menu options
Using the management console

The management console consists of the following components:

- **Menu bar** — In OpenEdge Management, the menu bar provides access to these tabs and their functionality:
  
  - My Dashboard
  - Resources
  - Alerts
  - Library
  - Reports
  - Jobs
  - Database Administration
  - Options
  - Help

  For OpenEdge Explorer, the menu bar provides access to these features:
  
  - Resources
  - Database Administration
  - Options
  - Help

- **List frame** — The left pane in the console. The list frame provides access to different areas within OpenEdge Management or OpenEdge Explorer by presenting a collapsible and expandable tree-like structure and a sort feature.

- **Detail frame** — The right pane in the console. The detail frame displays the OpenEdge Management or OpenEdge Explorer component you select in the list frame.

- **Grid frame** — The layout for resources in the console. The grid frame displays all resources in local or remote container within OpenEdge Management or OpenEdge Explorer.

- **Toolbar** — A menu that includes navigation options.

  From the list frame, the options include refreshing the list frame content, expanding all the categories in the list frame, or collapsing all categories in the list frame.

  From the detail frame, the options include going back to the previous page, refreshing the detail frame content, displaying a page in a new window, bookmarking a resource, or accessing online context-sensitive help.
From the grid frame (specific to resources), the options include selecting multiple resources, starting or stopping a single resource or multiple resources; searching, filtering, and sorting resources, viewing summary of a selected resource’s properties, viewing alerts on any resource, and navigation to any resource’s detail frame.

**Figure 19** shows the default view of the management console for OpenEdge Management if you click the **Resources** tab in the menu bar. The grid frame displays all resources (local and remote) within the OpenEdge Management or OpenEdge Explorer console. You can view a list of all existing resources associated with a container (in this case, for the local container *nhydshsingh-7*), its corresponding **Type**, **Status**, and **Alerts**. By default, the resources are sorted by status.

**Figure 19: OpenEdge Management Resources page**

The grid frame consists of the following features:

- **Select** — Check box to select one or more resources from the list of resources.
- **Search** — Field to search for resources using keywords, wildcard characters, or tag names. For example, *Database, CPU?*, or *nhyd*.
- **Type** — Drop-down to filter resources based on their type. For example, AppServer, Collection, or Container.
- **Status** — Drop-down to filter resources based on their status.
- **Group By** — Drop-down to filter resources based on **Container**, **Type**, or **Status**.
- **Start** and **Stop** icons — Start or stop multiple resources simultaneously.
• **Columns** — Sort resources in an alphabetical order. The default view contains the **Resource**, **Type**, **Status**, and **Alerts** columns. Optionally, you can include the **Container** column.

• **Resource Summary** — Displays summary of selected resource(s) or a Collection. Depending on the type of resource you select, you can start or stop the resource. You can also use the Collection tags to view a Collection’s details page. For more information on using collections as tags, see

• **Alerts** — Displays alerts associated with the selected resource or collection.

You can also customize the **Resources** view by adding or removing columns to the grid frame. The default view reappears if you either go back to the Resources view after accessing other pages in the console or if you restart the management console.

To customize the Resources view by adding or removing columns:

1. Click the drop-down at the end of a column → **Columns**.
2. To add a column, select the check box.
3. To remove a column, clear the check box.

Note that you can alternatively select the dropdown list in the **Resources** tab, as shown in Figure 18, or any of the other tabs’ dropdown lists for access to related tasks. For more information, see the “Accessing functions from the menu bar tabs” section on page 73.
Viewing the contents of a container

When you click the container name in the list frame, the Container page appears in the detail frame, as shown in the OpenEdge Management example in Figure 20.

![Figure 20: Container view in the detail frame](image)

The OpenEdge Management Container page includes summary information about the host machine, viewlets that illustrate CPU and memory performance details, and access to the different resource categories, such as File and Network.

The OpenEdge Management Container page also provides access to the following details:

- **System Activity** — The System Activity report, which identifies host information, CPU utilization, and memory utilization

- **System Information** — The System Information report, which provides details about the host, the operating system, the OpenEdge Management installation, the OpenEdge installation, and startup information (such as Java classpath setting, the library path setting, and system path setting)

- **File Systems** — Tabular and graphical details about the container’s file systems, including the systems’ overall capacity, free space, current usage, and other statistics

- **Disks** — A list of the container’s disks and access to details about each one

Accessing functions from the menu bar tabs

You can access OpenEdge Management or OpenEdge Explorer functions from the tabs in the management console menu bar.

**OpenEdge Management**

You can access the following OpenEdge Management functions from the menu bar tabs:
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- **My Dashboard** — Customizable private or shared collections of resources that include views of OpenEdge Management components.

- **Resources** — Resources being monitored by OpenEdge Management. These include file, network, database, and system.

- **Alerts** — Open alerts.

- **Library** — Functions you use to centrally define components for sharing and reuse among resources. Library functions include actions, search criteria, rule sets, schedules, and templates.
  
  You can also perform various export and import activities related to resource distribution and management from the Library.

- **Reports** — Reporting functions, such as creating, scheduling, and running reports.

- **Jobs** — Job functions, such as creating, scheduling, and running local and remote jobs.

- **Database Administration** — Multi-tenancy functions.

- **Options** — Administrative and user management functions.

- **Help** — Various help resources, such as OpenEdge Management and OpenEdge Explorer documentation, support, and Knowledge Base access.

**OpenEdge Explorer**

You can access the following OpenEdge Explorer functions from the menu bar tabs:

- **Resources** — Resources whose configuration you can set or modify in OpenEdge Explorer. These include AppServer Internet Adapters, AppServers, Databases (scripted and managed), DataServers (ODBC, Oracle, or MS SQL Server), NameServers, SonicMQ Adapters, WebSpeed Transaction Servers, OE Web Server, and Web Services Adapters.

- **Database Administration Console** — Functions related to multi-tenancy.

- **Options** — Administrative and user management functions.

- **Help** — Various help resources, such as OpenEdge Management and OpenEdge Explorer documentation, support, and Knowledge Base access.
Navigating the console

When you are working with OpenEdge Management or OpenEdge Explorer and you open the management console, you see a list of items in the list frame and a list of resources in the grid frame. As you select different tabs in the menu bar, other than the Resources tab, the contents of the list frame and detail frame change. If you select the Resources tab, only the grid frame appears.

For example, if you are working with OpenEdge Management and you click the Library tab in the menu bar, you see the library-related components in the list frame, as shown Figure 21.

![Figure 21: Collapsed Library categories in OpenEdge Management list frame](image)

If a plus sign (+) precedes a category in the console list frame, as shown in Figure 21, you can click the plus sign to expand the collapsed category and see its contents. If a minus sign (-) precedes a category, the category has been fully expanded and all its contents are in view. If an empty box precedes a category, the category has no contents.
If you click the plus sign preceding each of the collapsed main **Library** categories shown in Figure 21, the expanded view looks like Figure 22.

**Figure 22:** Expanded Library categories in OpenEdge Management list frame

When you click a category in the list frame, a list of items in that category appears in the detail frame. For example, if you click **Email Action** under the **Actions** category in the **Library** list frame, a list of email actions you can choose from appears, as shown in Figure 23.

**Figure 23:** Email actions in OpenEdge Management Library → Actions
A toolbar that contains icons for navigating in the management console also appears across the top in Figure 23. Table 2 identifies each icon and provides descriptions.

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>🔄</td>
<td>Go back to previous page.</td>
</tr>
<tr>
<td>🔄</td>
<td>Refresh the view.</td>
</tr>
<tr>
<td>🖥️</td>
<td>Display the page in a new window.</td>
</tr>
<tr>
<td>📕</td>
<td>Access context-sensitive help for the page.</td>
</tr>
</tbody>
</table>

Some management console pages have a breadcrumb trail that allows you to see where the current page is in relation to the Web site’s hierarchy. You can navigate up to the parent level from the page being shown in the console.

For example, the parent level for the My Collections Home page shown in Figure 24 is the Resources page, so the detail frame would change to display the Resources page. Click any of the backlinks in the hierarchy to view that page.

Figure 24: OpenEdge Management breadcrumb trail
Sorting in the console list and grid frames

You can sort items in the Alerts and Library frames using the Sort By feature, and in the Resources frame using various tabs. The sorting options differ, depending on the component.

- **Resources:**
  - **Resource** — In ascending or descending alphanumeric order by container name. By default, resources are sorted in an ascending alphanumeric order.
  - **Type** — In ascending or descending alphabetical order by resource type (OpenEdge, File, System, or Network resources).
  - **Status** — By the following statuses: Failed, Disabled, Inactive, Passed, Offline, Not Checked, Not Running.
  - **Alerts** — By the severity of the alert (Severe, Error, Warning, or Information).
  - **Container** — By the container type (localhost or remote).

- **Alerts:**
  - **Severity** — By the severity of the alert (Severe, Error, Warning, or Information).
  - **Resource Name** — In ascending or descending alphanumeric order by container name.
  - **Alert Name** — By the name of the alert.
  - **Last Date** — By the date of latest occurrence of an alert.

- **Library:**
  - **Type** — By the type of library components.
  - **Name** — In ascending alphanumeric order by action, rule set, or search criterion name.

See the “Checking resource status” section on page 79 for details about the significance of the colored bullet that precedes each category.

To sort resources in the grid frame, click one of the tabs: Resource, Type, Alert, or Status.
Checking resource status

Once you set up resources, OpenEdge Management and OpenEdge Explorer give you a visual indication to the general status of each resource monitor by using a small, colored icon. Each of the icons in the OpenEdge Management Resource Status drop-down, shown in Figure 25, corresponds to a particular status.

![Figure 25: OpenEdge Management Resource statuses](image)

The icons shown in Figure 26 represent the statuses available in OpenEdge Explorer.

![Figure 26: OpenEdge Explorer Resource statuses](image)

**Note:** It is possible for a resource to have a Pass status, as indicated by a green status icon, when the resource still has open alerts. This status indicates that the resource passed on the last poll but failed at some point in the past.
Table 3 briefly describes what each status/color combination represents.

<table>
<thead>
<tr>
<th>Status</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pass</td>
<td>Green</td>
<td>The resource monitor is currently working.</td>
</tr>
<tr>
<td>Fail</td>
<td>Red</td>
<td>The most recent test involving the resource failed. This includes statuses</td>
</tr>
<tr>
<td></td>
<td></td>
<td>such as tardy, timeout, and unreachable. Check the Alert Summary page or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>the specific monitor for possible alert details. This status can also</td>
</tr>
<tr>
<td></td>
<td></td>
<td>identify an internal error that prevents the resource from being monitored.</td>
</tr>
<tr>
<td>Running</td>
<td>Green</td>
<td>The resource is currently running.</td>
</tr>
<tr>
<td>Not Running</td>
<td>Blue</td>
<td>The resource is currently not running. This status is particularly</td>
</tr>
<tr>
<td></td>
<td></td>
<td>informative as it applies to resources such as databases that must be</td>
</tr>
<tr>
<td></td>
<td></td>
<td>operating before you can monitor them. Since databases have operational</td>
</tr>
<tr>
<td></td>
<td></td>
<td>dependencies, the state of the AdminServer, database broker, or agent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>can cause a Not Running status to be generated for a database or off-line</td>
</tr>
<tr>
<td></td>
<td></td>
<td>container.</td>
</tr>
<tr>
<td>Not Checked</td>
<td>Yellow</td>
<td>The resource monitor’s status is currently unknown. For example, at system</td>
</tr>
<tr>
<td></td>
<td></td>
<td>startup, it is possible that the resource has not yet been polled.</td>
</tr>
<tr>
<td>Disabled</td>
<td>Black</td>
<td>The resource monitor has been disabled and is not currently monitoring a</td>
</tr>
<tr>
<td>Inactive</td>
<td>White</td>
<td>There is no active monitoring plan at this time.</td>
</tr>
<tr>
<td>Offline</td>
<td>Gray</td>
<td>The resource is currently offline.</td>
</tr>
</tbody>
</table>
Accessing Help

You can access Help in two different ways:

- From the toolbar, click the **Help** icon to see context-sensitive help directly related to the active console page:

  ![Help icon](image)

  If no context-sensitive help link exists for a particular page, the **Welcome to OpenEdge Management and OpenEdge Explorer** topic opens. From there, you can use the **Search** tab or the **Index** tab in the left pane of the management console to search for the specific details you want.

