

# Installation & Upgrade Guide

The Installation & Upgrade Guide provides instructions to create new installations of the ExtraView web-based issue tracking system.

As the reader, you should be familiar with the concepts of web-based systems, servers and databases. You should consult the installation manufacturer's documentation for the non-ExtraView components. This guide will take you through the additional information you need to tailor the installation of these to optimize their performance with ExtraView as well as detail how to install ExtraView itself. The key sections are:

- Database Software
- Java
- Application Server
- Web Server
- ExtraView Servlet
- Command Line Interface

## Upgrade Preparation

- Ensure you take a backup of your entire ExtraView installation before beginning the upgrade process. This backup should include the database, the ExtraView application and configuration file
- In order to upgrade your existing ExtraView application, you must have a valid support contract, and your application must have a valid license. To check the status of your license key, follow the steps outlined [here](#). If your application license key has expired, or will expire during the course of your upgrade and testing, please contact Support to get a new license key, prior to beginning the upgrade process
- The default language and region of your installation should be en and US while performing an upgrade. This is because the upgrade needs to assume a specific language for the import of new system messages. Change the DEFAULT\_LANGUAGE and DEFAULT\_REGION behavior settings before performing the upgrade, then change them back to your original settings once the upgrade is complete. Note these settings are case sensitive
- If support software, or the database version are to be upgraded as part of the process, make sure you have downloaded and have available all the necessary components before beginning the upgrade.

## Downloadable PDF

[The Installation & Upgrade Guide is downloadable as a single PDF by clicking here](#). You will need the [Adobe Acrobat Reader](#) to view this.

## Introduction

Note: If you are installing the downloadable version of ExtraView with the embedded Apache Derby database, you do not need to follow this process. Installation is performed by simply running the downloaded file and following the on-screen instructions.

This documentation covers the installation and configuration of ExtraView on Linux and Windows

platforms. This guide will lead you through many of the design decisions that will help you size the appropriate hardware, and install supporting web and application servers. It is assumed that the reader of this manual is either familiar with the following topics or is able to follow the instructions in this guide to configure a minimum working set:

- Installation and configuration of your operating system software, whether it be Linux or Windows
- Installation and functionality of the Java Runtime Environment
- Installation and configuration of the Oracle, MySQL or Microsoft SQL Server database being installed to support ExtraView
- Installation and configuration of your web server, be it Apache, Microsoft IIS or BEA Weblogic
- Functionality and operation of your application server software, be it Apache Tomcat or BEA WebLogic
- If you intend to compile and build your own Apache web server, as opposed to using a pre-built version, you should be familiar with the installation and functionality of an ANSI C compiler such as the GNU C Compiler
- Functionality of the Perl programming language (if you intend to use the ExtraView Command Line Interface)

With regard to these topics, this guide will give you only the key elements of settings essential to ExtraView. **Although the guide offers significant assistance in installing and configuring many of the server and database components that support ExtraView, it is not intended that it replace the installation and configuration documentation of these components. ExtraView Corporation will help supported customers as far as it can with the installation of third-party software, but there may be occasions when you need to use the support facilities of the author of the component.** ExtraView's consulting team is available to provide assistance with any of these items. Please refer to the Installation Support section of this manual for information on how to contact ExtraView.

## Recommended Software

The recommended software components for this version of ExtraView are listed under the [Server Requirements](#) page. It is possible that other components will work, but they may not have been certified these for use with ExtraView. This page provides some specific information on third-party software components and how they should be configured.

### Database

#### **Oracle Standard Edition, Version 11.2.0.2 or later versions of 11.2**

The database should be created using the AL32UTF16 / UTF-8 character set. ExtraView may run successfully using other character sets, but it has not been tested and certified on these and ExtraView will not provide support for them. In addition, it is very important that the multi-threaded MTS system options are turned off.

You must install the Oracle software separately from ExtraView, before beginning the installation of ExtraView. You will be provided with scripts to create the necessary tablespaces and the schema user with the necessary privileges.

#### **Microsoft SQL Server 2008, 2008 R2, 2012**

The database should be created using the UCS-2 character set. ExtraView may run successfully using other character sets, but it has not been tested and certified on these and ExtraView will not provide support for them.

The database must be configured with mixed mode authentication turned on.

You must install SQL Server software separately from ExtraView, before beginning the installation of ExtraView.

### **JDBC Driver for Microsoft SQL Server**

The JDBC driver provided by Microsoft is not supported by ExtraView, as it has several problems which have not been repaired by Microsoft, particularly as they support the use of database BLOB's. ExtraView includes the jTDS JDBC driver for use with SQL Server. It is strongly recommended that you use this driver.

### **MySQL, Versions 5.6**

Please ensure that the database installation is configured per the guidelines listed [further](#) on in this guide.

### **Apache Derby, version 10.5.1.1**

Apache Derby can be used as a database with ExtraView. You must patch your version of Derby to handle compatibility issues. The supported Derby version is 10.5.1.1. The patched files are:

```
db-derby-10.5.1.1-src/java/engine/org/apache/derby/iapi/types/DataTypeDescriptor.java  
db-derby-10.5.1.1-src/java/engine/org/apache/derby/impl/sql/compile/BaseTypeCompiler.java
```

Note that the version of Derby shipped with the downloadable version of ExtraView that embeds Derby has these files already patched.

Note: The Derby database is not intended for major deployments of mission critical systems. ExtraView Corp recommends one of the other supported databases for implementations that have strategic importance to your company, or will store a large number of issues or will support a large number of users.

## **Web Servers**

### **Apache Web Server, Version 2.4**

The package can be downloaded from <http://www.apache.org>. It is strongly recommended that you configure your web server with SSL (Secure Sockets Layer). This is a fundamental requirement for a secure environment and ExtraView Corporation cannot provide any assurances for the security of the ExtraView environment without this basic configuration.

### **Microsoft IIS Version 6.0**

This is an alternative to the Apache web server and also requires a separate license, available from Microsoft Corporation. ExtraView Corporation does not provide this license as part of ExtraView. When using IIS, Apache Tomcat is required to be installed as an application server. It is strongly recommended that you configure your web server with SSL (Secure Sockets Layer). This is a fundamental requirement for a secure environment and ExtraView Corporation cannot provide any assurances for the security of the

ExtraView environment without this basic configuration.

## Application Servers

### Apache Tomcat Application Server, Versions 8.0

The package can be downloaded from <http://www.apache.org>.

### BEA WebLogic Server, Version 12c Release 2

This is an alternative to Apache Tomcat, and requires a separate license, available directly from Oracle. ExtraView Corporation does not provide this license as part of ExtraView.

### JBoss 7.0

Full installation instructions for JBoss with ExtraView are not provided, but please use these points along with the standard JBoss installation instructions:

- The ExtraView `runPatches.sh` file should be modified, in order to make it conform to the typical JBoss path structure. The servlet jar for JBoss is in different location to where the file is expected. These settings should replace the settings in the file:

```
JAVA_HOME=/app/java/jdk1.x.x.x/jre/
JBOSS_HOME=/app/user_domains/xxx/jbossxxdomains/xxx-tst/xxx-tst_server1/
EV_BASE=$JBOSS_HOME/deployments/uimsxxx.war/
SERVLET_JAR=/app/jboss/jboss-eap-x.x.x/modules/system/layers/base/javax
/servlet/api/main/jboss-servlet-api_3.0_spec-1.0.2.Final-redhat-1.jar
```

- Load balancing under an Apache server needs modifications from the standard instructions:
  - Modify the `worker.properties` file

```
# Worker for area [xxx(2657)]URL [http://tst.my_company.com/yyy/]
worker.amrndh1277_15619.type=ajp13
worker.amrndh1277_15619.host=amrndh1277
worker.amrndh1277_15619.port=15619
worker.amrndh1277_15619.route=*yyy-tst_server1*
# Worker for area [xxx(2657)]URL [http://tst.my_company.com/uims/]
worker.amrndh1278_15619.type=ajp13
worker.amrndh1278_15619.host=amrndh1278
worker.amrndh1278_15619.port=15619
worker.amrndh1278_15619.route=*yyy-tst_server2*
# LB Worker for area [xxx(2657)] URL [http://tst.my_company.com/uims/]:
worker.lb_yyy_tst.my_company.com_80.type=lb
worker.lb_yyy_tst.my_company.com_80.balance_workers=amrnd
*worker.lb_yyy_tst.my_company.com_80.sticky_session=1*
```

- Modify the `server.xml` file

Add a subsystem with an instance-id property that matches the route property in for each work defined above.

- AMRNDHL277

```
<subsystem xmlns="urn:jboss:domain:web:1.1"... instance-id="*yyy-tst_server1"*>
```

- AMRNDHL278

```
<subsystem xmlns="urn:jboss:domain:web:1.1"... instance-id="*yyy-tst_server2*">
```

## Java Support

### Java 2 JDK or JRE, Standard Edition, Version 1.8

The package can be downloaded from <http://www.oracle.com>.

### ANSI C Compiler

#### GNU C Compiler

*This is only required if you want to compile your own version of Apache, as opposed to use a pre-compiled version.*

The GNU C compiler (GCC) from the Free Software Foundation (FSF) is recommended. However, as an alternative, ensure your vendor's compiler is ANSI compliant. You can find the homepage of GNU at <http://www.gnu.org> and the GCC distribution under <http://www.gnu.org/order/ftp.html>.

## Command Line Interface

### Perl, Version 5.12.3

The CLI is an optional component of ExtraView. If you will be using the CLI, you must install this software. You may download an open source version of the Strawberry Perl software from [here](#).

In addition, you will need to download the following additional Perl modules from [CPAN](#) (Comprehensive Perl Archive Network). The required modules are:

- Mail::Sendmail
- Mail::POP3Client
- Mail::Sender
- MIME::Parser
- HTML::FormatText

## Email

ExtraView must be able to access Microsoft Exchange or an SMTP-based email server, in order to generate outbound email notifications.

If you are configuring ExtraView to accept incoming emails to create new issues and/or update existing issues, then you will require a mailbox to be available exclusively to ExtraView.

## Overall Server Recommendations

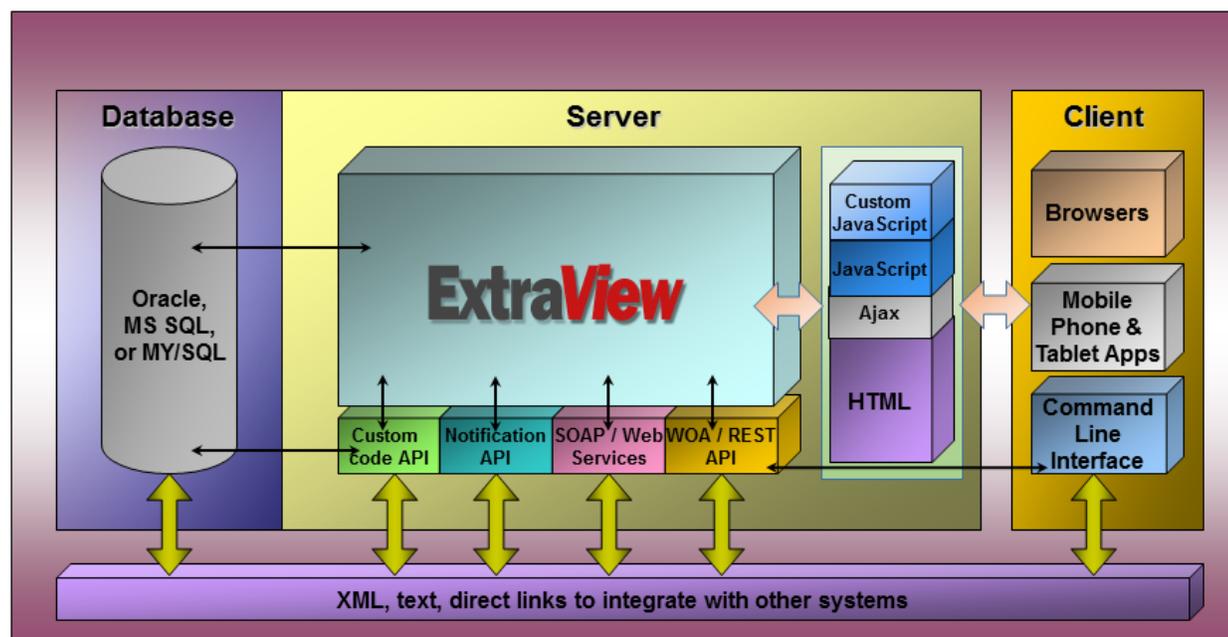
The current server recommendations can be viewed and downloaded by clicking [here](#).

# ExtraView Architecture

ExtraView is a state-of-the-art, Web-based application. It is both sophisticated and easy-to-use. Its purpose and functionality are covered in the following guides:

- [User Guide](#)
- [Administration Guide](#)
- [Application Programming Interface](#)
- [Command Line Interface](#)
- [Web Services Interface](#)

The key architectural components are represented in the following diagram:



There is a tremendous amount of flexibility in configuring ExtraView, mostly dependent upon the size of the installation you require. At one end of the spectrum, ExtraView, Oracle or Microsoft SQL Server, Apache, Tomcat and the other components can all be installed and run on a small, single-CPU computer. This configuration can support a significant implementation, potentially with hundreds of users and thousands of records. All of these variables depend on the frequency of usage.