- From the management console menu bar, choose **Help → Documentation** or click the **Help** tab's dropdown list for an online version of the OpenEdge Management and OpenEdge Explorer guides.
Additional console details

As you work with the management console, keep the following details in mind:

- By default all required fields in the management console appear in red. If you are reading this document in .pdf file format through a browser, notice that the required fields shown in the screen captures also display in red. Depending on your printer and printer options, it is possible that the required fields will not print in red if you print the .pdf file.

- The management console presents some initial default values. You can either use the defaults to get OpenEdge Management or OpenEdge Explorer up and running quickly or you can change them to suit your own particular needs.

- When you are working with OpenEdge Management and you select a resource, the management console provides resource summary to the right of the resources grid frame. This information helps you assess—at a glance—properties of the selected resource. Properties vary depending on the selected resource.

- The management console includes ToolTips that save you from clicking on each OpenEdge Management alert to see the contents of the alert message. ToolTip information that summarizes alert details for a resource can be displayed on alert icons in the list frame and on the specific alert as it appears on the resource monitor summary page. To display a ToolTip, place your cursor over either of these alert icons. The summarized alert message appears after a few moments.

  In addition, ToolTips for unavailable console links identify if the feature or function is available only to OpenEdge Management users. The ToolTip appears when you place your cursor over the unavailable link icon.

- OpenEdge Management and OpenEdge Explorer do not asynchronously update pages, except when you are starting or stopping OpenEdge servers or databases. Therefore, periodically refresh the management console to be sure that you are looking at the most recent data.

  If you are working with OpenEdge Management, you can also set the pages to refresh automatically. (By default, this option is disabled.) On the console menu bar, click the Options tab’s dropdown list and select User Preferences. You can then choose how often you want OpenEdge Management to automatically refresh the pages.

- To display session context data in more than one browser, you should launch a separate browser. Creating a new browser window simply using the browser’s functionality can lead to an unreliable display of information.
Setting up Remote Resource Monitoring and Configuration

You can monitor any resource remotely that you can monitor locally, as long as there is an AdminServer on the remote machine. The only exceptions to this are network resources or jobs, which can be monitored only locally.

This chapter describes how to set up OpenEdge Management and OpenEdge Explorer for remote monitoring and configuration, as outlined in the following sections:

- Remote monitoring and configuration requirements
- Preparing to enable remote monitoring and configuration
- Setting up for remote monitoring or configuration
- Setting up a remote container

For details about setting up local and remote connections for databases enabled for multi-tenancy, see OpenEdge Management and OpenEdge Explorer: Configuring Multi-tenancy.
Remote monitoring and configuration requirements

Remote monitoring and configuration require that you have:

- One OpenEdge installation.

  For you to perform remote monitoring and configuration, the OpenEdge installation must include OpenEdge Management. For you to perform remote configuration only, OpenEdge Management is not required. You can use OpenEdge Explorer, which is installed with OpenEdge for certain products, as described in the "Optionally configuring the OpenEdge Management Trend Database" section on page 37.

- One supported standalone installation of OpenEdge Release 11.3 or greater, and 11.3 remote containers.

  In this standalone installation, neither OpenEdge Management nor OpenEdge Explorer can be enabled. If either is enabled, you must disable it in the Progress or OpenEdge product by running a script known as *unglue*.

You can monitor multiple containers (AdminServers and/or standalone OpenEdge installations), and you must have system administrator or root permissions on each machine.

When OpenEdge Management is configured for remote monitoring on a host machine, messages are exchanged between it and one or more remote machines. These messages are time stamped, and the time information is used in the communication protocol used between the machines. It is, therefore, important that the machines involved have their universal time setting coordinated. This can be accomplished by ensuring that the machines subscribe to an NTP time service.
Preparing to enable remote monitoring and configuration

Before you enable remote monitoring or configuration, you identify one host machine and one or more non-host machines. Each non-host machine is known as a remote container.

At a minimum, the host machine must have OpenEdge installed on it along with OpenEdge Management or OpenEdge Explorer. As described in the “OpenEdge Explorer overview” section on page 22. OpenEdge Explorer is installed automatically with OpenEdge Management. OpenEdge Explorer is also installed with a number of OpenEdge components.

The remote container must have an AdminServer installed on it but must not have an enabled installation of either OpenEdge Management or OpenEdge Explorer. If either one is enabled, we recommend that you run the unglue script to “unglue” OpenEdge Management or OpenEdge Explorer from OpenEdge before you enable the machine as a remote container.

When you run the unglue script on a remote container, you disable (but not uninstall) OpenEdge Management or OpenEdge Explorer. The ability to unglue OEE and OEM is useful when you want to set up one or several remote containers for one host machine.

As shown in the scenario illustrated in Figure 27, Machine A and Machine B have an installation of OpenEdge and OpenEdge Management. (OpenEdge Explorer is also installed.) Machine C has OpenEdge and OpenEdge Explorer installed.

![Diagram showing remote monitoring and configuration](image-url)
In this scenario, each install of OpenEdge Management (on Machine A and Machine B) can monitor and configure only those resources local to the host on which it is installed (and each install of OpenEdge Management uses its own OpenEdge Management Trend Database). OpenEdge Explorer, on Machine C, configures only its local resources. No monitoring takes place on Machine C because OpenEdge Management is not installed.

An alternative to this scenario is to set up Machine A, for example, as a host machine and Machines B and C as remote containers. To effect this setup, we recommend you run the unglue script on both Machines B and C before you enable either machine as a remote container. When you run unglue on Machine B, OpenEdge Management and OpenEdge Explorer are disabled. When you run unglue on Machine C, OpenEdge Explorer is disabled.

Should you later decide to discontinue using Machine B or Machine C as a remote container, you can run reglue, which re-enables OpenEdge Management or OpenEdge Explorer in the OpenEdge product. For details about reglue, see the “Regluing OpenEdge Management or OpenEdge Explorer to OpenEdge” section on page 88.

Ungluing OpenEdge Management or OpenEdge Explorer from OpenEdge

If the machine you intend to use as a remote container has OpenEdge Management and/or OpenEdge Explorer installed, we recommend you unglue either or both from OpenEdge before you set up the machine as a remote container.

You must have system administrator privileges on Windows and root privileges on UNIX to perform the unglue operation.

To unglue OpenEdge Management or OpenEdge Explorer:

1. Depending on whether you are working with a Windows or a UNIX installation, begin the unglue as follows:
   - To unglue on a Windows machine, select Start → Programs (or All Programs) → Progress → OpenEdge → Proenv.
   - To unglue on a UNIX machine, log in as root in a terminal window. If you do not know the root password for your system, consult with your system administrator.

2. At the prompt, type unglue, as shown here for a Windows install:
Details similar to the following appear:

3. Type **y** to continue, and press ENTER. The following details appear:

4. You must restart the AdminServer to complete the unglue process. At the prompt, type **proadsv -stop** (for a Windows install) to stop the AdminServer, and then **proadsv -start** to start the AdminServer.

You can now set up the machine as a remote container, as described in the “Setting up a remote container” section on page 90. To reglue OpenEdge Management or OpenEdge Explorer to the Progress or OpenEdge product, see the “Regluing OpenEdge Management or OpenEdge Explorer to OpenEdge” section on page 88.
Regluing OpenEdge Management or OpenEdge Explorer to OpenEdge

If you no longer intend to use a machine as a remote container, you can reglue OpenEdge Management and/or OpenEdge Explorer to OpenEdge.

You must have system administrator privileges on Windows and root privileges on UNIX to perform the reglue operation.

To reglue OpenEdge Management or OpenEdge Explorer:

1. Depending on whether you are working with a Windows or a UNIX installation, begin the reglue as follows:
   - To reglue on a Windows machine, select Start→Programs (or All Programs)→Progress→OpenEdge→Proenv.
   - To reglue on a UNIX machine, log in as root in a terminal window. If you do not know the root password for your system, consult with your system administrator.

2. At the prompt, type reglue, as shown here for a Windows install:

   ```
   reglue
   ```

   Details similar to the following appear:

3. Type y to continue, and press ENTER.

4. You must restart the AdminServer to complete the reglue process. At the prompt, type proadsv -stop (for a Windows install) to stop the AdminServer, and then proadsv -start to start the AdminServer.

If you want to set up remote monitoring and need to disable OpenEdge Management and/or OpenEdge Explorer, see the “Ungluing OpenEdge Management or OpenEdge Explorer from OpenEdge” section on page 86.
Setting up for remote monitoring or configuration

The order in which you set up machines for remote monitoring or configuration is important. The following are required:

- The remote container must be up when you establish the required settings on any intended remote container.
- OpenEdge Management must be up for setting up the remote container using the Options page.
- (Recommended) OpenEdge Management or OpenEdge Explorer be disabled on the remote container.
Setting up a remote container

You can monitor any resource remotely that you can monitor locally, as long as there is an AdminServer on the remote machine. The only exceptions to this are network resources or jobs, which can be monitored only locally.

You set up the remote container using the Options page. See Chapter 5, "Administering OpenEdge Management and OpenEdge Explorer," for details on how to set up a remote container.
Verifying that OpenEdge Management or OpenEdge Explorer can see the remote container

After you setup the Remote container on the host machine, you see the remote container in the host machine's console list frame.

To verify that the remote container is visible:

1. From the management console on the host machine, click the Resources tab.
2. In the list frame, sort the resources by Container. The local host and the newly added remote container appear in the tree view:

   The local host is identified by the following lifesaver icon:
Disabling remote monitoring of a remote adminserver by editing management.properties

If you want to stop remote monitoring, you can disable it by unselecting the Monitored check box in the Manage Remote AdminServers page. See Chapter 5, “Administering OpenEdge Management and OpenEdge Explorer,” for details.

You can also disable remote monitoring by editing the isMonitored flag in the file, management.properties to false. This will disable the listeners of the activemq broker, and not allow OEM to connect to the specific Remote AdminServer.
Administering OpenEdge Management and OpenEdge Explorer

You can fine-tune the initial OpenEdge Management or OpenEdge Explorer configuration and licensing decisions you made, as described in the following sections:

- Reviewing the configuration
- Updating configuration options
- Adding users as administrators or operators
- Changing configuration settings
- Setting OpenEdge Management user preferences
- Setting OpenEdge Management resource monitor defaults
- Setting OpenEdge Management distribute resource properties
- Changing the OpenEdge Management SNMP Adapter settings
- Using the command-line interface
- Using the OpenEdge environment window Proenv
- Setting the log level for the AdminServer log file
Chapter 5: Administering OpenEdge Management and OpenEdge Explorer

Reviewing the configuration

If you want to review the configuration details for your OpenEdge Management installation, choose Start→Programs (or All Programs)→Progress→OpenEdge→Config. The OpenEdge Configuration Information dialog opens and provides all the configuration details for OpenEdge Management as well as any other OpenEdge products you have installed.