At the other end of the spectrum, ExtraView is capable of supporting thousands of users, with hundreds of thousands of issues, or more, in its database. The supporting hardware for an installation of this size is likely to be a large database server with multiple CPU's, multiple application and web servers. This manual will help you make the decisions regarding your installation, and take you through the installation to a point where ExtraView is a working product, ready for customization as described in the ExtraView Administration Guide.

## Basic Installation Requirements

There are a significant number of ways in which the support software for ExtraView can be configured. These changes you want may include different database configurations, different application server configurations, different web server configurations, different LDAP connections, different SSO configurations, etc. In addition you may have some special network requirements. There are more possible

ways to install ExtraView than can be tested by ExtraView Corporation. If you do not want to follow the recommended methods in this guide, it is suggested that you still begin the process by installing the product in one of the documented ways as a reference site, then vary the components one-by-one until you reach the desired configuration. If this approach is not followed it may be difficult for ExtraView Corporation to support your needs.

If you require support during installation it is extremely helpful if ExtraView Corporation has direct access via a secure connection to your network. At the very least, ExtraView Corporation will need visibility of all the logs within your installation if debugging is necessary.

## System Size Considerations

There is no precise answer to the question of optimal hardware configuration. In determining the system size, the key issues are:

- How many users will access the system concurrently?
- How many issues will be stored in the system?
- On average, how often is an issue updated, from its creation to its closure?
- How often are large reports prepared and output from the system?
- What is the available bandwidth to the server?

Prepare answers to these questions to help determine your hardware configuration:

- Should the database and web server be on a single computer? If not, how many web and application servers are needed?
- How big should the computer be? How fast? How many processors? How much memory?
- How much disk storage is needed?
- What network bandwidth is needed to support the users?

Consider all these questions together. It is only after a thorough examination of all the factors that a decision on the optimal hardware configuration can be made. It may also be important to build in future planned growth. Is it better to put hardware in place that will not need upgrading or is it better to install additional CPU's, web servers and storage as needed? Not every company will make the same decisions; this manual, however, will help in making these decisions. You can take advantage of ExtraView's experience in this decision-making process.

## Overall Considerations

To place the size of a system in perspective, it is worth looking at some statistics that show activities from existing installations of ExtraView. The example below shows the likely usage pattern for an organization of 100 users. For simplicity it is assumed that one report takes five times the CPU time and resource as an insert or update operation. The number of reports generated may seem high, but note that users will frequently visit their Home Page where there might be dashboards configured with several reports, as well as several individual reports existing on the Home Page.

Number of users	100
Average number of new problems entered per day per person	3

Average number of updates applied per day per person	10
Average number of reports run per day per person	50
A work day of 8 hours	8
Total number of complete database operations = $100 * ( 3 + 10 + ( 50 * 5 ) )$	26,300
Server operations per second = $26300 / ( 8 * 60 * 60 )$	~ 0.9

Each of these operations may take about 1.5 seconds to complete on the CPU of a server. Although there will be peaks in the usage of the system, two processors could handle this size of load with reasonable results. More than two processors will give excellent results.

Note that these statistics are only an approximation and there are many other factors involved. It is not easy (or even possible) to judge the interaction of all these factors to come up with a precise performance metric.

Other factors that will affect the performance include:

- Speed of the processors
- Amount of memory within the servers
- Amount of fields rendered within your ExtraView configuration's layouts
- Amount of logic being processed with an issue, in the form of rules
- The complexity of the reports being prepared
- The effect of having one server or clustered servers
- The available network bandwidth

## Storage

Storage is relatively inexpensive -- thus it is better to “err on the side” of more storage than you are likely to need.

### Fixed Overhead Storage

For obvious reasons, there is significant overhead for the computer operating systems, the database, the web server, and other system software. In addition, there is an amount of fixed overhead for storage of the ExtraView programs, the ExtraView HTML, the application log files, the storage temporary files, and other scripts and libraries. ExtraView recommends that you allow a minimum of 40 GB for this fixed overhead. This is a generous allowance and will give a reasonable amount of spare capacity.

### Database Storage

The only real limit to the size of database is the size of database supported by Oracle, MSSQL, MySQL or other database you are using. ExtraView has virtually no constraints beyond the overall limitations of these databases; indeed, ExtraView’s patent pending database techniques remove several key constraints of how fields and data consume resources within databases using traditional storage mechanisms. As an example, the administrator can add an unlimited number of fields (columns) to an ExtraView database. ExtraView is

not bound by the constraints that are especially severe in MSSQL with the number of columns in a table and the total width of a table. ExtraView stores all of your data within the database. If you are planning an installation with more than 250 users, ExtraView highly recommends that you utilize a knowledgeable database administrator for the maintenance of the Oracle or MSSQL database. There are several key areas that affect ExtraView storage requirements:

- **Issues stored.** This is the main requirement for storage. There are some variables involved. For example, how many User Defined Fields (UDF's) exist in your installation? ExtraView takes an entire copy of each record as part of its audit trail each time you update a record. On average, how many times will a record be updated, from its creation to its closure? In a typical installation, the size of an individual problem record, including data and index storage is usually 25 KB to 200 KB. The main variable is the creation and usage of a significant number of additional UDF's of type TEXTAREA, LOGAREA and PRINTTEXT, and how much data is stored within these. Over many customer installations, ExtraView has noted that the average number of updates to an individual issue, from creation to closure, is approximately five. Therefore, it is a reasonable estimate that through its life, each record will require between 125 KB and 1,000 KB of storage including the main and history records. However, these numbers are totally dependent upon your system design and usage pattern, and may vary with your specific circumstances. As an example, if you believe you will create 1,000 new issues per month the likely requirement for storage after a two-year period will be between 3.0 GB and 24.0 GB.
- **User data.** Each user requires storage of his personal data, plus personal reports that he or she creates. Overall this is not usually a significant amount of storage. Approximately 50 KB of data per user is a reasonable assumption. As an example, if you have 5,000 users in your community, the storage requirement is approximately 250 MB.
- **Metadata.** This is all of the configuration data within your system, such as products, modules, customer names, status names, priorities, etc. In most installations this is a modest amount of data amounting to less than 5 MB. However, in large installations, with perhaps thousands of modules and components spread across hundreds of products and with thousands of users, this data may require more space. Large installations may have 100 MB or more supporting metadata.

## File Attachments

ExtraView has the capacity to store extremely large file attachments against each and every issue in the system. If your system is to make significant use of file attachments, you must make an allowance for these in your calculations. File attachments are stored in BLOBS in the database or with optional configuration, these may be stored in a location on your file system. There is also a mixed mode where attachments of different types may be stored on the file system or within the database. Oracle has a limit of 4GB for a single file attachment; MSSQL has a limit of 2 GB for the size of a file attachment. Note that file attachments are not copied to the audit trail each time you update a record. This is to prevent the “explosion” of storage requirements and to prevent a significant performance penalty if multiple large file attachments were to be copied each time a record was updated. However, accesses to file attachments by users are part of the audit trail. File attachments have a small amount of overhead (less than 1 KB of data), for each one stored in ExtraView.

## Text Search Indexes

ExtraView contains a technology we have named Quickfind. This optional feature indexes all the text within the database for extremely fast retrieval. As opposed to performing queries and pattern matching to determine whether records are included or excluded from the results of a keyword search, Quickfind will have pre-indexed all the text including text within file attachments. Searching is extremely quick but at the expense of additional storage. If you are enabling this feature, allow approximately XX% of the database

to store these indexes. If you are storing an unusually high number of attachments with issues, or have very large attachments, you might want to allow an extra margin.

## Network Bandwidth

The bandwidth requirements of ExtraView on a network are relatively modest. This is one of the advantages of ExtraView being a web-based application as opposed to being a client-server application.

The requirement, of course, is a function of how many people will simultaneously be accessing the ExtraView server, how much data they will transfer and the required response time.

The fastest response times to a user are required when inserting and updating issues and ExtraView is optimized to provide the best possible performance in these areas. Each time a record is inserted or updated, the data passed to the server is a function of the number of fields on the data entry form. The number of fields on the user's screen largely influences this, especially if a significant number of UDF's have been defined and are being used to pass significantly large amounts of data to the server. Of course, even the adding of a single large file attachment to an issue may require significant bandwidth. However, the very nature of ExtraView is that the most users typically use the software infrequently for a relatively short period of time each day. Statistics from multiple installations show that the average internal user makes between three and five updates per day. On average, each of these updates moves approximately 50 KB of data from the client computers to the server and the server sends approximately 10 KB of data to the client computer.

ExtraView optimizes the performance of the network and the application using many techniques. Of primary interest here is that wherever possible, a technology known as Ajax is used to eliminate screen refreshes which involve the creation of a new screen window. Only the data required to perform any purpose is moved between the server and the client browser. Secondly, wherever possible, ExtraView will compress the JavaScript that is sent to the user's browser. This is a trade off between reducing the amount of data transferred over the network, compared to the time to decompress the JavaScript within the client browser. Measurement shows this technique to be particularly valuable on low speed networks and networks with high latency. Note that the javascript/user\_javascript/UserJavaScript.js file is not compressed as this would make custom development problematic.

Reports are highly variable in nature and, of course, it is typically a smaller number of users who will run large reports on a frequent basis. As a guide, an ExtraView Detailed Report that shows 100 issues will move about 200 KB of data from the server to the client.

## Size of Database Server

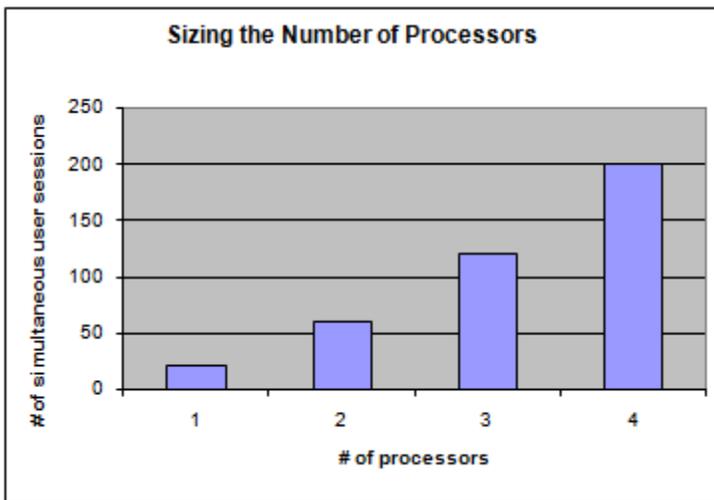
The cost of the hardware must be balanced against the need to give optimal performance. In addition, increasing the speed of processor, the number of processors and increasing the amount of memory all have a positive effect on performance.

### Number of Processors

ExtraView will always attempt to spread the load from concurrent user requests across all available processors in the server. Thus additional processors have a significant effect on overall performance. ExtraView transactions such as inserting or updating issues require comparatively small processing power and if they are processed in series, there is not a significant effect on performance from the perception of

the user. However, if a single user initiates a complex query that takes several seconds to execute (potentially longer in a system if you are analyzing tens of thousands of records), then the processor that handles the query is not available to other users at the same time. The following chart shows ExtraView's recommendations for the number of processors to use in your main database server machine. Do not confuse the number of active user sessions with either the total number of users in your system or with the number of users signed on at the time. The number of active user sessions is the number of users who are concurrently competing for resources and attention from the processor(s).

It is suggested that you also consult your database documentation for advice on how to best select the correct number of processors for your database server.



The application server may reside in the same machine as the database server and / or web server. ExtraView's recommendation is to use a single-processor or dual-processor computer for the application server for less than 20 (or thereabouts) concurrently connected users, but to use dual-processor computers for greater numbers. The cost of hardware is a relatively inexpensive part of the overall cost of ownership of a system based on ExtraView, and the incremental performance of good hardware will repay itself many times over, during the life of the system.

## Processor Type and Speed

It is axiomatic that higher processor speeds will result in better performance. ExtraView's recommendation is to install the fastest processor you can afford, commensurate to the number of users being supported. As a rough guide, install a computer with one or more processors with a minimum speed of 2 GHz.

## Memory

- **Database.** The database provider's recommendations for the database should be followed. ExtraView recommends 4 GB of memory or more be available for the database for small installations (less than 50 users) and at least 8 GB of memory for large installations (more than 250 concurrently connected users). Note that this is the allocation for the database only and that memory must be allocated to the operating system and other software intended to run on the server. Also note that Windows operating system servers require significantly more memory than UNIX or Linux operating systems.
- **Web and Application Server.** This section refers to the use of Apache web server and Apache Tomcat application server. However, ExtraView supports other servers such as BEA WebLogic. Beyond the main memory required to run the recommended Apache web server and recommended

Tomcat application server, ExtraView requires an additional amount of memory for each active user session. You can consult the Apache and Apache Tomcat documentation for the precise memory requirements, but ExtraView's experience is that this is a relatively modest amount. There are two main controls for user sessions:

1. The length of time a session remains available, before the server expires the session. This is set by the application default named `SESSION_EXPIRE_TIME_HOURS`. The default is 8 hours.
2. The behavior settings named `NOSPILL_SESSION_COUNT` and `SPILL_SESSION_COUNT` are used together to provide a tuning capability for administrators in sites where sessions may be swapped onto/off disk. `NOSPILL_SESSION_COUNT`: this count defines the number of sessions to be maintained in memory. By setting this number very high, the swapping is effectively disabled, whenever the number of active sessions is unlikely to grow larger than this count. `SPILL_SESSION_COUNT`: this count defines where sessions must be spilled to disk; this number must be larger than `NOSPILL_SESSION_COUNT`. If the session count exceeds this number, session data will be spilled to disk until there are `SPILL_SESSION_COUNT` active sessions left in memory before any new sessions may be instantiated in memory. `SPILL_SESSION_COUNT` indicates the total number of sessions that may be in memory at any time. When the number of active sessions in memory is between `SPILL_SESSION_COUNT` and `NOSPILL_SESSION_COUNT`, a background task spills least recently used sessions to disk, but the creation of new sessions will not be delayed.

The characteristic of ExtraView's management system for the session cache is that each user session requires between 100 KB and 250 KB of memory, according to what function the user is executing at any given moment. In addition, if the user is preparing a report, the amount of memory can be considerably more in order to cache the result set of the query. This memory is only required for a short period of time while the query is executing. ExtraView automatically runs a "garbage collection" routine on an internal timer to reclaim any unneeded memory and return it to the main system pool. You should provide at least 2 GB and preferably 4 GB memory for the application server.

## Clustering Servers

For installations of more than 200 users, a hardware strategy that separates the database server from the web (and possibly the application) server should be considered. It is not typically necessary to separate the servers unless you foresee one of the following:

- More than 100 users concurrently logged into the system
- More than 50 users concurrently submitting requests to the system
- You require a fault-tolerant system, with as much redundancy as possible

There are many permutations of database server / web server / application server plus potential other components for load balancing that can be used in setting up an ExtraView network to support a large number of users. Here are some examples, together with a list of the important points to consider.

### Single Computer Environment

---

Database Web Server Application Server
--

#### Advantages

Simple installation and configuration

Suitable for sites up to 1,000 users

#### Disadvantages

Not scalable for large numbers of frequent users

Not scalable for large number of concurrent connections

No redundancy in case of failure (but consider using mirrored disk drives for redundancy)

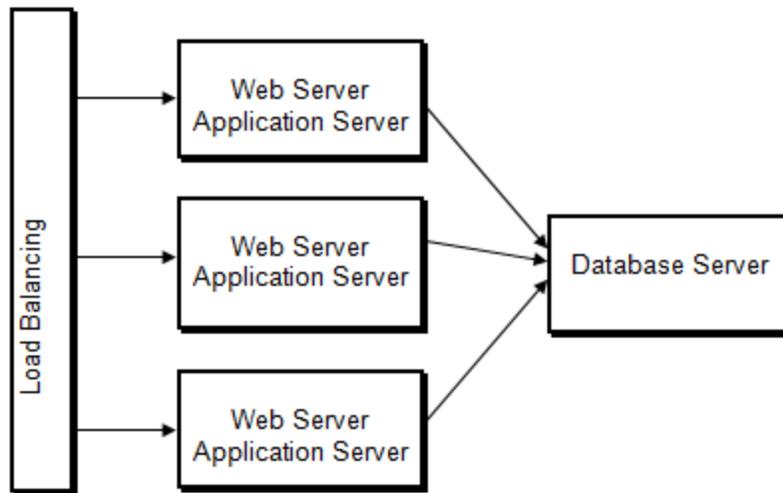
---

## Multiple Web Server Environments

The following diagrams give examples of configurations. There are more possibilities and additional variants that can be configured, but it is unlikely they will give additional benefit to the ExtraView installation.

---

### Variant 1: Web Servers and Application Servers on Single Computers



#### Advantages

Scalable solution to handle a significant number of concurrent transactions

Redundancy with failure of a computer with the web and application server

A single web or application server can be stopped for maintenance

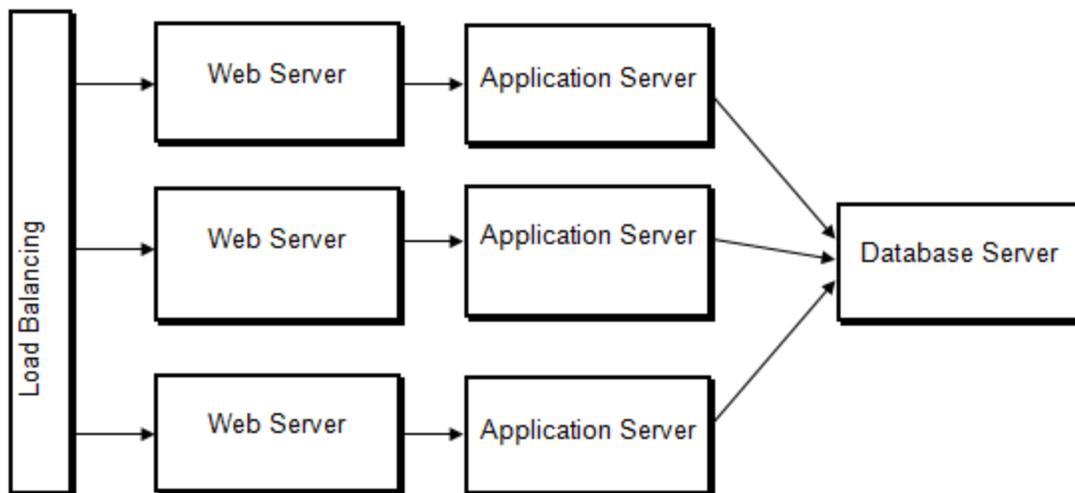
#### Disadvantages

Expense of multiple web and application servers (although these each may be small, inexpensive computers)

Needs significant knowledge of server environments to set up and maintain

---

#### Variant 2: Web Servers and Application Servers on Separate Computers



#### Advantages

Most scalable solution to handle a significant number of concurrent transactions

Redundancy with failure of a computer with the web and application server

A single web or application server can be stopped for maintenance

#### Disadvantages

Expense of multiple web and application servers (although these each may be small, inexpensive computers)

Needs significant knowledge of server environments to set up and maintain

## Software Installation & Upgrades

Note: If you are installing the downloadable version of ExtraView with the embedded Apache Derby database, you do not need to follow this process. Installation is performed by simply running the downloaded file and following the on-screen instructions.

There are 3 general steps involved in installing ExtraView for the first time:

1. Installing the support software
2. Installing the ExtraView web application and utilities
3. Installing the ExtraView database schema

### Step 1

The first step is dependent on your individual requirements. At a high level, it involves installing or making available a database (Oracle, MySQL or MSSQL), Java, a Java web application server (Apache Tomcat, WebLogic) and a web server (Apache, IIS, WebLogic). This step can be done in a number of varying ways, but generally requires user-level access to the operating system on the web application and database servers, and can require root/Administrator access to the web server. Note that if you want to install and configure ExtraView outside the parameters in this guide, it is strongly recommended to install

a reference system first, following this guide, then make the changes you require.

## Step 2

This step involves installing the ExtraView web application, and possibly the ExtraView CLI. These steps are documented in this guide. Occasionally, you will also be instructed to copy extra files into your installation if you have custom images or code. Instructions will be provided by ExtraView. This step generally requires user-level access to the operating system on the web application server.

## Step 3

This step involves creating a new schema/login in your database and importing an Oracle .dmp file or MSSQL .bak file into your database. This step generally requires user-level access to the operating system, and administrator (sa, system user) access to the database installation to create the new account.

## ExtraView Servlet Pre-Installation Checklist

Before installing the ExtraView servlet code, ensure the following components are installed and functional:

- Oracle, Microsoft SQL Server (MSSQL), or MySQL
- Java JDK Standard Edition. There is often a pre-installed JDK on servers but our recommendation is that you install one explicitly for ExtraView
- ANSI C Compiler (GNU or similar) – required only for the installation of the Apache web server if you are compiling your own version as opposed to installing an already-compiled version
- make, ar – required only for the installation of the Apache web server if you are compiling your own version as opposed to installing an already-compiled version
- If you intend to store file attachments on the file system as opposed to storing these in the database, ensure you have the file system for storage mounted and with read/write access

## Client Computer Configuration

This is the simplest part of ExtraView installations. A computer with a working network connection and a client browser is the key requirement. See the page [here](#) for a list of the browsers that are supported.

If you are using the ExtraView Command Line Interface from a client machine, you will need the ability to run Perl and you must have access to the CLI scripts, either on your own computer or on a shared resource. If you have enabled the ability to use the drag-and-drop interface to upload file attachments, document fields and image fields, then this is controlled by a Java applet. This requires the installation of the Java runtime on each client computer. This is not mandatory but provides the ability to upload files and images more simply.

You should have every user who has been using a previous version of ExtraView clear their browser's cache before starting a newly installed or newly upgraded version of ExtraView.

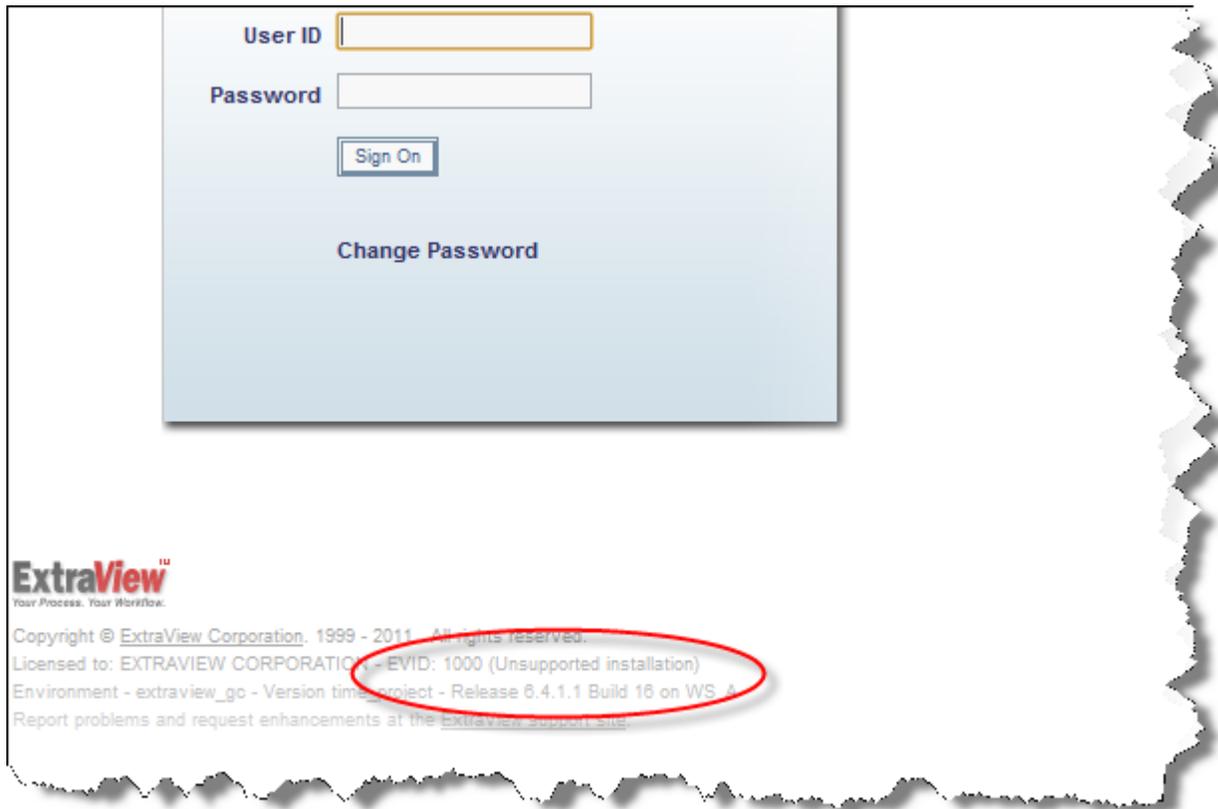
## Download the ExtraView Software

Before beginning the installation / upgrade process, please ensure that you have downloaded the appropriate files from ExtraView Corporation's web site by clicking [here](#).

## Upgrades

Note that if you do not have a current valid support agreement for your ExtraView software, you will not be able to successfully upgrade your installation with the downloaded files and you will need to revert to a backup of your installation.

If you are currently running ExtraView 6.2 or above, check the bottom of the login page to see if your system is currently unsupported - if it is, you will need to contact ExtraView Support to get a new license key before beginning your upgrade.