For more details, see OpenEdge® Management and OpenEdge Explorer: Getting Started.
Updating configuration options

As you use OpenEdge Management or OpenEdge Explorer, you can update configuration options. You can update the initial options you established, and you can continue to make subsequent updates as you use and develop a better understanding of which settings work best for your environment.

From the management console menu bar, click the **Options** tab. If you have OpenEdge Management installed, the list frame shown in Figure 28 opens.

![Options tab in OpenEdge Management](image)

Figure 28: Options in OpenEdge Management list frame

The list frame in OpenEdge Explorer includes these options: **Authorized users**, **Configuration**, **General**, **Process pooling**, **Remote AdminServer Configuration** and **Web server**.

Depending on whether you are working with OpenEdge Management, OpenEdge Explorer, or both, you can make modifications in one or more of the areas described in Table 4.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>Applicable in OpenEdge Management</th>
<th>Applicable in OpenEdge Explorer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authorized Users</td>
<td>Allows you to add or remove users; customize the operator role</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Configuration</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>Starts OpenEdge Management automatically when the AdminServer starts</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Table 4: Configuration option availability (1 of 3)
### Table 4: Configuration option availability

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>Applicable in OpenEdge Management</th>
<th>Applicable in OpenEdge Explorer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email alerts</td>
<td>Provides the e-mail address of the default recipient for e-mail notification when an alert is generated; also provides the SMTP mail server host name and port</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Resource monitoring</td>
<td>Determines whether to automatically poll resources, generate alerts, collect trend data, and include status changes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Graph cache</td>
<td>Chooses the graph cache time period setting for resources and containers</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Remote AdminServer Configuration</td>
<td>Allows you to add, remove, monitor remote AdminServers.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Process pooling</td>
<td>Maintains several instances of _progress running persistently. As an alternative to using the built-in process pooling, you can configure process pooling to use an AppServer instead.</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
By choosing to use the HTTPS protocol for secure browser-to-instance or instance-to-instance communications, you can further qualify current settings for:

- The Web server for OpenEdge Explorer and OpenEdge Management
- The OpenEdge Management Trend Database

See Chapter 6, “Setting Up Secure Communications,” for details about using the secure protocol.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>Applicable in OpenEdge Management</th>
<th>Applicable in OpenEdge Explorer</th>
</tr>
</thead>
<tbody>
<tr>
<td>User preferences</td>
<td>Selects the rate (if any) at which OpenEdge Management automatically refreshes; changes the default polling attributes for resource monitors</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>SNMP</td>
<td>(If installed) Starts or stops the SNMP Agent; changes one or more of the following values: SNMP agent port, default SNMP trap port, default SNMP read community, default SNMP write community, and autostarting of SNMP</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
Adding users as administrators or operators

OpenEdge Management and OpenEdge Explorer provide two different user roles: administrator and operator. One predefined user with an administrator role is provided and is named admin.

An administrator user can add other users and specify their role. The administrator user has access to all OpenEdge Management or OpenEdge Explorer functionality. In OpenEdge Management, an administrator user can, for example, read all OpenEdge Management information, modify settings and configurations, set operations into action (such as starting or stopping the database), and delete resources and users. In OpenEdge Explorer, an administrator user can access and control certain database and OpenEdge server operations.

At a minimum, operator users can view configurations and configure their own views. Operators can also change their own passwords and descriptions. The operator role can be configured by administrators to give operator users access to more functionality.

If a user’s role changes from administrator to operator and the user is logged on at the time, any operator restrictions become effective for that user immediately. In other words, the links or buttons, for example, that operators no longer have access to become disabled immediately for the affected user.

User accounts are defined solely within OpenEdge Management or OpenEdge Explorer. They define who can log in using a Web browser.

Managing the authorized users list

The authorized users list provides information about users authorized to access OpenEdge Management or OpenEdge Explorer.

To view the list of authorized users:

1. From the management console menu bar, select Options.
2. Select Authorized Users in the list frame. The Authorized Users page appears:

The Authorized Users page shows the one predefined admin user. The list of users on the page is dynamic; the name and description details are added and removed from this list as you add and delete users.

Note that you cannot delete the predefined admin user, although you can modify its password.
Customizing the operator role

As an administrator, you can determine which functionality operators can access. If you make no changes to the default permissions OpenEdge Management or OpenEdge Explorer assigns to operators, the operators are restricted to read-only permissions.

Note that the permissions you define affect all operators equally.

To set up operator role customization:

1. From the Authorized Users page, click Customize Operator Role. The Operator Role Customization page appears.

Within OpenEdge Management, the page consists of the following areas of operator permission: Database operations, OpenEdge operations, Resource and monitor operations, and Task operations, as shown:
With OpenEdge Explorer, the areas of operator permission are **Database operations** and **OpenEdge operations**.

2. Choose one of the following methods to define operator functionality:
   - Select each individual option that you want to make available to operators.
   - Click **Select All** to choose all options.
   - Click **Select None** to clear all options.

   **Note:** If you select the **Start/Stop Database** check box under **Database**, the **Start/Stop Agent** check box is automatically selected. You can, however, select **Start/Stop Agent** without selecting **Start/Stop Database**.

   The only option under **Scripted Database** that is available to operators is to stop the remote database agent.

3. When you finish, click **Submit**.
Adding a new user

If you are logged in as an administrator in OpenEdge Management or OpenEdge Explorer, you can add new users.

To add a new user:

1. From the Authorized Users page, click Add User. The New User window appears:

2. Enter a unique user name in the Name field. The name can contain up to 32 alphanumeric characters. (Spaces are not allowed.)

3. Enter an optional description of the user.

4. Choose a role for the user: Administrator or Operator.

5. Enter a password for this user in the Password field. The password must be between 4 and 16 characters in length.

6. Re-enter the same password in the Confirm password field.

7. Click Save. The user name and description you added appear on the list of authorized users on the Authorized Users page.
Changing passwords and descriptions

Whether you are an administrator or an operator, you can change your own unique password and/or your description from the Authorized Users page at any time. Administrators can edit anyone’s password or description, but operators are restricted to editing only their own password and description.

If an administrator changes a user’s password, that user is presented with a login screen when next accessing OpenEdge Management or OpenEdge Explorer. When the user provides the correct password, the user can resume working. If, however, the user does not enter the correct password, the user’s login fails and access is denied.

To change the password and/or description:

1. From the users listed on the Authorized Users page, click the name of the user whose properties you want to change. The User page appears:

2. Click Edit or Copy to either edit the user details or copy them as the basis for another user. If you copy the details, you must change the user name, since duplicate user names are not allowed.

   **Note:** If you change the password by entering the new password once in the Password field, you must also enter it again in the Confirm Password field.

3. Click Save. The User page reappears, showing any changes that you might have made to the user name or description details.

Changing the Admin password

During the initial access of OpenEdge Management or OpenEdge Explorer, you reset the default admin user’s password on the Configuration page. Each subsequent update you make to the admin password must be done by using the Authorized Users page. See the steps in the “Changing passwords and descriptions” section on page 102 for more information.
Deleting users

To delete users from the Authorized Users list, you must be logged on as an administrator. You cannot delete the admin user.

To delete users:

1. Select the user whom you want to delete from the Authorized Users list.
2. Click Delete at the top of the page. A confirmation window appears before the user’s privileges are deleted.
3. Click OK. The deleted user’s access to functionality is denied immediately.
Changing configuration settings

You can modify the initial configuration settings you established for OpenEdge Explorer or OpenEdge Management.

For OpenEdge Explorer, you can change the General and Web server protocol settings. See Chapter 6, “Setting Up Secure Communications,” for protocol setting details.

For OpenEdge Management, you can change the following configuration settings by clicking the Options tab from the menu bar:

- General
- Email alerts
- Resource monitoring

From the Options tab in OpenEdge Management, you can also:

- Set the graph cache.
- Set up a remote container.
- Configure process pooling.

Changing general configuration settings

You can change the following current general configuration settings:

- The automatic starting of OpenEdge Management or OpenEdge Explorer when the AdminServer starts.

- The action OpenEdge Management or OpenEdge Explorer should perform, if any, when an internal alert is triggered. Set up the Action to perform on internal OpenEdge Management alerts panel to set an action for internal alerts, such as notification in OpenEdge Management that the OpenEdge Management Trend Database is down.

You can execute any action when an internal alert is triggered. For example, you can set an alert to trigger the Default_Action, which is a process that occurs in response to the status, availability, or performance of a monitored resource. For example, in this situation you can choose to associate the Default_Action to OpenEdge Management Trend Database operations, or select None to indicate that no alert triggers.
To change the general settings:

1. From the management console menu bar, select Options→Configuration→General. The General Configuration page appears in the detail frame and displays the current values, as shown:

   ![General Configuration Page](image)

2. Change one or both of the settings for the following options, as needed:
   - Select the Start OpenEdge Management automatically check box to start OpenEdge Management or OpenEdge Explorer automatically when the AdminServer starts.
   - (OpenEdge Management only) Click the Action to perform on internal OpenEdge Management alerts option to specify an action that OpenEdge Management performs when an internal alert is triggered.

3. Click Submit. The General Configuration page refreshes to reflect the changes you have made.

Changing OpenEdge Management e-mail alerts settings

You can change the current OpenEdge Management e-mail alerts configuration settings.

To change the e-mail alerts settings:

1. From the management console menu bar, select Options→Configuration→Email alerts. The OpenEdge Management Email Alerts Configuration page appears in the detail frame and displays the current e-mail alert settings, as shown:

   ![Email Alerts Configuration Page](image)
2. Change one or more of the settings.

3. Click **Submit**.

**Changing OpenEdge Management resource monitoring settings**

You can either enable or disable the following current OpenEdge Management resource monitoring settings:

- Polling for all resources
- Generating alerts
- Collecting of resource trend data
- Including resource status changes in the trending

Each option is set independently of the others, with the exception of **Include status changes**. If you do not select the **Collect trend data** option, the **Include status changes** option is disabled.

These resource monitor options allow you to disable specific OpenEdge Management functionality. For example, if you know that your OpenEdge Management Trend Database is going to be taken down for maintenance, you could elect to turn off trending, but let the rest of the OpenEdge Management functionality continue to run.

To change the OpenEdge Management resource monitoring settings:

1. From the management console menu bar, select **Options**→ **Configuration**→ **Resource monitoring**. The **OpenEdge Management Resource Monitoring Configuration** page appears in the detail frame, as shown:

2. Select or clear each option.

3. Click **Submit**.
Changing configuration settings

Setting the OpenEdge Management graph cache

OpenEdge Management graphing includes a persistent data cache. You determine how long you want to keep graph data cache persisted on a per-resource-instance basis. The default graph cache setting is 48 hours; however, you can change the setting to whatever value you want. Keep in mind that if you change the setting to a longer period of time, more disk space is used to store the growing cache. Additionally, the more data that has been stored, the more data there is to be represented in a graph, and the higher the CPU use will be at the time a graph using the data is created.

It is recommended that you start with the 48-hour default graph cache setting. You can then increase the value if you want, perhaps by small increments to see what the impact is to the disk space and CPU activity. You might consider setting certain resource types to the 48-hour default, and set others to a different time period, such as twelve hours, to save memory and CPU.

To set the OpenEdge Management graph cache:

1. From the management console menu bar, choose Options → Configuration → Graph cache. The Graph Cache Database Configure page appears:

   ![Graph Cache Database Configure](image)

   - **Time period setting to apply to selected resources**: Sample time period to collect: 48 hours or days. Apply to selected.

2. In the Sample time period to collect field, type the graph cache time period you want to apply to the resources you plan to select. Then choose hours or days. The default time period is 48 hours.
3. Select the resources to which you want the graph cache time period to apply:

   a. In the **List resource of type** field, optionally select resource types either by choosing from the available resources or by choosing the wildcard (*).

   b. In the **for container** field, optionally select the containers either by choosing from those available or by choosing the wildcard.

   **Note:** When you use the wildcard, OpenEdge Management includes all current resources of the type or all container(s) you select. The wildcard does not apply, however, to any resources or containers you subsequently create. If you create a new resource, resource type, or container, you must set its graph cache time period.

4. Click **Apply Filter**. The resource types that match the filter specifications appear in the **Available** list, as shown in the following example:

   ![Graph Cache Database Configure](image)

   **Warning**

   Use this functionality with care. Substantial increases in the time period of retention of graph cache samples will result in large increases in disk space consumed by the graph cache samples (especially with regards to Database resources). Larger graph caches may also noticeably slow creation of graphs due to more substantial paging requirements to access the data.

5. Select the resources:

   - To select all the resources in the **Available** list, click **Select All**. Then click the right arrow.

   - To choose one or more individual resources, highlight and click each resource you want to include; then click the right arrow.

The resources appear in the **Selected** list. The information in angle brackets to the right of each resource name is the current graph cache setting for that resource.
6. Review the **Selected** list. When you finish, click **Apply to selected**, as shown:

![Graph Cache Database Configure](image)

**Warning**

Use this functionality with care. Substantial increases in the time period of retention of graph-cache samples will result in large increases in disk space consumed by the graph cache samples (especially with regards to Database resources). Larger graph caches may also noticeably slow creation of graphs due to more substantial paging requirements to access the data.

A message appears similar to the following (depending on which resources you select) confirming the resources you are about to affect:

![Microsoft Internet Explorer](image)

7. Click **OK** to confirm. The **Graph Cached Database Configure** page appears.
8. To verify that the time period was changed correctly for the resources you selected, choose the resources and containers, and click Apply Filter. The Available list shows the resources whose graph cache time period is still set to the 48-hour default as well as those whose time period you have changed (perhaps to 24 hours), as shown in the following example:

Setting up a remote container

You can monitor any resource remotely that you can monitor locally, as long as there is an AdminServer on the remote machine. The only exceptions to this are network resources or jobs, which can be monitored only locally.

To set up a remote container:

1. From the management console menu bar, choose Options → Configuration → Remote AdminServer Configuration.

   The Manage Remote Adminserver page appears.

2. Click New.

3. Enter the name of the host where OpenEdge Management or OpenEdge Explorer is running in the Host field.

4. Enter the port number where the AdminServer runs in the Port field.

5. Select the Monitored check box to enable monitoring resources of remote AdminServer.

6. Enter the username or the machine name where the AdminServer resides in the Username field.
7. In the **Password** field, enter the password associated with the specified username.

8. Click **Save**. The configured container is displayed in the Manage Remote AdminServers page.

You can view the configured remote adminservers based on the following options:

- Show online and offline
- Show only online
- Show only offline
- Show only auto-discovered.

**Note:** The security files are available in `%DLC%\properties`. We recommend you not to change the default security settings.

Deleting a remote adminserver

You can delete a configured remote adminserver.

**To delete a remote container:**

1. From the management console menu bar, choose **Options → Configuration → Remote AdminServer Configuration**.

   The **Manage Remote AdminServers** page appears.

2. Select one of the configured AdminServers in the list, and click **Delete**.

3. Click **Yes** to confirm the deletion.

Configuring process pooling

To reduce processing overhead and improve Web request performance, OpenEdge Management and OpenEdge Explorer provide built-in process pooling. Process pooling maintains several instances of _progress running persistently. As an alternative to using the built-in process pooling, you can configure process pooling to use an AppServer instead.

If you prefer not to keep the instances running in the background, you also have the option of turning process pooling off. If you disable process pooling, however, you might notice a short delay as you navigate through certain pages, such as the Tenant details page if you have a database enabled for multi-tenancy, in the console.

Built-in process pooling is configured with global settings that apply to all local and remote containers running under the OpenEdge Management or OpenEdge Explorer instance. You can also configure process pooling by container, allowing you the flexibility to vary settings per container for databases that reside remotely.

**Process pooling modes**

Process pooling is available in the following three modes:
In built-in pooling, OpenEdge Management manages a set of OpenEdge client processes; this improves performance when the ABL APIs are being called by eliminating the overhead of starting and stopping a process each time. You can control the maximum number of _progress processes that are kept alive at any time. The processes do not maintain a persistent connection to the database; instead, each request to OpenEdge Management or OpenEdge Explorer from a Web browser causes one of the AVMs (_progress.exe) to connect to a database and then run the proper data administration API.

Built-in pooling is the default process pooling mode.

In AppServer pooling, it is the AppServer rather than process pooling that runs the ABL APIs. Each request from OpenEdge Management or OpenEdge Explorer is sent through the specified AppServer using the AppServer URL that you provide to call the ABL API. The Java Open Client is used to connect to the specified AppServer.

You can set up AppServer pooling instead of process pooling if you want to manage the calls to the database by using the AppServer instead of through an _progress AVM managed by OpenEdge Management. You control the number of agents through the AppServer settings. The AppServer you use for pooling should be dedicated to OpenEdge Management (in other words, the AppServer should not also be in use by other ABL clients), and it should be configured to use state-reset mode. In addition, there must be no database connections defined for the agents.

When you choose to disable pooling, you use the least amount of memory; however, you also experience the least effective performance. A new AVM is started on each request from the Database Administration Console. A new database connection is made on the startup of each OpenEdge client process (_progress), and the ABL API is run using the -p startup parameter.

You can disable pooling if you experience issues using either built-in or AppServer pooling; if you prefer not to have _progress running continuously; or if you are not concerned about performance. When you disable pooling, neither the process pooling settings nor the AppServer URL is used.
Setting process pooling options

You can choose the process pooling mode and set values for relevant properties.

To set process pooling options:

1. From the management console menu bar, choose **Options → Configuration → Process pooling**.

   The **Process Pooling Configuration** page appears and allows you to set system-wide process pooling defaults for all local and remote containers being managed by this instance of OpenEdge Management or OpenEdge Explorer:

   ![Process Pooling Configuration](image)

2. Select the mode from the following three options:

   - **Disabled**
   - **Use built-in pooling**
   - **Use OpenEdge AppServer**

3. Provide the following information, depending on the mode:

   - For the built-in processing mode:
     - **Port** — The port number for the process pooling server. The default is 4444.
     - **Maximum agents** — The maximum number of agents. The default is three.
     - **Timeout** — The maximum time, in milliseconds, to wait for the startup of `_progress`. The default is 1500.
     - **Log File** — The full path to the log file for the agents.
For the OpenEdge AppServer mode:

- **AppServer URL** — The URL used to connect to the AppServer. If you do not specify a URL, `AppServer://localhost:5162/appService` (the default URL) is used.

- **AppService name** — The name of the application service to use on the AppServer. The service name is used to identify which set of brokers are expected to respond to requests. If you do not provide an AppService name, the AppServer default application service is used.

4. Click **Submit**.

Creating a new process pooling configuration

You can create a new process pooling configuration and use it, rather than the global settings, for one or more containers.

You can also use the Restore option to cancel the editing of an existing configuration or creation of a new one.

To create a new process pooling configuration:

1. From the management console menu bar, choose **Options** → **Configuration** → **Process pooling**.

2. Click **Customize**. The **Process Pooling Configuration** page changes, as shown:

3. From the management console menu bar, choose **Options** → **Configuration** → **Process pooling**.
4. Click **Customize**. The **Process Pooling Configuration** page changes, as shown:

![Process Pooling Configuration](image)

If you have other process pooling configurations, the details appear in the grid. If you have no other configurations, the details are blank.

5. Click **New**.

6. Choose the container from the **Container** dropdown list, and make any other edits to the settings.

7. Choose one:
   - Click **Submit** when you finish.
   - Click **Restore**. The new or edited configuration settings are not saved.

**Deleting a custom process pooling configuration**

You can delete a custom process pooling configuration for a specific container. When you delete the custom configuration, the process pooling settings for that container revert to the global process pooling settings.

**To delete a custom process pooling configuration:**

1. From the management console menu bar, choose **Options** → **Configuration** → **Process pooling**.
   
   The **Process Pooling Configuration** page appears.

2. Click **Customize**.

3. Select one of the configurations in the list, and click **Delete**.

4. Click **Yes** to confirm the deletion.
Setting OpenEdge Management user preferences

You can establish your own preferences for the following OpenEdge Management features:

- The OpenEdge Management console page refresh rate
- The default polling and trending attributes for your OpenEdge Management resources: database, file, network, OpenEdge server, and system

Make these selections on the User Preferences page.

To set OpenEdge Management user preferences for page refresh and for default polling and trending:

1. From the management console menu bar, choose Options → User Preferences. A list of options appears in the list frame, as shown:

```
Options
  * Authorized Users
  * Configuration
    * General
    * Trend database
    * Web server
    * Email alerts
    * Resource monitoring
    * Graph cache
    * Batch size configuration
    * Process pooling
    * User Preferences
    * SNMP
```

2. Continue with the “Setting the OpenEdge Management page refresh option” section on page 116.

Setting the OpenEdge Management page refresh option

From the User Preferences page, you can choose if and when you want the OpenEdge Management pages to refresh.

Consider your page refresh needs closely before establishing a setting. Frequent refreshing of menu, list, and detail frames adds to the processing time used by OpenEdge Management.
The current setting appears in the **Currently** field, as shown in Figure 29.

![User Preferences](image)

**Figure 29: Refresh Pages page**

The following refresh options are available:

- Disable
- Every 30 seconds
- Every 45 seconds
- Every minute
- Every 2 minutes
- Every 5 minutes
- Every 10 minutes
- Every 30 minutes

To change the refresh setting:

1. From the **Currently** drop-down list, select a new option.
2. Click **Set**. The following events occur:
   - The menu and detail frames are immediately refreshed.
   - The objects in the menu frame refresh according to your new setting.
   - Any time the list frame displays the **Alert List** page or the **Resources** page, these objects will be refreshed according to the new setting selected.

Remember that you can always click the **Refresh** icon, shown below, in the list frame’s toolbar:
Setting OpenEdge Management resource monitor defaults

From the OpenEdge Management User Preferences page, you can set either default polling or default polling and trending attributes for the following resources:

- Network
- Database
- AppServer
- MSS DataServer
- ODBC DataServer
- SonicMQ Adapter
- WebSpeed
- System
- File
- AppServer Internet Adapter
- NameServer
- Oracle DataServer
- Web Services Adapter
- OE Web Server

To choose the default options:

1. Click Resource Monitor Defaults. The Resource Monitor Defaults page appears:

   ![Resource Monitor Defaults](image)

2. Click a resource category. The defaults page for that category appears.
3. Select the defaults.

4. When you finish setting the defaults, click Submit. A message appears confirming that the defaults have been successfully updated.

To return to the original OpenEdge Management defaults for a category, click Restore Defaults on the category’s defaults page.