At a minimum, you should download the ExtraView Software Upgrade. You may also want to take advantage of the Command Line Interface and other ExtraView supplied utilities. Matching versions of these utilities are available at the same URL location. If your system installation includes the Command Line Interface, the Perforce Integration Daemon, Salesforce Integration Daemon or ExtraView Web Services, you will need to update all of these optional modules as well - they should always be the same version as the ExtraView application. For your convenience, ExtraView Corporation provides links to the referenced versions of Apache Tomcat, Java and Perl on our website. Click [here](#) to access the support software.

This guide covers upgrading with several common combinations of support software. If your combination is not covered, you can extrapolate from this guide, or call ExtraView Corp for support.

## Linux Environment

Use a sh or bash shell for the installation scripts to work. It is recommended that you create a user named **extraview** on your computer for these tasks. The documentation will reference this user. The procedure will guide you through the installation of the following components:

- Java JDK or JRE
- Apache Web Server
- Tomcat Application Server
- ExtraView application
- Perl and supporting modules
- ExtraView schema and initial database

Once the application is installed, you should start ExtraView and set some specific behavior settings to ensure that you can then begin to configure ExtraView for your organization. The standard ExtraView implementation has a default set of defined fields with a default set of layouts for adding and updating issues, as well as a set of default layouts for searching and reporting.

Note: See the ExtraView Administration Guide for initial default specifications and the initial settings of behavior settings.

## Conventions

Throughout the installation steps you should be careful to substitute your own values for the following path and file names. It is also possible that other path names shown will be different on your target hardware. ExtraView expects that the experienced System Administrator will be able to recognize changes that may need to be made in the example scripts. If you are in any doubt, please contact ExtraView for support. It is best to make any decisions before beginning the installation process if you want to change any of the following:

<code>/usr/local/extraview/install</code>	Temporary directory to hold the staging scripts and code. This is the name of the \$INSTALL directory
<code>/usr/local/extraview</code>	This is the root directory where ExtraView will be installed. This is the name of the \$BASE directory
<code>\$BASE/jre1.8.0_xx</code>	The installation directory for the Java JRE
<code>server.domain.com</code>	The URL of the server as it will be published on your network
<code>serveradmin@yourcompany.com</code>	The email address to be displayed to the user if a server error occurs
<code>extraview</code>	The UNIX account which will be used to install all the software
<code>mail.server.com</code>	The address of the mail server to which ExtraView sends outgoing mail

Please make sure to make a permanent record of all the changes that you make to these values.

## A Note on the Installation Instructions

As mentioned previously, the installation of database, Web server (Apache) and application server (Apache Tomcat) provide great flexibility with regards to configuration. The following instructions guide you through the simplest version, where database, web server and application server are installed on the same machine. If you wish to install a different configuration and need assistance, please contact ExtraView Support.

# Organization of Installation Files

It is strongly recommended that you collect all the support software, except for the database, under one top level directory. We recommend that this be named `/usr/local/extraview`. This provides for an easy overview of your installation for maintenance purposes. It is also recommended in order to prevent accidental upgrades of some of the software components by a system administrator who is not familiar with ExtraView.

## Set up Environment Variables

This step sets up your environment for both correct and speedier installation. It is assumed that you will complete all the remaining steps without signing off from the target computer.

Sign on as the `extraview` user.

If you are compiling your own Apache web server, ensure the path to the GNU C Compiler, `make` and `ar` are in your working path. If not, you have to find the correct path and make sure that it is part of the `$PATH` variable.

```
which gcc
which ar
which make
```

Set local environment variables for the directories within which you will work:

```
export INSTALL=/usr/local/extraview/install;
export BASE=/usr/local/extraview;
mkdir $BASE mkdir $INSTALL
```

Place all the downloaded software into the `$INSTALL` directory.

## Install Java

For ExtraView 11.1 and all newer versions require a minimum Java of version JRE 8. If your system is running with any earlier version of Java, you **must upgrade** to this version.

For ExtraView 20.0, you may run Java 9 and above.

The following steps will install Java into the directory `$BASE/1.8.0_xx`. Adjust the path names to suit the version of Java you are installing.

```
cd $INSTALL
cp jre-8uxx-linux-x64.gz $BASE
cd $BASE
tar xzf jre-8uxx-linux-x64.gz
```

Java is now installed in the directory `$BASE/jre1.8.0_xx`

# Install & Configure Tomcat

We recommend installing Tomcat 9.0 to work with this release of ExtraView.

The following steps will install Tomcat into the directory \$BASE/apache-tomcat-9.0.xx.

Note that Tomcat is required, even if you are intending to use Microsoft IIS as your web server. IIS does not provide the same functionality as Tomcat.

## Installation

```
cd $INSTALL
cp apache-tomcat-9.0.xx.tar.gz $BASE
cd $BASE
gunzip apache-tomcat-9.0.xx.tar.gz
tar xvf apache-tomcat-9.0.xx.tar
rm apache-tomcat-9.0.xx.tar
```

## Configuration

We can remove \*.bat files since this is a Linux installation.

```
cd $BASE/apache-tomcat-9.0.xx/bin
rm *.bat
chmod 744 startup.sh shutdown.sh catalina.sh
```

The following steps will set memory parameters for Tomcat and configure it to run with the correct Java.

We generally do not recommend setting the Xmx parameter above 1024 megs at maximum. If your system usage is predicted to be high enough that you will require more memory, we strongly suggest installing a clustered set of multiple Tomcat nodes under a load-balanced Apache web server.

```
vi $BASE/apache-tomcat-9.0.xx/bin/catalina.sh
```

Add the following lines:

```
JAVA_HOME=/usr/local/extraview/jre1.8.0_xx
CATALINA_HOME=/usr/local/extraview/apache-tomcat-8.0.xx
CATALINA_OPTS="-server -Xms96m -Xmx512m -Djava.awt.headless=true -Dfile.encoding=UTF-8"
```

If you are using Java 9.0 and above, you will need to add the parameter "-Djava.local.providers=COMPAT" as well

```
CATALINA_OPTS="-server -Xms96m -Xmx1024m -XX:MaxPermSize=190m
-Djava.awt.headless=true -Dfile_encoding=UTF-8
-Dcom.sun.management.jmxremote -Djava.locale.providers=COMPAT"
```

```
vi $BASE/apache-tomcat-9.0.xx/bin/startup.sh $BASE/apache-tomcat-9.0.xx/bin/shutdown.sh
```

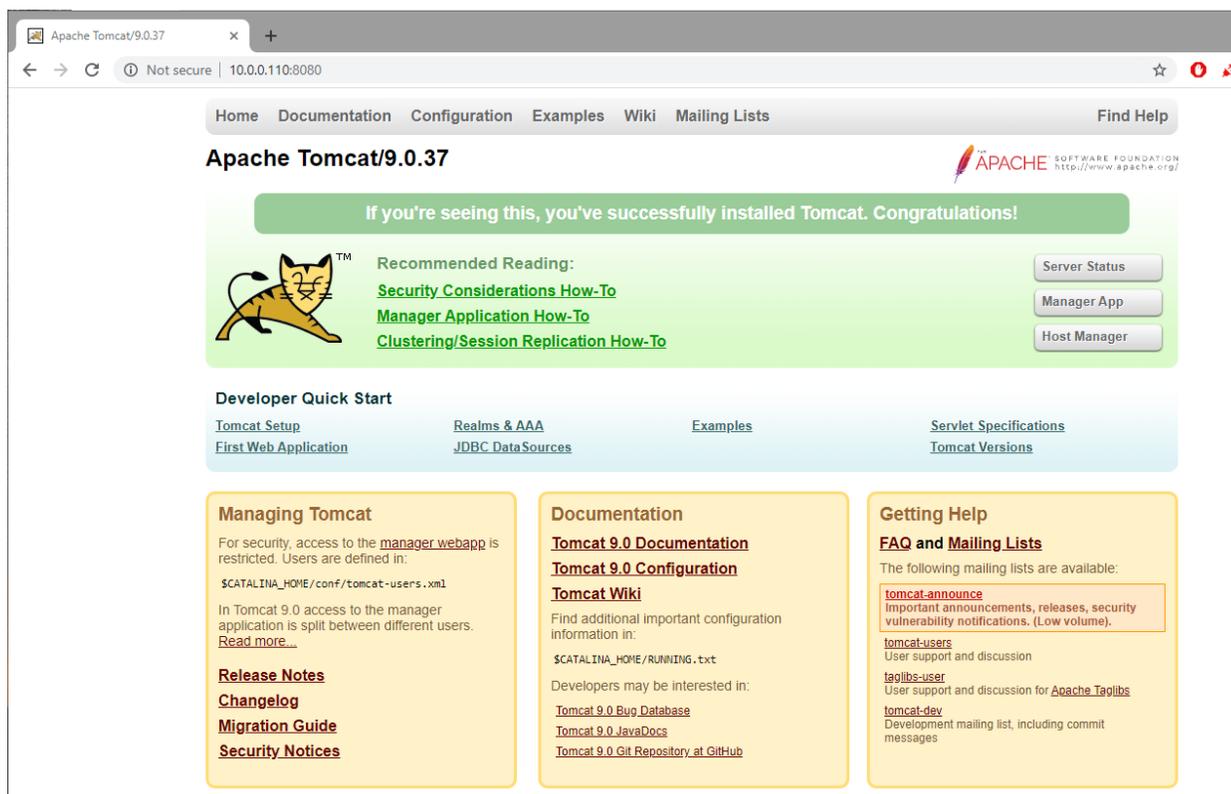
Add the following lines to each script:

```
JAVA_HOME=/usr/local/extraview/jre1.8.0_xx
CATALINA_HOME=/usr/local/extraview/apache-tomcat-9.0.xx
```

Tomcat is now installed in the directory \$BASE/apache-tomcat-9.0.xx. You can start/stop tomcat using the following commands:

```
$BASE/apache-tomcat-9.0.xx/bin/startup.sh
$BASE/apache-tomcat-9.0.xx/bin/shutdown.sh
```

If you enter the URL of the server using port 8080 into a browser, for example <http://server.domain.com:8080>, you should get a test page similar to the following.



## Tomcat 9.x Configuration

Edit the `tomcat/conf/context.xml` file

1. At the bottom of the file, add the the two following lines, before the last line wich reads `</Context>` :

```
<!-- Force use of the old Cookie processor (because this Tomcat version uses RFC6265
Cookie Specification) -->
<CookieProcessor className="org.apache.tomcat.util.http.LegacyCookieProcessor" />
```

2. Locate the following section in the Tomcat configuration file `<tomcat_home>/conf/context.xml`:

```
<!-- Uncomment this to disable session persistence across Tomcat restarts -->
<!--
<Manager pathname="" />
-->
```

and alter to use the setting by removing the comments `<!--` and `-->`; This section will now read:

```
<!-- Disable session persistence across Tomcat restarts -->
<Manager pathname="" />
```

Edit the `tomcat/conf/server.xml` file

1. Locate the AJP 1.3 Connector section and remove the comments surrounding the Connector entry.

I.e. remove `<!--` and `-->`

```
<!-- Define an AJP 1.3 Connector on port 8009 -->
<!--
<Connector protocol="AJP/1.3"
            address="::1"
            port="8009"
            redirectPort="8443"
            />
-->
```

2. If your servers are using IPV4 addresses (most common), you should modify the `address="::1"` value in the Connector parameter to force Tomcat to use IPV4. Set it to `0.0.0.0`

```
<!-- Define an AJP 1.3 Connector on port 8009 -->
<Connector protocol="AJP/1.3"
            address="0.0.0.0"
            port="8009"
            redirectPort="8443"
            />
```

3. Starting with Tomcat 8.5, the standard installation altered the way in which several characters were accepted as valid URL characters. These are characters such as `|`, `{` and `}`. Some of these characters have long been used within the ExtraView application. To enable Tomcat's handling of these characters, modify the Connector setting in the `conf/server.xml` file by adding the following entry:

```
relaxedQueryChars="{ }|"
```

So that you have:

```
<Connector protocol="AJP/1.3"
            address="0.0.0.0"
            port="8009"
            redirectPort="8443"
            relaxedQueryChars="{ }|"
            />
```

4. Newer versions of Tomcat 8.x/9.x have a mandatory security measure that must be configured. This measure rejects all calls to the Tomcat server unless a secret word is part of the request, with requests typically being sent by the Apache web server. Without this configuration, the Tomcat server will appear to spin without responding to the request or will respond with a 404 Not Found error. To configure this feature:

1. In the `server.xml` file, ensure the section for the AJP 13 connector has the new parameter:

```
secret="changeme"

<Connector protocol="AJP/1.3"
            address="0.0.0.0"
            port="8009"
            redirectPort="8443"
```

```
relaxedQueryChars="{ }|"  
secret="changeme"  
</>
```

Note the secret word should be changed to your own secret word.

2. Now, in the `workers.properties` file where you set the AJP13 connector, add the parameter:

```
worker.tomcat1.secret = changeme
```

Note the secret word should match the entry you created in the `server.xml` file.

After making these configuration changes, stop and restart the tomcat process to pick up the changes.