For more information about selecting resource monitor defaults for system, network, and file resources, see the relevant sections in OpenEdge Management: Resource Monitoring. For more information about selecting resource monitor defaults for databases, see the relevant section in OpenEdge Management: Database Management. For more information about selecting resource monitor defaults for OpenEdge server components, see the relevant section in OpenEdge Management: Servers, DataServers, Messengers, and Adapters.
Setting OpenEdge Management distribute resource properties

The Distribute Resource Properties page accessed from User Preferences lets you distribute resource monitor polling properties from an existing resource to one or more other resources. You can change a number of already existing resource monitors to have the same polling properties and possible rules, by selecting one of the following source types:

- AppServer
- CPU
- Database
- Disk
- FileSystem
- LogFile
- Memory
- NameServer
- TCP
- WebSpeed
To distribute resource polling properties:

1. Click **Distribute Resource Properties** in User Preferences. The Distribute Resource Properties page appears, as shown:

   ![Distribute Resource Properties](image)

   1. In the **Resource Selection** section:
      a. Select a source container from the **Source Container** list.
      b. Select a source type from the **Source Type** list.
      c. Select a source resource from the **Source Resource** list.
      d. Select a container from the **Target Container** list, to which you want to distribute resource polling properties. The resources associated with the selected target container appear in the **Target Resources** section.
      e. Select the **Remove and replace existing rules** check box, if you want to distribute resource rules along with polling properties.

2. From the **Available Targets** list, select the resources and click the right-arrow. The selected resources appear in the **Selected Targets** list.

   **Note:** If you want to move the resources from the **Selected Targets** list to the **Available Targets** list, select the resources in the **Selected Targets** list and click the right-arrow.

3. Click **Submit** to start distributing the polling properties. Click **OK** on the pop-up message to confirm that the selections are correct. The Resource definition distribution summary page displays the resources whose polling properties have been updated.
Changing the OpenEdge Management SNMP Adapter settings

If you have installed the SNMP Adapter, you can change the current SNMP Adapter settings.

To change the SNMP Adapter settings:

1. Select **Options → Configuration → SNMP**. The **SNMP Adapter** page appears in the detail frame and displays the **SNMP agent status** and current settings:

   ![SNMP Adapter page](image)

   You can also start or stop the SNMP agent from the **SNMP Adapter** page.

2. Click **Edit**. Change one or more of the following settings:
   - **Snmp agent port** — The port number of the host machine on which the SNMP management agent resides. The SNMP agent translates the requests from the SNMP management console and interprets MIB variables. The default port number is 8001.
   - **Default SNMP trap port** — The default port number to which traps are sent. The number is 8002.
   - **Default SNMP read community** — The community that specifies who has permissions to read which variables.
   - **Default write community** — The community that specifies who has permissions to write which variables. (In the case of the OpenEdge Management MIB, the values are read-only.)
   - **Autostart SNMP** — The option to autostart the SNMP agent.

3. Click **Submit**.
Using the command-line interface

OpenEdge Management and OpenEdge Explorer provide a command-line interface that performs functions without the use of the graphical user interface.

**Note:** To use the command-line interface, HTTP must be enabled with `localhost` defined as a trusted client. See Chapter 6, “Setting Up Secure Communications,” for details.

Specifically, the command-line interface allows you to:

- Start, query, and stop OpenEdge Management or OpenEdge Explorer.
- Dump the contents of the OpenEdge Management or OpenEdge Explorer configuration database to a readable form (an XML file) and, in the event of a catastrophic failure, use the backup dump file to restore the database.
- Access command-line help.

You can also use the command-line interface to work with alerts in the following ways:

- Clear an alert
- Enable and disable polling
- Work with alert commands

For details about working with alerts in the command line, see *OpenEdge Management: Alerts Guide and Reference.*
Chapter 5: Administering OpenEdge Management and OpenEdge Explorer

Using the OpenEdge environment window Proenv

As a convenience, you can execute both OpenEdge Management and OpenEdge command-line utilities from the OpenEdge environment window. Access this window by choosing Start → Programs (or All Programs) → Progress → OpenEdge → Proenv. The environment window sets the shell environment variables needed for executing both OpenEdge Management and OpenEdge commands, as shown in Figure 30.

Figure 30: Proenv window

Starting, querying, and stopping from the command line

Use the following syntax to start, query, or stop OpenEdge Management or OpenEdge Explorer from the command line:

**Syntax**

```
fathom [-start|-query|-stop] <option>
```

**Table 5** describes the options you can use when starting or stopping from the command line.

**Table 5: Command-line options for starting and stopping**

<table>
<thead>
<tr>
<th>Option syntax</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-host</td>
<td>Host where the AdminServer process resides.</td>
</tr>
<tr>
<td>-port</td>
<td>Port where the AdminServer runs. Default is 20931.</td>
</tr>
<tr>
<td>-timeout &lt;time&gt;</td>
<td>Time, in seconds, for OpenEdge Management or OpenEdge Explorer to wait for a response. The default is 240 seconds.</td>
</tr>
<tr>
<td>-user &lt;user-name&gt;</td>
<td>Username on machine where the AdminServer resides. The default is current user.</td>
</tr>
<tr>
<td>-password &lt;user-password&gt;</td>
<td>Password associated with the specified username. This is not needed for local connection.</td>
</tr>
</tbody>
</table>

**Note:** Use of the -password parameter might allow others to see your password in clear text.
Examples

You want to connect to your AdminServer but you do not want to wait more than five minutes for the connection to be made. Enter the following syntax to start OpenEdge Management for OpenEdge Explorer from the command line (and assume that the AdminServer port is the default of 20931):

Syntax

```
fathom -start -timeout 30
```

Enter the following syntax to stop OpenEdge Management or OpenEdge Explorer from the command line and specify that the command-line interface tool wait five minutes before reporting an error (and assume that the AdminServer port is the default of 20931):

Syntax

```
fathom -stop -timeout 300
```

To learn the execution status of OpenEdge Management or OpenEdge Explorer with an AdminServer port number of 1905, enter the following syntax:

Syntax

```
fathom -query -port 1905
```

Dumping, backing up, and restoring the configuration database

Using the command-line interface, you can dump either the OpenEdge Management or the OpenEdge Explorer configuration database files, even when it is running, to a readable XML file. You can use the dump file as a backup of the configuration database; in the event of a catastrophic failure, you can use the backup dump file to restore the configuration database. Because the dump file is readable, you can also use the file in OpenEdge Management when you are performing diagnostics.

You can also perform a dump and load to reduce the disk space that the configuration database is using.

Dumping the configuration database

You can dump the configuration database to a file whose name you specify by typing the following command:

```
fathom -dump <filename>
```

The resulting file will be in XML format and will contain an XML representation of all definitions in the configuration database. You can use this resulting file in OpenEdge Management, for example, either as a potential single-file backup of the database or to assist with diagnostics regarding database performance.
Chapter 5: Administering OpenEdge Management and OpenEdge Explorer

Note that you can run the dump command when both the AdminServer and OpenEdge Management/OpenEdge Explorer are running, or when they are both not running. Since Fathom is a plugin to the AdminServer, you cannot issue the fathom -dump command unless both the AdminServer and OpenEdge Management/OpenEdge Explorer are running, or they are both not running.

You can also use the -httpport argument, as follows, to identify the port of the OpenEdge Management or OpenEdge Explorer Web server:

```
fathom -httpport <port-number> -dump <filename>
```

Restoring the configuration database from a backup file

You can load a dump file you created from the configuration database. To run the load command, be sure that OpenEdge Management or OpenEdge Explorer is offline; if either is running, you must stop the AdminServer before you run the command.

To load the file, type the following command:

```
fathom -load <filename>
```

The -load command recreates the configuration database and populates it with definitions in the file whose name you specify.

Note that OpenEdge Management or OpenEdge Explorer must be offline when you run the -load command. If either is online, be sure to stop the AdminServer.

OpenEdge Management or OpenEdge Explorer must be online when you run the -dump command.
To dump the data:

1. Select **Start** → **Programs** (or **All Programs**) → **Progress** → **OpenEdge** → **Proenv**.

2. Dump the *fathom* configuration database files by using either of the following commands:

   ```plaintext
   fathom -dump <filename>
   ```

   ```plaintext
   fathom -dump <filename> [-httpport<portNumber>]
   ```

   where `<filename>` is the name of the xml file created that contains the dumped contents of the configuration database and `<portNumber>` is the port that OpenEdge Management/OpenEdge Explorer is running on. The default port number is 9090.

3. Load the dumped file using the following command:

   ```plaintext
   fathom -load <filename>
   ```

### Accessing command-line help

To access help about any command-line option, use the following:

```plaintext
fathom -help -command
```

To access help for the `-stop` command, enter the following:

```plaintext
fathom -help -stop
```

The help information shown in **Figure 31** appears.

![Command-line help for -stop](image-url)
Setting the log level for the AdminServer log file

The AdminServer log (admserv.log) records AdminServer activity. The log is located in the OpenEdge Work directory. You can determine how much information is written to the log file by setting the log level.

To set the log level in Windows or on UNIX:

1. Open the following file in a text editor:

   OpenEdge-install-dir\properties\AdminServerPlugins.properties


3. Add the following to the jvmargs line:

   -DLogLevel=n

   Where n is a number from 1 to 5. The default is 3. Log level 5 provides the highest level of verbose information.

4. Save the file.
Setting Up Secure Communications

As you monitor resources and trend data using OpenEdge Management, one of your primary considerations will be the security of the data as it is transferred over the Internet.

This chapter describes how to use the HTTPS protocol with the Web server for OpenEdge Management or OpenEdge Explorer, and with OpenEdge Management for the OpenEdge Management Trend Database, as outlined in the following sections:

- Transferring data securely with the HTTPS protocol
- Understanding common SSL terminology
- Getting started: using the demo certificate
- Changing Web server settings
- Changing OpenEdge Management Trend Database settings
- Using SSL
- Using your own certificate
- Using the keytool utility
Transferring data securely with the HTTPS protocol

As you work with OpenEdge Management and OpenEdge Explorer, you want to ensure that data being transferred between the Web browser and the Web server is secure. With OpenEdge Management, you might also require the same level of security when you trend performance data if the trend database is located on a remote machine. In cases in which you are sending or receiving sensitive data, the security of the communications is essential.

You can use the HTTPS protocol for communications between the Web browser and the OpenEdge Management or OpenEdge Explorer Web server, as well as between an OpenEdge Management instance and a remote trending database. The HTTPS protocol with Secure Sockets Layer (SSL) encrypts data through the use of a public/private key pair and a signed certificate, thereby making sure that both the client and the server (or, as in the case of OpenEdge Management and OpenEdge Explorer, a Web browser and the Web server) can authenticate each other’s identity. If you are trending data to a remote database, you can ensure that communication between the two machines is secure.

Using the demo certificate or your own certificate

To help you get started using the SSL protocol, OpenEdge Management and OpenEdge Explorer include a demo keystore and certificate, valid for approximately one year, that you can set up on a nonproduction system. If you prefer (or if you want to set up SSL on a production system), you can generate your own certificate or use one that you acquire from a certificate authority.

Instructions for setting up SSL by either method are provided here.
Understanding common SSL terminology

As you prepare to establish secure communications of OpenEdge Management and OpenEdge Explorer data, there are several terms with which you should be familiar.

Data encryption

A method of translating data into a code that is indecipherable without a special key or password. The sender of the data encrypts it, and the receiver of the data decrypts it.

Encrypted data is also known as *cipher text*.

SSL handshake

A communication that allows the server to identify (authenticate) itself to the client by sending a certificate. The client uses the certificate to verify that the sender is who it claims to be.