## Using the APIs to Insert Large Amounts of Text

When using an API to insert very large amounts of text within a single issue you may encounter an error within the API function, exhibiting as a null pointer exception that originates within the Tomcat application server. This error may be remedied by inserting the modifying the Connector entry within the Tomcat configuration file. An example of the altered configuration is:

```
<Connector port="8082" protocol="HTTP/1.1" URIEncoding="UTF-8"  
  connectionTimeout="20000" maxPostSize="209715200"  
  redirectPort="8442" maxParameterCount="1000000" />
```

The `maxPostSize` parameter increases the size of Tomcat's buffer used to process the API command.

## Use of WAR Files with Apache Tomcat

Normally, Tomcat explodes any existing WAR files and uses the extracted contents. However, Tomcat also supports the use of unexploded WAR files.

To configure Tomcat for use of unexploded WAR files, update the `server.xml` file to prevent explosion of WAR file as follows:

Find the line:

```
unpackWARs="true" autoDeploy="true"
```

Change this to:

```
unpackWARs="false" autoDeploy="true"
```

# Install & Configure Apache

If you are upgrading, you do not need to reconfigure your Apache installation unless you want to add the ExtraView Spell Check utility.

However, if you have upgraded your version of Tomcat, you will need to verify that the paths in your `extraview.conf` and `httpd.conf` files match the current paths to Tomcat - see the section "Configure Apache" below for instructions.

If you are upgrading, ExtraView now supports compressed javascript files. There is a configuration change needed to your Apache setup in order to take advantage of this - please see the section entitled [Configuring Apache to Use JavaScript Compression](#) at the bottom of this page.

## Installation of Apache

The following steps will install Apache 2.4 into the directory `$BASE/httpd-2.4.28`.

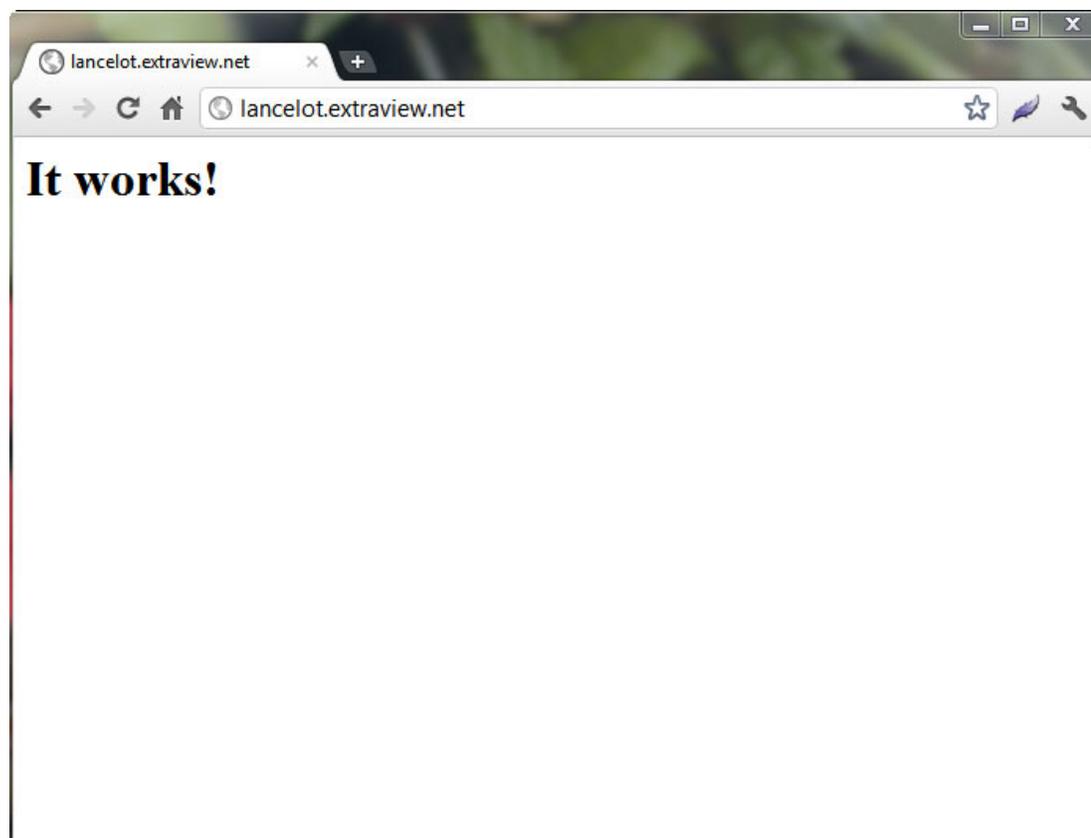
```
cd $INSTALL
gunzip httpd-2.4.28.tar.gz
tar xvf httpd-2.4.28.tar
cd httpd-2.4.28
./configure --prefix=$BASE/httpd-2.4.28 --enable-mods-shared=most
--enable-ssl=shared
```

```
make
make install
```

The Apache web server is now installed in the directory `$BASE/httpd-2.4.28`. You can `su` to root and start/stop the apache server using the following commands:

```
$BASE/httpd-2.4.28/bin/apachectl start
$BASE/httpd-2.4.28/bin/apachectl stop
```

If you enter the URL of the server into a browser, for example `http://server.domain.com`, you should get the Apache test page.



## Compile the Tomcat Connector

## For Linux

```
cd $INSTALL
gunzip tomcat-connectors-1.2.32-src.tar.gz
tar xvf tomcat-connectors-1.2.32-src.tar
cd tomcat-connectors-1.2.32-src
cd native
./configure --with-apxs=$BASE/httpd-2.4.28/bin/apxs
make
make install

mod_jk.so will be installed in $BASE/httpd-2.4.28/modules
```

```
cd $INSTALL
cp workers.properties $BASE/httpd_2.4.28/conf
```

Edit the Apache configuration file httpd.conf

```
vi $BASE/httpd-2.4.28/conf/httpd.conf
```

```
old line --> #ServerName new.host.name:80
new line --> ServerName extraview.yourcompany.com
```

Remember to use the URL of your server

```
old line --> ServerAdmin you@your.address
new line --> ServerAdmin serveradmin@yourcompany.com
```

Remember to use the email address of your administrator.

At the end of the file add the following line:

```
Include conf/extraview.conf
```

Save and exit httpd.conf

Copy the extraview.conf file:

```
cp $INSTALL/extraview.conf $BASE/httpd-2.4.28/conf
```

Edit the extraview.conf file and set the correct paths

```
ServerName extraview.yourcompany.com
ServerAdmin serveradmin@yourcompany.com
DocumentRoot /usr/local/extraview/apache-tomcat-7.0.22/webapps/evj/
<Directory /usr/local/extraview/apache-tomcat-7.0.22/webapps/evj>
  Options Indexes FollowSymLinks
</Directory>
Alias /evj/ "/usr/local/extraview/apache-tomcat-7.0.22/webapps/evj/"
JkWorkersFile /usr/local/extraview/httpd-2.4.28/conf/workers.properties
```

Locate the line at the bottom of the `extraview.conf` file that refers to `mod_jk.so` and make any needed changes to match your `mod_jk` file that you either compiled or downloaded:

```
LoadModule jk_module modules/mod_jk-apache-2.2.4.so
```

The Apache configuration file, `extraview.conf` should look like the following:

```
ServerName extraview.yourcompany.com
ServerAdmin serveradmin@yourcompany.com
DocumentRoot /usr/local/extraview/apache-tomcat-7.0.22/webapps/evj/
<Directory "/usr/local/extraview/apache-tomcat-7.0.22/webapps/evj">
    AllowOverride None
    Options Indexes FollowSymLinks
    Require all granted
</Directory>

<Location "/evj/WEB-INF/">
    Require all denied
</Location>
```

This assumes the location of Apache Tomcat and the ExtraView installation will be altered to suit those of your installation.

## Configuring Apache with SSL

Note: If you are planning to use apache with SSL, you must complete some additional configuration steps.

You must have `openssl` installed on your machine, version `openssl-0.9.6g` or higher. This can be downloaded from <http://www.openssl.org/>. If you have `openssl` installed on the machine, you can check the version: `openssl version` To create a test certificate, follow the instructions below (<http://www.apache-ssl.org/#FAQ>).

- **Create the key and request.** To create a test certificate, follow the instructions below (<http://www.apache-ssl.org/#FAQ>). Create the key and request. This creates a certificate signing request and a private key. When asked for "Common Name (i.e. your websites domain name)", give the exact domain name of your web server (e.g. `www.my-server.dom`). The certificate belongs to this server name and browsers complain if the name doesn't match.

```
openssl req -new > new.cert.csr
```

- **Remove the passphrase from the key (optional).** This removes the passphrase from the private key. You MUST understand what this means; `server.key` should be only readable by the apache server and the administrator. You should delete the `.rnd` file because it contains the entropy information for creating the key and could be used for cryptographic attacks against your private key.

```
openssl rsa -in privkey.pem -out new.cert.key
```

- **Convert request into signed certificate.** This creates a self-signed certificate that you can use until you get a "real" one from a certificate authority. (Which is optional; if you know your users, you can tell them to install the certificate into their browsers). Note that this certificate expires after one year; you can increase `-days 365` if you don't want this.

```
openssl x509 -in new.cert.csr -out new.cert.cert -req -signkey new.cert.key -days 365
```

After creating your test certificate, you must place the `server.crt` and `server.key` files where Apache can find them. This is configured in the folder `/usr/local/extraview/httpd-2.4.28/conf/certs`.

```
mkdir $BASE/httpd-2.4.28/conf/certs
mv new.cert.cert $BASE/httpd-2.4.28/conf/certs
mv new.cert.key $BASE/httpd-2.4.28/conf/certs
```

Edit the `$BASE/httpd-2.4.28/conf/httpd.conf` file to enable ssl as follows:

Find the line: `# Secure (SSL/TLS) connections` and uncomment the line below it:

```
include conf/extra/httpd-ssl.conf
```

Edit the `$BASE/httpd-2.4.28/conf/extra/httpd-ssl.conf` file as follows:

Find the line `#SSLCertificateFile`. Uncomment it and enter the correct path:

```
/usr/local/extraview/httpd-2.4.28/conf/certs/new.cert.cert
```

Find the line `#SSLCertificateKeyFile` Uncomment it and enter the correct path:

```
/usr/local/extraview/httpd-2.4.28/conf/certs/new.cert.key
```

You can `su` to root and start/stop the apache ssl server using the following commands:

```
$BASE/httpd-2.4.28/bin/apachectl start
$BASE/httpd_2.4.28/bin/apachectl stop
```

If you enter the URL of server into a browser using the https protocol, for example `https://server.domain.com`, you should get the Apache test page.

Now edit the conf file to set up SSL.

```
vi $BASE/httpd-2.4.28/conf/extra/httpd-ssl.conf
```

Search for:

```
DocumentRoot "/usr/local/extraview/httpd-2.4.28/htdocs"
ServerName www.example.com:443
ServerAdmin you@example.com
```

Comment these lines out.

At the bottom of the file, paste in the following lines:

```
ServerName extraview.yourcompany.com
ServerAdmin you@example.com
```

```

DocumentRoot /usr/local/extraview/apache-tomcat-7.0.22/webapps/evj/
<Directory /usr/local/extraview/apache-tomcat-7.0.22/webapps/evj>
    Options Indexes FollowSymLinks
    Order allow,deny
    Allow from all
</Directory>
<Location "/evj/WEB-INF/">
Order deny,allow deny from all
</Location>

```

```
Alias /evj/ "/usr/local/extraview/apache-tomcat-7.0.22/webapps/evj/"
```

```

JkMount /evj/ExtraView/* tomcat1
JkMount /evj/ExtraView tomcat1
JkMount /evj/IsItEvj tomcat1
JkMount /evj/ConnectionPoolMon tomcat1
JkMount /evj/images/CompanyLogo.gif tomcat1
JkMount /evj/rapidSpell/a.rapidspellweb tomcat1
JkMount /evj/Consumer tomcat1

```

Edit these lines to reflect the correct ServerName, ServerAdmin and correct directory paths for DocumentRoot, Directory and Alias lines.

If you wish, you can edit the log paths:

```

ErrorLog "/usr/local/extraview/httpd-2.4.28/logs/error_log"
TransferLog "/usr/local/extraview/httpd-2.4.28/logs/access_log"
CustomLog "/usr/local/extraview/httpd-2.4.28/logs/ssl_request_log" "%t %h %{SSL_PROTOCOL}x
%{SSL_CIPHER}x \"%r\" %b"

```

## Configuring the ExtraView Spell Checker

This is configured when you are installing a new ExtraView installation. If you are upgrading ExtraView, you can add this capability by modifying the ev.conf file supplied. See the page [Spell Checker](#) for instructions.

## Advanced Apache Configuration Options

### Internet Explorer Patch

Internet Explorer users of ExtraView will benefit from the following configuration. This greatly improves performance for these users. Find the section:

```

#BrowserMatch ".*MSIE.*"
# nokeepalive ssl-unclean-shutdown
# downgrade-1.0 force-response-1.0

```

and replace with the following:

```

BrowserMatch ".*MSIE [1-5].*"
nokeepalive ssl-unclean-shutdown

```

```
downgrade-1.0 force-response-1.0
BrowserMatch ".*MSIE [6-9].*"
ssl-unclean-shutdown
```

## Using Drag-and-Drop File Upload with SSL Enabled

If your users are utilizing the drag-and-drop file upload for attachments, document fields and image fields, make sure that the Apache configuration has a `ServerName` or `ServerAlias` for the SSL virtual host that matches the hostname you are using. For example, you can customize this fragment to get the desired behavior.

```
<VirtualHost mydomain.com:443>
  ServerName mydomain.com
  ServerAlias www.mydomain.com
  ...
</VirtualHost>
```

## Configuring Apache to Use JavaScript Compression

ExtraView ships with its JavaScript files in both a compressed and a non-compressed format. There may be a considerable speed advantage to using the compressed JavaScript files, especially if your users do not have access to a high bandwidth network. To enable the delivery of compressed JavaScript to your user's computers, set these directives in your `extraview.conf` file:

Within the `<VirtualHost></VirtualHost>` section:

```
<Directory "/usr/local/extraview/apache-tomcat-7.0.22/webapps
/evj/javascript">

  RewriteEngine on
  RewriteCond %{HTTP:Accept-Encoding} \b(x-)?gzip\b
  RewriteCond %{REQUEST_FILENAME}.gz -f
  RewriteCond %{HTTP_USER_AGENT} !".*Safari.*"
  RewriteCond %{HTTP:Accept-Encoding} gzip
  RewriteRule (.*)\.js$ $1\.js\.gz [L]

<FilesMatch /\.js\.gz$>
  ForceType text/javascript
  Header set Content-Encoding: gzip
</FilesMatch>

</Directory>
```

Now, find the following line in your `httpd.conf` file:

```
#LoadModule rewrite_module modules/mod_rewrite.so
```

Remove the comment character (`#`) at the beginning of the line.

Lastly, look for the line:

```
#LoadModule headers_module modules/mod_headers.so
```

and remove the comment character (#) from the beginning of the line. The Apache server must be restarted after these changes.

## Securing Apache

The `extraview.conf` delivered with ExtraView contains a section that restricts access to the folders on the filesystem of the server that contain the ExtraView application.

```
<Location "/evj/WEB-INF/">  
  Require all denied  
</Location>
```

This default setting is predefined to work when configured to use a URL that looks like `http://yourserver.yourdomain.com/evj/ExtraView` to access ExtraView. If you have additional or different Apache configurations that perform redirection, URL rewriting or URL forwarding, it is important to test for a secure system to ensure that users do not have the ability to get a directory listing of the `evj/WEB-INF` folder or folders and the files they contain, as these files may contain sensitive information. Consult Apache documentation for additional details.

## JBoss Installation

The JBoss application server configuration is almost identical to the Apache Tomcat configuration and you should follow the instructions for Tomcat installation.

There is one additional step. You should create a file named `jboss-deployment-structure.xml` and place this file in the `WARS META-INF` or the `WEB-INF` directory. The content of the file should be:

```
<jboss-deployment-structure>  
  <deployment>  
    <!-- Exclusions allow you to prevent the server from automatically adding some  
dependencies -->  
    <exclusions>  
      <module name="org.slf4j" />  
      <module name="org.slf4j.impl" />  
    </exclusions>  
  </deployment>  
</jboss-deployment-structure>
```

## Install Fonts

Beginning with Java version 9, many distributions of Java, either procured from Oracle or from any of the OpenJDK versions, do not include the necessary fonts for ExtraView to function fully. It is expected that the provision of these fonts, and their installation into the operating system of your server is a separate deliverable from Java.

There are many open source fonts which can be installed. The following instructions show how the *DejaVu* fonts available at <https://dejavu-fonts.github.io/> can be installed.

1. First, ensure that your operating system has the `fontconfig` operating system utility installed and running. For example, if you only installed the minimum configuration for CentOS, you can do the following:

```
yum install fontconfig
```

2. Select the source for fonts and the specific fonts you wish to install. If you use *DejaVu* as the source and download into `/home/installs`, then use these instructions to install:

```
unzip dejavu-fonts-ttf-2.37.zip
```

```
cd dejavu-fonts-ttf-2.37
```

```
cd ttf
```

Now copy the ttf files to the fonts folder - usually `/usr/share/fonts`

```
cp *.ttf /usr/share/fonts/
```

3. Refresh the font cache to initialize the new fonts:

```
fc-cache -f -v
```

4. Verify the fonts were installed correctly:

```
fc-list | grep "Deja"
```

You should see a list of the *DejaVu* fonts. These should include both sans and serif varieties.

## Install the ExtraView Servlet

You have been provided with a file with a name in the format of `evjxxx.tar`. This contains the ExtraView application. `xxx` is the version and build number of ExtraView that you are installing.

The ExtraView web application is generally installed under the directory named `/usr/local/extraview/tomcat/webapps`.

We suggest that your ExtraView application be installed in a folder named `evj` under this `webapps` folder. This will make your ExtraView application default URL:

```
http://yourserver.yourdomain.com/evj/ExtraView
```

For simplicity, you may change your web server settings to offer the following as the URL to point directly to ExtraView:

```
http://yourserver.yourdomain.com
```

If you are upgrading, locate your existing ExtraView application folder under the `webapps` directory, and rename this folder so that it is not overwritten in the next step. This will retain a backup copy of the ExtraView software installation files.

```
mv evj evj_old
```

## Install the ExtraView Application Software

```
cp evjxxx.tar $BASE/apache-tomcat-7.0-22/webapps
cd $BASE/apache-tomcat-7.0-22/webapps
tar xvf evjxxx.tar
mv evjxxx evj
vi evj/WEB-INF/configuration/Configuration.properties
```

Edit the configuration file `$BASE/apache-tomcat-7.0-22/webapps/evj/WEB-INF/configuration/Configuration.properties` for the following entries:

You can find a complete listing of all of the available parameters in the `Configuration.properties` file [here](#)

<code>DB_HOST</code>	The IP address, localhost or fully qualified name for your database server
<code>DB_USER</code>	This is the name of the database user created previously
<code>DB_PASSWORD</code>	This is the password for the above database user
<code>DB_URL</code>	Make sure that the correct entry is uncommented and edited for your DBMS (Oracle, MSSQL or mySQL). The entry for HOST should be set to the same as <code>DB_HOST</code> above. The entry for SID should be the SID of the Oracle database, or the database name for MSSQL or mySQL
<code>JDBCdriver</code>	Make sure that the correct entry is uncommented and edited for your DBMS (Oracle, MSSQL or mySQL)
<code>DBMS_INTERFACE</code>	Make sure that the correct entry is uncommented and edited for your DBMS (Oracle, MSSQL or mySQL)

The following is an example of the `Configuration.properties` using Oracle as the database:

```
DB_HOST = localhost
DB_USER = extraview
DB_PASSWORD = password
DB_URL = jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS= (HOST=localhost)(PROTOCOL=tcp)(PORT=1521))
(CONNECT_DATA=(SID=ev )))
JDBCdriver = oracle.jdbc.driver.OracleDriver
DBMS_INTERFACE = com.extraview.dbms.oracle.OracleDbms
```

The following is an example of the `Configuration.properties` using mySQL as the database:

```
DB_HOST = localhost
DB_USER = extraview
DB_PASSWORD = password
DB_URL = jdbc:mysql://localhost:3306/ev
JDBCdriver = com.mysql.jdbc.Driver
DBMS_INTERFACE = com.extraview.dbms.mysql.MySqlDbms
```

The following is an example of the `Configuration.properties` using MSSQL as the database:

```
DB_HOST = localhost
DB_USER = extraview
DB_PASSWORD = password
DB_URL = jdbc:inetdae7://localhost:1433/extraview
JDBCdriver = com.inet.tds.TdsDriver
```

```
DBMS_INTERFACE = com.extraview.dbms.mssql.MssqlDbms
```

You must configure SQL Server with mixed mode authentication, not just Windows authentication. For named instances, provide the port number in the JDBC URL - not the named instance name.

For example, if your named instance is SERVERINSTANCE1 running on port 4000 then the parameters in the Configuration.properties file will be:

```
DB_HOST = SERVER
DB_URL = jdbc:jtds:sqlserver://SERVER:4000/ev
```

where ev is the name of the database you created in the named instance.

The SERVER name can be a server name, fully qualified domain name or IP address. It cannot be of the format SERVERINSTANCE1,4000.

**Note:** If you are running MSSQL: Starting with ExtraView 5.x, ExtraView now provides a JDBC driver for MSSQL. We no longer require or support the Sprinta JDBC driver that was used in the 4.x versions of ExtraView. If you are upgrading from 4.x and had previously been using the 20-connection Sprinta driver for MSSQL, you can now use the default values provided in the Configuration.properties for 7.x for ConnectionPoolSize and ConnectionPoolMax, instead of the previously-limited 20, as the new jTDS driver does not have a 20 connection limit.

## Additional Steps for Upgrades

Continue editing the Configuration.properties file within the new installation to populate the needed parameters. You should bring over any settings from your existing file in evj.old/WEB-INF/configuration.

```
vi evj/WEB-INF/configuration/Configuration.properties
```

Now you need to copy over the files from your existing application that are specific to your installation:

```
cp evj_old/images/CompanyLogo.gif evj/images cp -rf evj_old/WEB-INF/user_templates evj/WEB-INF
```

If you have user custom JavaScript code that was written either by ExtraView Corporation, or by your developers, you should add any of your custom methods in the evj\_old/javascript/user\_javascript/UserJavascript.js file to the new file in evj/javascript/user\_javascript.

You may or may not have files in the user\_javascript and the user\_templates folders, depending on your initial installation.

If you have customized images other than the Company Logo, those have to be copied to the new installation from the old installation. Depending on your installation, you may also have installed images for additional locales. You will then have to perform the same action for each locale, by replacing en\_US with the appropriate directory name. If you are upgrading from ExtraView 4.x or 5.x to 7.x, and you have a custom image set, please contact ExtraView Corporation to get further information on updating your image set for the new version of ExtraView.

```
cp -r evj_old/locales/en_US/images/images_custom evj
```

## UserCustom Class Software Upgrade

If you have User Custom code implemented, please review the name of your User Custom class(es) in the

directory(ies) named

```
/usr/local/extraview/tomcat/webapps/evj/WEB-INF/classes/com/extraview/usercustom/
```

and

```
/usr/local/extraview/tomcat/webapps/evj/WEB-INF/classes/com/extraview/presentation/usercustom
```

If you have files in these locations, then you must contact ExtraView Corporation in order to make certain that you are upgrading your User Custom code to the correct new version. At the very minimum, these files should be recompiled using Java 6. If you have files in the /usr/local/extraview/tomcat/webapps/evj/WEB-INF/classes folder that are not in the "usercustom" locations, you should *\*not\** copy these files to the new evj folder - please contact ExtraView Corporation for assistance. These files are likely bugfix patch classes, and are not needed in the new version.

```
cd evj/WEB-INF
cp -r ../../evj_old/WEB-INF/classes .
```

## Upgrade the Database Schema

This step is required only if you are upgrading an existing version of ExtraView. If you are performing a new installation, you will have been provided with a database backup file that you will import into your Database installation instead. You can skip to the section that matches your selected Database - [Oracle](#), [SQL Server](#), or [MySQL](#) Database Configuration now.

If you have not already done so, you must backup your database before performing this step. ExtraView Corporation cannot guarantee that upgrades will complete successfully, therefore it is essential that you are able to revert to your existing installation.

You should take a full export of your database before running any of the following upgrade scripts. This will allow you to roll back to the previous version of ExtraView if there are any problems arising from the upgrade.

### Running on Tomcat

After performing the backup, edit the following file:

```
/usr/local/extraview/tomcat/webapps/evj/WEB-INF/data/runPatches.sh
```

Replace the following lines with the appropriate values for your system:

```
JAVA_HOME=/usr/local/extraview/java TOMCAT_HOME=/usr/local/extraview/tomcat
```

Now save and exit from the editor. To upgrade the database, run the following command:

```
sh runPatches.sh evj
```

evj is the folder under /usr/local/extraview/tomcat/webapps that contains the latest ExtraView

application code.

## Running on Weblogic

After performing the backup, edit the following file:

```
evjxx-yyy/WEB-INF/data/runPatchesWebLogic.sh
```

Replace the following lines with the appropriate values for your system:

```
JAVA_HOME=/usr/local/extraview/java WL_HOME=/usr/local/boa/weblogic81 EV_BASE=/path  
/to/extraview/application/evjxx-yyy
```

Now save and exit from the editor. To upgrade the database, run the following command:

```
sh runPatchesWebLogic.sh evjxx-yyy
```

The upgrade process initiated by the above command looks at your installation to determine exactly which version of code and which version of the database schema is active. The process will then apply all the patches to bring your system up to the current level. Some patches are very simple, some are more complex, and the time taken is dependent on the amount of data in your database.

As the individual patches are applied, you will see many lines of text scroll past on the screen. At some point, depending on the amount of data in your system, the patches may appear to “hang” while they perform large operations on the database – allow a reasonable amount of time (possibly 20 minutes or more) before you assume there is a problem with any individual part of the upgrade process. If you have any questions, please contact ExtraView Corporation.