Public and private key pair

The combination of a sender’s *public key*, which is common knowledge, and a *private key*, which is known only by the recipient of an Internet communication. For example, if a server wants to send a secure communication to a client, the server uses the private key to encrypt the contents of the message. The client then uses its public key to decrypt the encrypted message.

Keystore

A database that functions as a repository for the certificates and keys.

Keytool

A key and certificate management utility, developed by Sun Microsystems, that allows you to administer your own private/public key pairs and associated certificates. You then use these keys and certificates for self-authentication (in which you authenticate yourself to other users or services) using digital signatures.

X.509

A commonly used standard for defining digital certificates.

Certificate

An attachment included in a network communication for the purposes of security. A certificate allows the recipient of the communication to verify that the sender is as claimed and allows the recipient to return to the sender an encrypted response.

A certificate is issued by a Certificate Authority (CA).

Each certificate is a dated entity that has a limited lifespan. A typical certificate is issued for a year; however, a trial certificate will likely be valid for a shorter period of time, perhaps for fourteen days.

You can typically obtain a 14-day trial certificate from a certificate/security company such as Verisign (http://www.verisign.com).

Certificate Authority

A provider of encrypted digital certificates. The CA signs the certificate request and chains it to its root certificate.
Chapter 6: Setting Up Secure Communications

Root certificate

A certificate that identifies the Certificate Authority. A root certificate is self-signed, meaning it does not chain to another certificate to establish trust. If a certificate user, such as a browser, does not recognize a particular certificate, it walks the chain for a parent that it does know, until it reaches the root.

Digital signature

A signature on a certificate from a trusted Certificate Authority.

procertm utility

A utility you can use to add any Certificate Authority’s root certificate to the trend trust keystore, if the root certificate is not already there. You can also use the procertm utility to convert digital certificates between certificate file types (.der and .pem).
Getting started: using the demo certificate

If you want to get up and running with SSL quickly, you can use the demo certificate that OpenEdge Management and OpenEdge Explorer provide and set up the HTTPS protocol for communication with the Web server.

If you are using OpenEdge Management, you can also set up secure communication with a remote OpenEdge Management Trend Database.

**Caution:** This demo certificate is not intended for use in a production environment.

Configuration update errors or warnings

In the event that you make an update to the Web server or OpenEdge Management Trend Database configuration and the update is not successful, an error message appears, describing the issue. Additionally, a red letter X appears next to the field that prompted the generation of the error. The presence of one or more errors stops the update; click **OK** to close the error message.

If you make an update to the configuration and a warning is generated, an alert box appears and describes the particular warning. Additionally, a blue question mark appears next to the field that prompted the warning. Unlike what happens when an error is detected during a configuration update, the warning does not stop the update from proceeding; it is simply an informational reminder to you that you might want to reconsider implementing the configuration update.

If you make a change in configuration and the change does not appear to have taken effect, consult the AdminServer log (*admserv.log*), which is located in your OpenEdge Work directory, for details.

Identifying trusted clients

As you update the configuration of either the Web server (or the OpenEdge Management Trend Database, if available in your configuration), you can optionally identify one or more trusted clients who are allowed to connect to the OpenEdge Management or OpenEdge Explorer instance using the designated protocol. If you want to list more than one trusted client, separate each entry by a comma.

You can use the trusted clients feature to allow a few well-known clients (or even an entire subnet) to connect unsecured to OpenEdge Management for convenience and possible performance reasons, while requiring all other clients to use a secured connection. For example, you might want to establish that you use the HTTP protocol for intranet connections and the HTTPS protocol for any Internet connections (for example, coming through a firewall).

You can identify a trusted client by using any of the following formats:

- DNS name (for example, *pcjoe*)
- A dot-formatted address string (for example, *123.123.123.123*)
- A wildcard dot-formatted address string (for example, *123.123.123.*)
Independent of how you configure trusted clients, you are always able to connect from the local host. If you leave the trusted clients list empty, any client can connect.

**Reconnecting after updates**

Note that changes you make to the configuration might require that you reconnect (log in again) to OpenEdge Management or OpenEdge Explorer. If logging in again is necessary, you are prompted to do so.
Changing Web server settings

When you perform the initial OpenEdge Management or OpenEdge Explorer configuration, you identify the Web server port you plan to use. Although you cannot choose to use the HTTPS protocol when you are making your initial configuration decisions regarding the Web server (as described in Chapter 2, “Setting Up OpenEdge Management or OpenEdge Explorer for the First Time”), you can make that choice later by updating the configuration options. You can change the port number, and you can also decide whether to use HTTP only, HTTPS (SSL) only, or both HTTP and HTTPS (SSL). If you choose to use both the HTTP and HTTPS protocols, you can define for both protocols a list of trusted clients.

For example, you might prefer to restrict the clients you want to talk to OpenEdge Management without SSL. For HTTP, you might put the local host (or create a subnet of local users to use HTTP) as the trusted client. For HTTPS, you can open data transfer to anyone, keeping in mind that it might add some overhead to communications.

**Note:** To use the existing command-line interface, HTTP must be enabled with localhost defined as a trusted client.

To change the Web server settings:

1. Select **Options**→**Configuration**→**Web server**. The **Web Server Configuration** page appears in the detail frame and displays the current Web server settings.

2. Choose from the following protocol options:
   - If you want to allow HTTP connections, select the **Enable HTTP protocol** option. Type the port number in the **HTTP port** field.
   - If you want to allow HTTPS connections, select the **Enable HTTPS protocol** option. Type the port number in the **HTTPS port** field.
   - If you want to allow both HTTP and HTTPS connections, select both the **Enable HTTP protocol** option and the **Enable HTTPS (SSL) protocol** option. Then type the port numbers in the **HTTP port** field and the **HTTPS port** field.

3. Choose one of the following options:
   - If you want to work with the demo keystore, click **Submit**. See the “Using SSL” section on page 144 for details about using an HTTPS connection.
   - If you are an advanced user and you want to change keystore information, continue with the “Using advanced HTTP and HTTPS options with the Web server” section on page 136.
Using advanced HTTP and HTTPS options with the Web server

You can use the following advanced options when configuring the use of HTTP or HTTPS:

- Use a Trust Keystore other than the demo provided by OpenEdge Management or OpenEdge Explorer.
- Identify trusted clients for HTTP and/or HTTPS.

To use the advanced options:

1. From the Web Server Configuration page, click Advanced Options. The expanded Web Server Configuration page appears:

   ![Web Server Configuration](image)

2. Under HTTP Configuration, type the name of one or more trusted clients in the Trusted clients field. If you type more than one trusted client, use a comma-delimited list.

   You can identify trusted clients by machine name, subnet, or IP address.

Under HTTPS Configuration, notice that the following fields are prefilled with data taken from the demo keystore, which is demoWebServerIdentityKeystore.jks:

- Keystore path name
- Keystore pass phrase
- Alias
- Alias pass phrase

The Keystore pass phrase, Alias, and Alias pass phrase are all case-sensitive.
The following details relate to the demo certificate information:

- **Owner** — The Common (CN) and Organization (O) name components of the Distinguished Name (DN), whose public key the certificate identifies. For the demo, the owner is Demo or localhost, Progress Software Corp.

  Note that most popular browsers expect the common name portion of the owner name to be the DNS host name of the machine that is using the certificate for SSL. If a certificate has a different common name, as does the demo certificate, the browser notifies you of the difference when you connect to a Web server using this certificate.

- **Issuer** — The Common (CN) and Organization name components of the Distinguished Name (DN), the organization that signed the certificate.

- **Type** — The type of certificate. X.509 is the most widely accepted format and is currently the only format supported by the JDK keytool. This is also the default format used by SSL.

- **Public key** — The algorithm used to generate the public/private key pair. This should always be RSA, which is the only algorithm that some browsers recognize.

- **Signature algorithm** — The algorithm used by the CA to sign the certificate.

- **Version** — The version of the X.509 standard that applies to this certificate. There are currently three certificate versions: V1, V2, and V3.

- **Valid from** — The dates for which the certificate is valid.

3. Type the name of one or more trusted clients in the **Trusted clients** field. If you type more than one trusted client, use a comma-delimited list.

4. Click **Submit**. A message appears confirming that the configuration has been successfully updated.

5. Click **OK**.

Changes you make to the configuration might require you to reconnect (log in again) to OpenEdge Management or OpenEdge Explorer.
Changing OpenEdge Management Trend Database settings

You determine whether the OpenEdge Management Trend Database stores trend data in a local or remote OpenEdge Management database. For trending to a local database, you specify the local database path name and the local database port when you initially configure OpenEdge Management. For trending to a remote OpenEdge Management instance, you specify the remote OpenEdge Management host name and the OpenEdge Management Web server port. (These initial configuration steps are described in Chapter 2, “Setting Up OpenEdge Management or OpenEdge Explorer for the First Time.”)

Although you cannot choose to use the HTTPS protocol when you are making your initial configuration decisions regarding the location of the OpenEdge Management Trend Database, you can make that choice afterwards by updating the configuration options. If you have a client that needs to get through a firewall, you can also configure trending to use a proxy server instead of connecting directly to the Internet.

For HTTPS, you can open data transfer to anyone, keeping in mind that it might add some overhead to communications.

If you choose to trend to a scripted database and use the HTTPS protocol, the machine on which the database resides must have HTTPS enabled in the Web server configuration.

To store trend data in a managed OpenEdge Management database:

1. Select **Trend database** in the list frame. The **OpenEdge Management Trend Database Configuration** page appears in the detail frame and displays the current trend database settings.

2. Select **Store trend data in a local OpenEdge Management database**.

3. Type the database path name (for example, C:\Progress\oemgmt\db\Fathom.db). (Note that the inclusion of the .db extension is optional when you provide the path name.)

4. Type the database port number (for example, 1234).

5. Click **Submit**.

To store trend data in a remote OpenEdge Management instance:

1. Select **Trend database** in the list frame. The **OpenEdge Management Trend Database Configuration** page appears in the detail frame and displays the current trend database settings.

2. Select **Store trend data in a remote OpenEdge Management instance**.

3. Type the host name in the **OpenEdge Management host name** field.

4. Type the remote OpenEdge Management Web server port number in the **OpenEdge Management port** field. Typically, the number is 9090 for HTTP or 9443 for HTTPS.
5. To use HTTPS, select the **Use HTTPS (SSL) protocol** option.

6. Choose one:

   - If you want to work with the demo keystore and are not using a proxy server, click **Submit**. See the “Using SSL” section on page 144 for details about using an HTTPS connection.

   - If you are an advanced user and you want to change keystore information or use a proxy server, continue with the “Using advanced HTTPS options when trending remotely” section on page 139.

### Using advanced HTTPS options when trending remotely

If you want to use HTTPS for communications with a remote OpenEdge Management Trend Database, you can also use the following advanced options:

- A Trust Keystore other than the demo provided by OpenEdge Management
- A proxy server

To use the advanced options:

1. From the **OpenEdge Management Trend Database Configuration** page, click **Advanced Options**. The expanded **OpenEdge Management Trend Database Configuration** page appears:
Chapter 6: Setting Up Secure Communications

Under HTTPS Configuration, the full path name to the demo keystore (demoTrendTrustKeystore.zip) appears in the Keystore path name field.

**Note:** Although the demo keystore is a .zip file, the .zip file format is not a requirement for a keystore. You can also use a .cer file or a .pem file as the keystore.

2. To use a keystore other than the demo, type the keystore name in the Keystore path name field.

3. If you want to use a proxy server, do the following:
   a. Select the Use a Proxy server check box.
   b. Type the host name in the Proxy host name field.
   c. Type the server port number in the Proxy server port field.

4. Click Submit. A message appears confirming that the configuration has been successfully updated.

5. Click OK.

Note that changes you make to the configuration might require you to reconnect (log in again) to OpenEdge Management.

**Using the procertm utility**

If you are using HTTPS for communications with a remote OpenEdge Management Trend Database, you use the demo keystore — demoTrendTrustKeystore.zip — to validate the SSL connection from the OpenEdge Management installations that are trending to a remote management console (the location of the OpenEdge Management Trend Database). The Digital Certificate that identifies the Certificate Authority who issued the remote management console’s digital certificate must be in the demoTrendTrustKeystore.zip for the validation to succeed.

The demoTrendTrustKeystore.zip file contains a number of trusted root digital certificates for an OpenEdge Management demo and common, public Certificate Authorities. It is not typically necessary for you to modify the file; however, the demoTrendTrustKeystore.zip file contains neither the digital certificate for every public Certificate Authority nor certificates for any privately run company Certificate Authority.

You can obtain the distributed list of certificates by running the procertm utility and listing the contents of the demoTrendTrustKeystore.zip file certificate store. You can also use the procertm utility to add any Certificate Authority’s root certificate to the demoTrendTrustKeystore.zip, if not already there.
Changing OpenEdge Management Trend Database settings

When the remote management console’s issuing Certificate Authority is not already present, you must do the following:

1. Contact the CA who issued the management console’s digital certificate and obtain the CA’s trusted Root Digital Certificate. This may be returned in either PEM (.0, .txt, or .pem) or DER (.cer or .crt) format.

2. If the CA root digital certificate is in a PEM format (with a file extension of .0, .txt, or .pem), use the procertm tool to convert it to DER format (identified with a .cer file extension).

3. Use the procertm tool to import the DER-formatted CA digital certificate into the demoTrendTrustKeyStore.zip certificate store.

Managing the trust keystore with procertm

You run the procertm utility from a command line using the following syntax:

Syntax

```
procertm [options] cert_store
```

Where:

- **cert**
  
The path to the digital certificate you want to import, export, or remove. This is used with the -i, -e, and -r options. When importing, the path is relative to the working directory. When exporting or removing digital certificates from cert_store, the path is the full digital certificate path specified in cert_store. Subdirectories should be specified with a forward slash (/). You can use multicharacter (*) and single-character (?) wildcards in the cert filename and file extension.

- **cert_store**
  
The path to the zip or jar certificate store file. If the certificate store file does not exist, and you are importing digital certificates, a new file is created.

When you run procertm, it performs the options in the following order:

1. Imports any certificates specified with the -i option from the working directory into cert_store. If a certificate is not found, a warning message displays.

2. Exports any certificates specified with the -e option from cert_store to the working directory. If a certificate is not found, a warning message displays.

3. Removes any certificates specified with the -r option from cert_store. If a certificate is not found, a warning message displays.

4. Shows the resulting cert_store file contents, if the -l option is specified.

5. Prints any digital certificate list information, if the -p option is specified.
You can provide the following options in any combination and in any order:

-\( -v \)

Prints verbose information about the progress of the digital certificate’s import and export. When used with \( -l \), additional digital certificate field information is printed.

-\( -l \)

Lists the contents of the \texttt{cert\_store} file after all import, export, and remove operations are completed.

-\( -p \)

Prints the digital certificate list the \texttt{cert\_store} contents to the file \texttt{cert\_store.dcl}, after all import, export and remove operations are completed.

-\( -i \texttt{cert} \)

Imports certificate file(s) matching \texttt{cert} to \texttt{cert\_store} from the working directory. The \texttt{cert\_store} file is created as required. You can specify this option multiple times. See the definition of \texttt{cert}.

-\( -e \texttt{cert} \)

Exports the certificate file(s) matching \texttt{cert} from \texttt{cert\_store} to the working directory. Any subdirectories are created if required. You can specify this option multiple times. See the definition of \texttt{cert}.

-\( -r \texttt{cert} \)

Removes the certificate file(s) matching \texttt{cert} from \texttt{cert\_store}. You can specify this option multiple times. See the definition of \texttt{cert}.

-\( -d \)

Sets the working directory path where certificates are imported from or exported to. The default is the current working directory.
Converting digital certificates with procertm

You can use the procertm utility to convert digital certificates between .DER and .PEM file formats. To convert files from one file format to the other, use the following command line syntax:

**Syntax**

```
procertm -c in_cert out_cert
```

Where:

- **in_cert**
  
  The digital certificate whose file format you want to convert.

- **out_cert**
  
  The file format to which you want to convert the digital certificate. Procertm performs the conversion based on the file-extension type. For example, if **in_cert** has a file extension type of .crt and **out_cert** has a file extension type of .pem, **in_cert** is converted from .der to .pem format and written to the file **out_cert**.
Using SSL

Once you configure the Web server to use SSL, enable the HTTPS protocol on a port, and identify a valid identity keystore and certificate, you can connect to OpenEdge Management or OpenEdge Explorer by using the HTTPS protocol.

In the browser’s Address field, type the following command:

```
https://<host-name>:<port-number>
```

Where:

- **host-name**
  
  Either the DNS name or the dot-formatted address where OpenEdge Management or OpenEdge Explorer is running.

- **port-number**
  
  The port on which HTTPS is listening for SSL connections.

The login window appears.

Detecting a certificate from an unknown Certificate Authority

If the browser determines that the certificate uses an unknown CA (as is the case with the demo certificate), a message appears informing you of this fact. Depending on the version of the browser, the content of the message varies.

When browsing in Internet Explorer

If you are using the Internet Explorer browser and attempt to connect to a Web site whose certificate uses an unknown CA, the message shown in Figure 32 appears.

![Security Alert dialog in Internet Explorer](image)

Figure 32: Security Alert dialog in Internet Explorer
You have the following choices:

- Click **Yes** to accept the certificate for the current session only.
- Click **No** to terminate the session.
- Click **View Certificate**. The certificate appears, as shown in Figure 33.

![Certificate details](image)

**Figure 33: Certificate details**

The certificate contains three tabs of information: **General**, **Details**, and **Certification Path**.

To install the certificate:

1. Click **Install Certificate**. The **Certification Import Wizard** launches:

![Certificate Import Wizard](image)
2. Click **Next**. The Wizard continues:

![Certificate Import Wizard](image)

3. Accept the defaults, and click **Next**. The Wizard completes:

![Certificate Import Wizard](image)

4. Click **Finish**. A message appears informing you that the import was successful.

**Note:** If you are using the certificate for testing purposes only, you can remove the certificate from the browser at any time.
Using your own certificate

If you want to use a certificate other than the demo included with OpenEdge Management or OpenEdge Explorer, you can do either of the following:

- Generate your own certificate (to be placed in a JSEE-compatible keystore) by using the keytool utility. See the “Using the keytool utility” section on page 148 for details.

- Use an existing certificate that you have already acquired from a third-party CA. To use the existing certificate, follow the “Step 3: Importing the CA Certificate” section on page 152 and the “Step 4: Importing the signed certificate to the store” section on page 153.
Chapter 6: Setting Up Secure Communications

Using the keytool utility

You can use a valid certificate that you have already acquired from a CA, or you can use the keytool utility to take you through the following four steps to obtain and import your own certificate:

1. Creating a keystore repository and generating a key
2. Generating a certificate request
3. Importing the CA’s root certificate
4. Importing the signed identity certificate to the store

**Step 1: Creating a keystore repository**

Before you obtain a digital certificate, you must create a keystore repository to hold the identity and CA certificates. Creating a keystore repository will also put a self-signed certificate and key pair into the store.

**Note:** For improved readability of the command-line samples in this document, each command-line option appears in its own line. However, you must actually type the command as one continuous string, without including any return characters.

To create the repository, type the following command **all on one line**:

```bash
Keytool
-genkey
-dname "CN=<mypc>, OU=<dept.> O=<company>, L=<city>, S=<state>, C=<country>"
-alias <alias>
-keypass <alias-password>
-keystore <Full-path-to-OpenEdgeManagement/OpenEdgeExplorer-install-dir>/config/myIdentityKeystore.jks
-storepass <keystore passphrase>
-validity <days>
-keyalg rsa
-keysize 1024
```
Where:

- **-genkey**
  
  Creates the public/private key pair and wraps the public key into a self-signed certificate.

- **-dname**
  
  Defines the distinguished name string that identifies your site, as described in Table 6.

Table 6: Distinguished name string components

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CN</td>
<td>The common name, which is typically the host name for the system. (If you do not type the host name, you will get an alert from the browser.)</td>
</tr>
<tr>
<td>OU</td>
<td>The name of your organization or department.</td>
</tr>
<tr>
<td>O</td>
<td>The name of your company.</td>
</tr>
<tr>
<td>L</td>
<td>The name of your city.</td>
</tr>
<tr>
<td>S</td>
<td>The name of your state.</td>
</tr>
<tr>
<td>C</td>
<td>The name of your country.</td>
</tr>
</tbody>
</table>

- **-alias**
  
  A value that identifies a specific certificate/key pair. You must provide a unique alias for each certificate/key pair in a keystore. In the example shown here, the alias is **Acme**.

- **-keypass**
  
  A password that you will use to access a specific certificate/key pair. In the example shown here, the keypass is **coyote**.

- **-keystore**
  
  The full path (relative to the OpenEdge Management or OpenEdge Explorer install directory) and the name of the keystore file you want to create.

In the example shown earlier in this section, **myIdentityKeystore.jks** is the repository name. If the keystore file were located in the default location for OpenEdge Management, for example, it would be in the Progress\oemgmt\config directory.
Chapter 6: Setting Up Secure Communications

- **-storepass**
  A password for the keystore file. In the example shown here, the storepass is **roadrunner**.

- **-validity**
  The length of time, in days, that the certificate can be used. The default is 90 days.

- **-keyalg**
  The algorithm being used to create the certificate signature.

  Use this option to override the default value of **dsa** by specifying **rsa**, which is the default used by the Jetty Web server and required by Internet Explorer and Netscape.

- **-keysize**
  The default key size of 1024; other values include 512 and 2048.

A sample of creating a keystore appears in **Figure 34**.

**Figure 34: Creating a keystore**

The command shown in **Figure 34** accomplishes the following:

- Generates a public/private key pair for the entity whose distinguished name (DN) has a common name (CN) of **mypc**, the organizational unit (OU) **Dev**, the company (O) **Acmeco**, the city (L) **Tucson**, the state (S) **AZ**, and the country (C) **US**.

- Establishes that the certificate is valid for **90** days and is associated with the private key in a keystore entry referred to by the alias **Acme**.

- Assigns to the private key the keypass (password) **coyote**.

- Creates the keystore named **myIdentityKeystore** in the directory, which is the default location for an installation of OpenEdge Management.

- Assigns to the keystore the storepass (password) **roadrunner**.

- Uses the **rsa** key-generation algorithm to create the keys.
• Establishes the size for each key as 1024.

• Creates a self-signed certificate that includes the public key and the distinguished name details.

Note that if you choose not to type the entire command, you can begin by typing only the -genkey command. The utility then prompts you for each of the subsequent pieces of information.

Step 2: Generating a certificate request

Now that you have created a self-signed certificate, you want to request a signed certificate from a Certificate Authority, so that the certificate is more apt to be trusted by others.

To request the certificate:

1. Execute the following command, typing it as one continuous string without including any return characters:

   Keytool -certreq
   -alias acme
   -file d:\work\acme.csr
   -keypass coyote
   -keystore d:\work\fathomstore
   -storepass roadrunner

   Where:

   • -certreq
     Generates a Certificate Signing Request (CSR).