Once the script has finished running, and you are returned back to a command prompt, and your upgrade to the database is complete.

For your reference, there is a log of the changes made to the database in the directory named `/tomcat/webapps/evj/WEB-INF/logs`. These are held in a `.log` file (the exact name is specified in the `Configuration.properties` file). It is recommended that you save that file until you have verified your upgrade, so that the ExtraView Support can review this with you if you run into any issues. You can look through the log file to observe if any errors were generated during the upgrade process.

## Oracle Database Upgrade Requirements

This step is only required if you are running Oracle as your database.

ExtraView has been affected by bugs in a number of Oracle releases. If you are running a version of Oracle prior to Oracle 10.2.0.4, you should upgrade your installation. If you have access to Oracle Metalink, you should download the patch set from there. If not, ExtraView Corporation can provide you with information on how to retrieve the appropriate patch set. There are detailed instructions in the README file.

## Microsoft SQL Server Database Upgrade Requirements

This step is only required if you are running SQL Server as your database.

ExtraView now requires SQL Server 2005 or later. If you are running an earlier version, you must upgrade your software.

## Restart the Servers

At this point, the installation or upgrade process is complete. You must stop and restart the Apache Tomcat and Apache servers before signing on to ExtraView. To stop and restart Apache, sign on as the root user:

```
cd /usr/local/extraview/apache/bin ./apachectl restart
```

To stop and restart Apache Tomcat to load the new version of ExtraView:

```
cd /usr/local/extraview/tomcat/bin ./shutdown.sh ./startup.sh
```

You should now be able to log in to ExtraView. If you have problems, consult the troubleshooting section in this Guide.

## Activation Key

When upgrading from a version of ExtraView older than 6.2, you must obtain a new activation key from ExtraView support. You will not be able to start the ExtraView application without this new activation key.

When you first log in to ExtraView after restarting Tomcat, you will see the following screen that allows you to upload the new activation key. You can also upload the activation key from the **Administration** menu, by clicking on the **Upload Activation Key** function.

The screenshot shows a web browser window titled "Upload Activation Key File". At the top right, there are three buttons: "Upload File", "Return", and "Print Page". The main content area is divided into three sections:

- Directions:** A text box explaining that a valid activation key file must be uploaded. It states that the key file will be emailed to the user by ExtraView Corporation and that the installation will not function without it. It also advises contacting support for any questions.
- Numbered List:** Two steps are provided:
  - 1 Press the **Browse** button and select the activation key file to install
  - 2 Press the **Upload File** button and the activation key file will be installed.
- Current License Details:** A section showing the current license status:
  - Number of named users: 0
  - Number of licensed users: 11

At the bottom of the main content area, there is an **Actions** section with the text "Choose activation key file to upload". Below this text is a text input field and a "Browse..." button. At the bottom right of the window, there are three buttons: "Upload File", "Return", and "Print Page".

Following the successful upload of a valid activation key, you will see a verification screen that displays the details of the key.

# Post-Upgrade Tasks

## Version Check

Start the ExtraView server and check the message at the bottom of the screen, beneath the ExtraView copyright. If there is a message such as **Schema Version(mismatched) Release x.x.x Build nn**, then the upgrade was not successful and you should contact ExtraView support for further assistance.

## End User Action

The JavaScript in this version of ExtraView contains many enhancements. Most users' browsers cache the JavaScript, so please communicate to your users that they should clear their JavaScript browser cache. Failure to do this can lead to unexpected errors.

In Internet Explorer, **Tools --> Internet Options --> Delete ... ---> Check Temporary Internet Files --> Delete.**

In Firefox, **Tools --> Options --> Clear Recent History ---> Check Cache --> Clear Now.**

In Safari, **Tools (Gear Icon) --> Reset Safari --> Check Empty the cache --> Reset.**

In Chrome, **Tools (Wrench icon) --> Options --> Clear Browsing Data ---> Check Empty the cache --> Clear browsing data.**

## Navigation Bar

Some navigation bar themes have been altered in ExtraView 7.0, to accommodate additional buttons. If your navigation bar is partially obscured, or otherwise looks incorrect, go to **Admin --> Initial Setup Menu --> User Interface Themes** and select the theme of your choice. Please note that vertical style navigation bars are no longer supported.

## Business Rules - Part One

You will only have to perform this step if you are upgrading from a release earlier than 4.3.6 and you have been using the ExtraView Business Rules. The rules have been moved from the rules.txt file into the database. Log in to ExtraView as an administrator user and go to **Administration --> Workflow --> Setup and Maintain Business and Email Rules**. Copy the contents of the file:

```
evj_old/WEB-INF/configuration/rules.txt
```

into the rules section on the screen, and then press Update to save your changes.

## Business Rules - Part Two

This is an important issue and may require changes to existing business rules. Previously, if a user focused on a field, and then set the focus elsewhere, and there was an ONCHANGE or REFRESH rule on the field, the rule would be triggered. It was not obvious to the user that an Ajax call had been made to execute a rule and there was a small delay while the Ajax call was in progress. During this time, the user had to wait, even though no changes to fields had been made.

The behavior has been altered so that a rule that was something like this:

```
if (AREA='Engineering Issues' && RELEASE_CHILD_STATUS= 'Fixed') {
  STATUS = 'Fixed';
}
```

should now be written as:

```
if (AREA='Engineering Issues' && RELEASE_CHILD_STATUS.{changed to: 'Fixed'}) {
  STATUS = 'Fixed';
}
```

This will avoid the Ajax call being made, unless there is a change to the value of the field.

## "HTML\_PRE\_xx" and "HTML\_POST\_xx" Fields

Data dictionary fields that begin with the characters `HTML_PRE_` and `HTML_POST_` are used to introduce formatting, such as shaded regions, onto add and *edit* screens. Beginning with ExtraView version 6.2, the syntax of the rules associated with these fields has altered, to accommodate Ajax refreshes and the need for precise HTML syntax within the browser for the advanced features offered with ExtraView 6.2. This provides for much improved performance for users. Wherever possible, the upgrade script rewrites the rule using the new syntax. However, not all such rules can be converted automatically. During the upgrade process, an entry is made into the ExtraView log that shows which rules were converted, and which were not. The consequence of not having valid syntax in the rule will be that the display will look incorrect. Functionality should not be affected.

The intent of the `HTML_PRE_` and `HTML_POST_` functionality is to recognize that each row in an ExtraView layout is a complete row surrounded by `<tr>` and `</tr>` tags. We therefore need to inject a complete and valid row into the middle of an existing table which is the ExtraView layout. The layout rows within the `HTML_PRE_` and `HTML_POST_` therefore emulate a table with the same number of columns as that in the layout and keeps the HTML syntax complete and accurate.

An example of a `PRE_HTML_` rule that might exist in your old site that could not be converted automatically is:

```
HTML_PRE_COMMENTS = "<!-- generated valid html - don't escape! --><div id=my_div
style='display:none; background-color:#F5F5FF'><table><tr>";
```

The new format for the `HTML_PRE_` rule is:

```
HTML_PRE_COMMENTS = "<tr><td></td><td colspan=7><div id=my_div style='display:none;
background-color:#F5F5FF'><table><tr><td>";
```

The need for the string `<!-- generated valid html - don't escape! -->` has been eliminated. The `<td></td><td colspan=7>` section first emulates an empty column where the field label normally resides and then spans the remainder of the columns of the layout. If you have a layout with 3 columns, the number 7 becomes 5. with 4 columns you use a span of 7, etc.

An example of a `HTML_POST_` rule that might exist in your old site that could not be converted automatically is:

```
HTML_POST_COMMENTS = "<!-- generated valid html - don't escape! --></tr></table></div>
```

The new format for the `HTML_POST_` rule is

```
HTML_POST_COMMENTS = "</table></div></td></tr>
```

Again, the string `<!-- generated valid html - don't escape! -->` is not required, and the rule is simply closing the open table row from the `HTML_PRE_` command, then closing the open table, then closing the open div tag.

## Disabling the External BatchMail Utility

If you are upgrading from a version of ExtraView previous to version 6.0, you will have previously installed a standalone utility named BatchMail on your server. This utility was used to deliver outbound ExtraView email notifications. Starting in version 6.0 this utility is built into the ExtraView application, so during the upgrade to 6.x, you should turn off and/or uninstall the standalone BatchMail utility.

BatchMail is typically controlled via a cron job on your server. Simply remove the ExtraViewBatchMail job from the crontab entries to disable the old task. We recommend that you wait until you are satisfied with the upgrade before completing this step, so that you can roll back to your previous version of ExtraView if need be.

## Configuring the Built-in BatchMail Task

ExtraView will generate outbound email messages when issues are created or updated, when escalation routines are triggered, or when the Ad Hoc Email feature is used. These email message files are saved to a folder on the application server, defined in the `EMAIL_DIRECTORY` behavior setting. There is only one `EMAIL_DIRECTORY` location per ExtraView application – regardless of whether you are running a single instance, or if you are clustered or load-balanced across one or more servers.

The BatchMail task is a utility that polls the `EMAIL_DIRECTORY` location on a timed basis, and if it finds any email messages in the folder, it uses your mail server to deliver the email message to the recipients specified.

When performing an upgrade from a version of ExtraView with an external BatchMail program, it is best to start with a new internal BatchMail task. At this point, check the BatchMail task in the Manage Tasks and Threads utility, and if one exists in your installation, it is recommended that you delete this. The following steps will copy over the BatchMail configuration from your previous version, then allow you to configure BatchMail as an internal ExtraView task.

To configure the BatchMail utility, you must set the SMTP server and mail directory locations. Within the ExtraView administration screens, you will then create and configure a BatchMail Task, and configure the application to write the email messages in the `EMAIL_DIRECTORY` location.

Now, copy over the old BatchMail.properties configuration file, from the `evj.old/WEB-INF/configuration/` directory to the new `evj/WEB-INF/configuration/` directory.

In order to activate email notification, the following behavior settings must be configured from the ExtraView web interface. In the ExtraView administration utility Email Settings, set the behavior settings in the following table.

You can get more information about the other email settings in the Administration Guide.

Now set up the BatchMail Task. Go to the ExtraView administration utility **Manage the Background Tasks**. First, verify that you currently have at least 2 each of `SESSION_MONITOR` and `TASK_CONTROL_TASK` tasks in the list, and that at least one of each of these tasks has a current status

of STARTED.

Click on the Add a new task button. From the drop down Task name list, select Batch mail. Enter a title for this new task. From the Node ID drop down list, select the node on which you wish to run the BatchMail task.

If you have a standard installation, the current node id will be WS\_A (this is the WEB\_SERVER\_NAME value from the Configuration.properties file for the current instance). If you are running in a clustered or load-balanced environment, and if all of the instances (nodes) are on the same server, you should set up one BatchMail task to be shared by all nodes. If each node is on a separate server, you can either set the MAIL\_DIR to a location accessible by all nodes and have a single task on one node, or you can build a location mapping to MAIL\_DIR on each node, and have each node running its own BatchMail task.

Entry	Purpose
EMAIL_DIRECTORY	Must be set to the same value as MAIL_DIR in BatchMail configuration file. This is /usr/local/extraview/tomcat/webapps/evj/
WEB-INF/mailbox	In the example above. Both the application servers and the BatchMail services must have read and write access to this location
EMAIL_FROM_USER_ID	Must be set to a valid email address
EMAIL_NOTIFICATION	Must be set to YES for email notification to be turned on

## Install Perl & Command Line Interface

The ExtraView Command Line Interface is an optional component that requires the Perl interpreter to be installed first. Check the [software requirements page](#) for the recommended version of Perl for your computer system.

### Perl Installation for Linux

Download the appropriate version of Perl for your computer system from [www.perl.org](http://www.perl.org) and perform the following steps to install Perl from source:

1. Extract the files from the perl-NNN.tar.gz download file into a temporary directory
2. Read the INSTALL file to learn how to install Perl
3. Execute the following commands to install Perl in the /usr/local/extraview/perl directory (or any other location available) and install the additional Perl modules required by the CLI:

```
cd perl-NNN
sh Configure -Dprefix=/usr/local/extraview/perl -des
make
make test
make install
cd /usr/local/extraview/perl/bin
./cpan Term::ReadKey
./cpan HTTP::Request::Common
./cpan LWP::UserAgent
./cpan XML::Parser
```

```
./cpan Mail::Sendmail
./cpan Mail::POP3Client
./cpan Mail::Sender
./cpan MIME::Parser
./cpan HTML::FormatText
```

4. Cleanup and remove the temporary directory containing the extracted files

## CLI Installation for Linux

Download the CLI from the ExtraView Support site download page. The download file is named `evcli_unix.tar`.

If you are upgrading, you may have a folder called `evapi` or `evcli`. The new package will have a version-specific name. For the upgrade, simply copy the configuration file from your existing directory to the new directory created during the CLI installation, and start using the new version of the CLI commands.