   • -file d:\work\acme.csr
     Specifies the path to and name of the file that is generated to hold the certificate request information. Generally, the naming convention used to identify a CSR is to add .csr to the end of the file name. In the example shown here, the file is d:\work\acme.csr.

2. Submit the certificate request to a Certificate Authority (or to your own company’s certificate authority, such as Microsoft’s Certificate Authority). The submittal of the request is usually done by copying the contents of the file into the appropriate field into a Web page generated by your chosen certificate authority’s Web site; however, the process for submitting the CSR is dependent upon the certificate authority.

   The CA will typically authenticate you as the requestor and return a certificate, signed by the CA, authenticating your public key.
3. When you receive the reply (usually sent by e-mail), copy the contents starting with ---Begin Certificate and ending with --- End Certificate into a file with a .cer extension.

In this case, the CA will actually return a chain of certificates; each certificate authenticates the public key of the signer of the previous certificate in the chain.

4. Download the CA’s root certificate for use in the Web server identity keystore.

If necessary, obtain the CA’s root certificate from your certificate authority to use in your browser and for remote trending. This certificate is used on the client side (browser) to authenticate the root signer and also needs to be added to the certificate keystore file. If the CA certificate is from a well-known authority such as Verisign, then it may not be necessary to install the CA certificate into the client-side browser as most browsers already include support for well-known certificate authorities.

If the CA is not one that is included in the trendtrustkeystore.zip, you must get the CA’s certificate and add it.

You must now update the keystore file (created in the “Step 1: Creating a keystore repository” section on page 148) by importing the CA certificate and your new site certificate.

**Step 3: Importing the CA Certificate**

Once you receive the signed certificate from the CA, you must import it.

To import the certificate, execute the following command, typing it as one continuous string without including any return characters:

```
keytool -import
-alias ca
-file d:\work\ca.cer
-keypass ca
-keystore d:\work\fathomstore
-storepass roadrunner
```

Where:

- `-import`
  Causes the certificate to be imported into the keystore file.
- `-alias`
  Refers to the new CA certificate.
- `-file`
  Refers to the path to and name of the file that contains the CA certificate.
Step 4: Importing the signed certificate to the store

To add the signed certificate to the store, execute the following command, typing it as one continuous string without including any return characters:

```
Keytool -import
-alias acme
-file d:\work\acme.cer
-keypass coyote
-keystore d:\work\fathomstore
-storepass roadrunner
```

The CA needs to be distributed to the clients. You can do this either by loading the CA certificate file manually into the browser, or, upon connecting to the OpenEdge Management Web server the first time, choosing to download and install the CA certificate.
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OVERVIEW
========

This package contains C software to implement JPEG image compression and decompression. JPEG (pronounced "jay-peg") is a standardized compression method for full-color and gray-scale images. JPEG is intended for compressing "real-world" scenes; line drawings, cartoons and other non-realistic images are not its strong suit. JPEG is lossy, meaning that the output image is not exactly identical to the input image. Hence you must not use JPEG if you have to have identical output bits. However, on typical photographic images, very good compression levels can be obtained with no visible change, and remarkably high compression levels are possible if you can tolerate a low-quality image. For more details, see the references, or just experiment with various compression settings. This software implements JPEG baseline, extended-sequential, and progressive compression processes. Provision is made for supporting all variants of these processes, although some uncommon parameter settings aren't implemented yet.

For legal reasons, we are not distributing code for the arithmetic-coding variants of JPEG; see LEGAL ISSUES. We have made no provision for supporting the hierarchical or lossless processes defined in the standard.

We provide a set of library routines for reading and writing JPEG image files, plus two sample applications "cjpeg" and "djjpeg", which use the library to perform conversion between JPEG and some other popular image file formats. The library is intended to be reused in other applications.

In order to support file conversion and viewing software, we have included considerable functionality beyond the bare JPEG coding/decoding capability; for example, the color quantization modules are not strictly part of JPEG decoding, but they are essential for output to colormapped file formats or colormapped displays. These extra functions can be compiled out of the library if not required for a particular application. We have also included "jpegtran", a utility for lossless transcoding between different JPEG processes, and "rdjpgcom" and "wrjpgcom", two simple applications for inserting and extracting textual comments in JFIF files.

The emphasis in designing this software has been on achieving portability and flexibility, while also making it fast enough to be useful. In particular, the software is not intended to be read as a tutorial on JPEG. (See the REFERENCES section for introductory material.) Rather, it is intended to be reliable, portable, industrial-strength code. We do not claim to have achieved that goal in every aspect of the software, but we strive for it.
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The Unix configuration script "configure" was produced with GNU Autoconf.

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The same holds for its supporting scripts (config.guess, config.sub, ltconfig, ltmain.sh). Another support script, install-sh, is copyright by M.I.T. but is also freely distributable.

It appears that the arithmetic coding option of the JPEG spec is covered by patents owned by IBM, AT&T, and Mitsubishi. Hence arithmetic coding cannot legally be used without obtaining one or more licenses. For this reason, support for arithmetic coding has been removed from the free JPEG software. (Since arithmetic coding provides only a marginal gain over the unpatented Huffman mode, it is unlikely that very many implementations will support it.)

So far as we are aware, there are no patent restrictions on the remaining code.

The IJG distribution formerly included code to read and write GIF files.

To avoid entanglement with the Unisys LZW patent, GIF reading support has been removed altogether, and the GIF writer has been simplified to produce "uncompressed GIFs". This technique does not use the LZW algorithm; the resulting GIF files are larger than usual, but are readable by all standard GIF decoders.

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A "png_get_copyright" function is available, for convenient use in "about" boxes and the like:

```c
printf("%s", png_get_copyright(NULL));
```

Also, the PNG logo (in PNG format, of course) is supplied in the files "pngbar.png" and "pngbar.jpg (88x31) and "pngnow.png" (98x31).

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Glenn Randers-Pehrson
randeg@alum.rpi.edu
September 1, 2001

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zlib 1.1.3 is a general purpose data compression library. All the code is thread safe. The data format used by the zlib library is described by RFCs (Request for Comments) 1950 to 1952 in the files ftp://ds.internic.net/rfc/rfc1950.txt (zlib format), rfc1951.txt (deflate format) and rfc1952.txt (gzip format). These documents are also available in other formats from ftp://ftp.uu.net/graphics/png/documents/zlib/zdoc-index.html

All functions of the compression library are documented in the file zlib.h (volunteer to write man pages welcome, contact jloup@gzip.org). A usage example of the library is
Appendix A: Third Party Acknowledgements

given in the file example.c which also tests that the library is working correctly. Another example is given in the file minigzip.c. The compression library itself is composed of all source files except example.c and minigzip.c.

To compile all files and run the test program, follow the instructions given at the top of Makefile. In short "make test; make install" should work for most machines. For Unix: "configure; make test; make install"

For MSDOS, use one of the special makefiles such as Makefile.msc.

For VMS, use Make_vms.com or descrip.mms.

Questions about zlib should be sent to <zlib@quest.jpl.nasa.gov>, or to Gilles Vollant <info@winimage.com> for the Windows DLL version.

The zlib home page is http://www.cdrom.com/pub/infozip/zlib/

The official zlib ftp site is ftp://ftp.cdrom.com/pub/infozip/zlib/

Before reporting a problem, please check those sites to verify that you have the latest version of zlib; otherwise get the latest version and check whether the problem still exists or not.

Mark Nelson <markn@tiny.com> wrote an article about zlib for the Jan. 1997 issue of Dr. Dobb's Journal; a copy of the article is available in http://web2.airmail.net/markn/articles/zlibtool/zlibtool.htm

The changes made in version 1.1.3 are documented in the file ChangeLog.

The main changes since 1.1.2 are:

- fix "an inflate input buffer bug that shows up on rare but persistent occasions" (Mark)
- fix gzread and gztell for concatenated .gz files (Didier Le Botlan)
- fix gzseek(..., SEEK_SET) in write mode
- fix crc check after a gzeek (Frank Faubert)
- fix miniunzip when the last entry in a zip file is itself a zip file (J Lilge)
- add contrib/asm586 and contrib/asm686 (Brian Raiter)

See http://www.muppetlabs.com/~breadbox/software/assembly.html

- add support for Delphi 3 in contrib/delphi (Bob Dellaca)
- add support for C++Builder 3 and Delphi 3 in contrib/delphi2 (Davide Moretti)
- do not exit prematurely in untgz if 0 at start of block (Magnus Holmgren)
- use macro EXTERN instead of extern to support DLL for BeOS (Sander Stoks)
- added a FAQ file

plus many changes for portability.
Unsupported third party contributions are provided in directory "contrib". A Java implementation of zlib is available in the Java Development Kit 1.1
http://www.javasoft.com/products/JDK/1.1/docs/api/Package-java.util.zip.html

See the zlib home page http://www.cdrom.com/pub/infozip/zlib/ for details.

A Perl interface to zlib written by Paul Marquess <pmarquess@bfsec.bt.co.uk> is in the CPAN (Comprehensive Perl Archive Network) sites, such as:

A Python interface to zlib written by A.M. Kuchling <amk@magnet.com> is available in Python 1.5 and later versions, see
http://www.python.org/doc/lib/module-zlib.html

A zlib binding for TCL written by Andreas Kupries <a.kupries@westend.com> is available at http://www.westend.com/~kupries/doc/trf/man/man.html

An experimental package to read and write files in .zip format, written on top of zlib by Gilles Vollant <info@winimage.com>, is available at http://www.winimage.com/zLibDll/unzip.html and also in the contrib/minizip directory of zlib.

Notes for some targets:

- To build a Windows DLL version, include in a DLL project zlib.def, zlib.rc and all .c files except example.c and minigzip.c; compile with -DZLIB_DLL

  The zlib DLL support was initially done by Alessandro Iacopetti and is now maintained by Gilles Vollant <info@winimage.com>. Check the zlib DLL home page at http://www.winimage.com/zLibDll

  From Visual Basic, you can call the DLL functions which do not take a structure as argument: compress, uncompress and all gz* functions.

  See contrib/visual-basic.txt for more information, or get
  http://www.tcfb.com/dowseware/cmp-z-it.zip

- For 64-bit Irix, deflate.c must be compiled without any optimization. With -O, one libpng test fails. The test works in 32 bit mode (with the -n32 compiler flag). The compiler bug has been reported to SGI.

- zlib doesn't work with gcc 2.6.3 on a DEC 3000/300LX under OSF/1 2.1 it works when compiled with cc.

- on Digital Unix 4.0D (formely OSF/1) on AlphaServer, the cc option -std1 is necessary to get gzprintf working correctly. This is done by configure.

- zlib doesn't work on HP-UX 9.05 with some versions of /bin/cc. It works with other compilers. Use "make test" to check your compiler.

- gzdopen is not supported on RISCOS, BEOS and by some Mac compilers.

- For Turbo C the small model is supported only with reduced performance to avoid any far allocation; it was tested with -DMAX_WBITS=11 -DMAX_MEM_LEVEL=3

- For PalmOs, see http://www.cs.uit.no/~perm/PASTA/pilot/software.html
Per Harald Myrvang <perm@stud.cs.uit.no>

Acknowledgments:
Appendix A: Third Party Acknowledgements

The deflate format used by zlib was defined by Phil Katz. The deflate and zlib specifications were written by L. Peter Deutsch. Thanks to all the people who reported problems and suggested various improvements in zlib; they are too numerous to cite here.

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