The following commands illustrate how to extract the CLI files from the download file, and make some file modifications so that the CLI commands will execute properly on your system:

```
tar -xvf evcli_unix.tar
cd evjNNN_evcli
PERL_HOME = /usr/local/extraview/perl
export PERL_HOME
$PERL_HOME/bin/perl -p -i -e "s#/usr/local/bin/perl#$PERL_HOME/bin/perl#" ev* manifest.pl
chmod +x manifest.pl ev*
```

Run the following check to verify that the installation is working as expected. The `manifest.pl` script goes through each CLI command and verifies that the required Perl modules are installed. If this gives you any errors, please contact ExtraView Support.

```
./manifest.pl
```

Next, edit the file `evconfig.txt` with a text editor, such as `vi`, to configure the CLI to connect to your ExtraView server. Set the `SERVER` setting to the URL of your ExtraView server. For example:

```
SERVER = extraview.yourdomain.com/evj/ExtraView
```

Lastly, test the CLI to make sure that it works and can communicate with the ExtraView server by executing the `evcheck` CLI command:

```
./evcheck
```

This command will prompt you for a username and password and then attempt to access the ExtraView server with your credentials. The command prints information about the server, version, and other settings. For example:

```
config file: /home/user/evjNNN_evcli/evconfig.txt
server: http://extraview.yourdomain.com/evj/ExtraView/ev_api.action
evapi version: Release 7.0.2 Build 65
modtime: 12/31/2011 05:10 PM
user: username - from command line
delimiter: :
```

## Install the Command Line Interface

The ExtraView Command Line Interface is an optional component. First you must install the [recommended version](#) of Perl on your computer. The open source version can be downloaded from [www.perl.org](http://www.perl.org), or you may purchase a commercially supported version from [www.activestate.com](http://www.activestate.com). Install Perl before completing the remainder of these steps.

Download the CLI from the ExtraView Support site download page. Download the file named `evcli_unix.tar` and expand this file into a folder on your computer from where you will run the CLI.

If you are upgrading, you may have a folder called `evapi` or `evcli`. The new package will have a version-specific name.

```
mkdir $BASE/perl/
cp $BASE/apache-tomcat-5.5.25/webapps/evj/WEB-INF/data/evcli_unix.tar
$BASE/perl/evcli
cd $BASE/perl/
tar xvf evcli_unix.tar
cd evjXXX_evcli
PERL_HOME = $BASE/ActivePerl-5.8;
export PERL_HOME
$PERL_HOME/bin/perl -p -i -e "s#/usr/local/bin/perl#$PERL_HOME/bin/perl#" ev*
manifest.pl
chmod +x manifest.pl ev*
```

Run the following check to verify that the installation is working as expected. The program goes through each Perl script and verifies that the required Perl modules are installed. If this gives you any errors, please contact ExtraView Support.

```
./manifest.pl
```

Now configure the file `evconfig.txt` to connect to your ExtraView installation.

```
vi evconfig.txt
SERVER = extraview.yourdomain.com/evj/ExtraView
```

Set this to the URL for your newly installed ExtraView.

## Windows Environment

The procedure will guide you through the installation of the following components:

- Java
- Apache Web Server
- Tomcat Application Server
- ExtraView application
- Perl and supporting modules
- ExtraView schema and initial database

Once the application is installed, you should start ExtraView and set some specific behavior settings to ensure that you can then begin to configure ExtraView for your organization. The standard ExtraView implementation has a default set of defined fields with a default set of layouts for adding and updating issues, as well as a set of default layouts for searching and reporting.

Note: See the ExtraView Administration Guide for initial default specifications and the initial settings of behavior settings.

## Conventions

Throughout the installation steps you should be careful to substitute your own values for the following path and file names. It is also possible that other path names shown will be different on your target hardware. ExtraView expects that the experienced System Administrator will be able to recognize changes that may need to be made in the example scripts. If you are in any doubt, please contact ExtraView for support.

It is best to make any decisions before beginning the installation process if you want to change any of the following:

<code>C:\ExtraView\install</code>	Temporary directory to hold the staging scripts and code.
<code>C:\ExtraView</code>	This is the root directory where ExtraView will be installed.
<code>server.domain.com</code>	The URL of the server as it will be published on your network
<code>serveradmin@yourcompany.com</code>	The email address to be displayed to the user if a server error occurs
<code>mail.server.com</code>	The address of the mail server to which ExtraView sends outgoing mail

Please make sure to make a permanent record of all the changes that you make to these values.

## A Note on the Installation Instructions

As mentioned previously, the installation of database, Web server (Apache) and application server (Apache Tomcat) provide great flexibility with regards to configuration. The following instructions guide you through the simplest version, where database, web server and application server are installed on the same machine. If you wish to install a different configuration and need assistance, please contact ExtraView Support.

# Organization of Installation Files

It is strongly recommended that you collect all the support software, except for the DBMS (Oracle or MSSQL), under one top level directory.

We recommend that this be named:

`C:\ExtraView`.

This provides for an easy overview of your installation for maintenance purposes. It is also recommended in order to prevent accidental upgrades of some of the software components by a system administrator who is not familiar with ExtraView.

Create the following directories:

`C:\ExtraView`  
`C:\ExtraView\install`

C:\ExtraView\Perl5 (if you will be installing the Command Line Interface)

## Install Java for Windows

Make sure you have the correct version of Java installed, as specified in the [system requirements](#) for your version of ExtraView. If you are upgrading from a previous version of ExtraView, please do not assume you have the correct version installed.

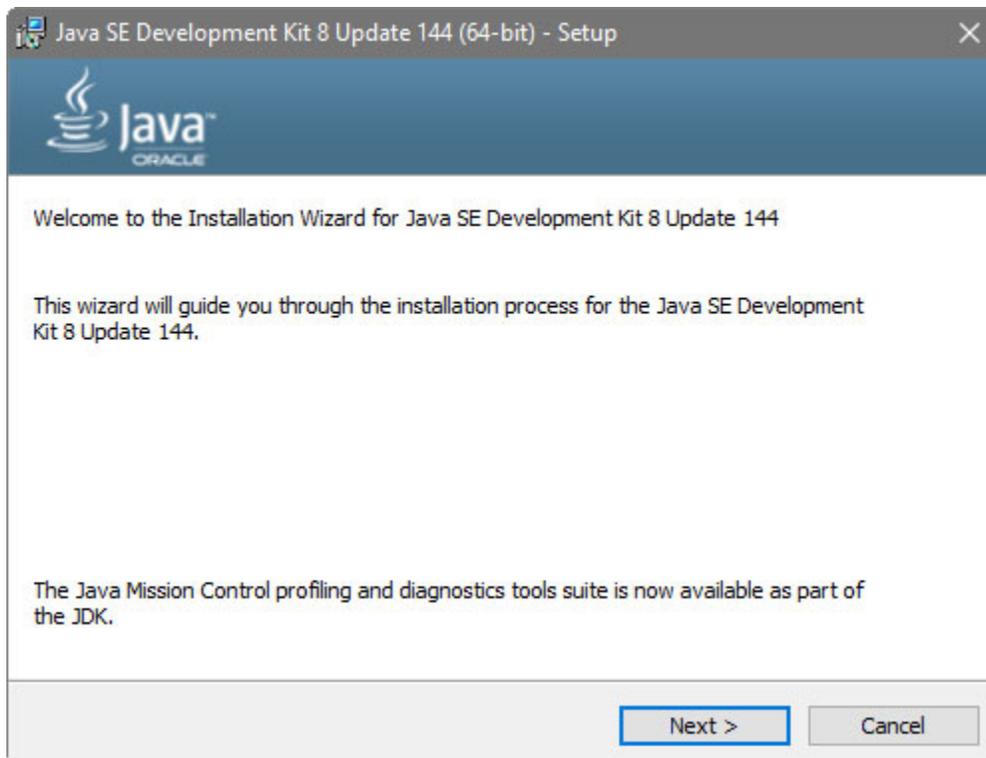
For Apache Tomcat, you can use either the JDK or the (smaller) JRE.

Note that for ExtraView 11.0 and newer, Java 8 is required.

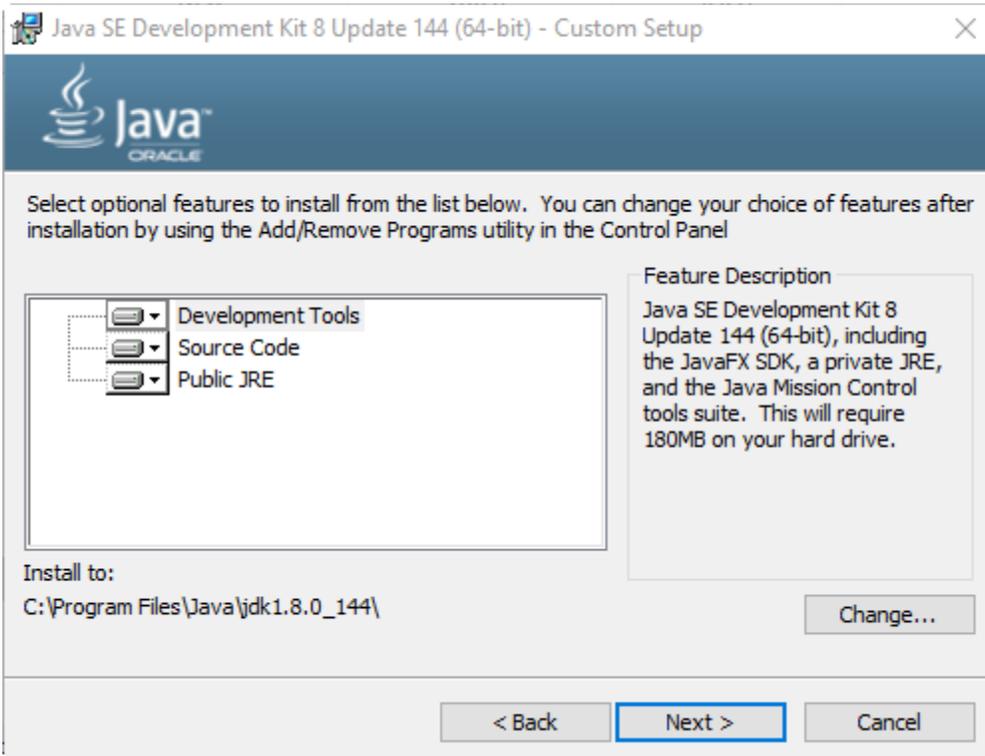
Double-click on the Java installation file that you downloaded. In our example, it is named jdk-8u144-windows-x64.exe.

When asked to select an install folder, enter C:\ExtraView\jdk-8u144, or the corresponding value for your system. You may be prompted with a Windows Security Warning - click "Run" to proceed. We strongly recommend selecting a folder path that does not contain any spaces.

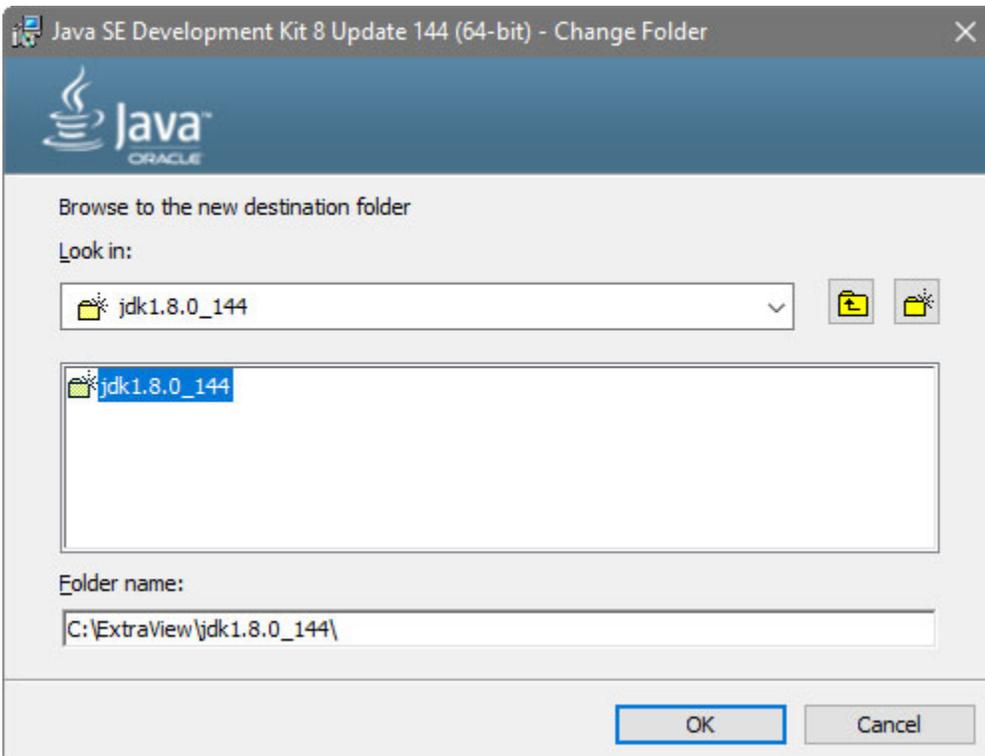
Check the checkbox to **Change the Installation Folder**.



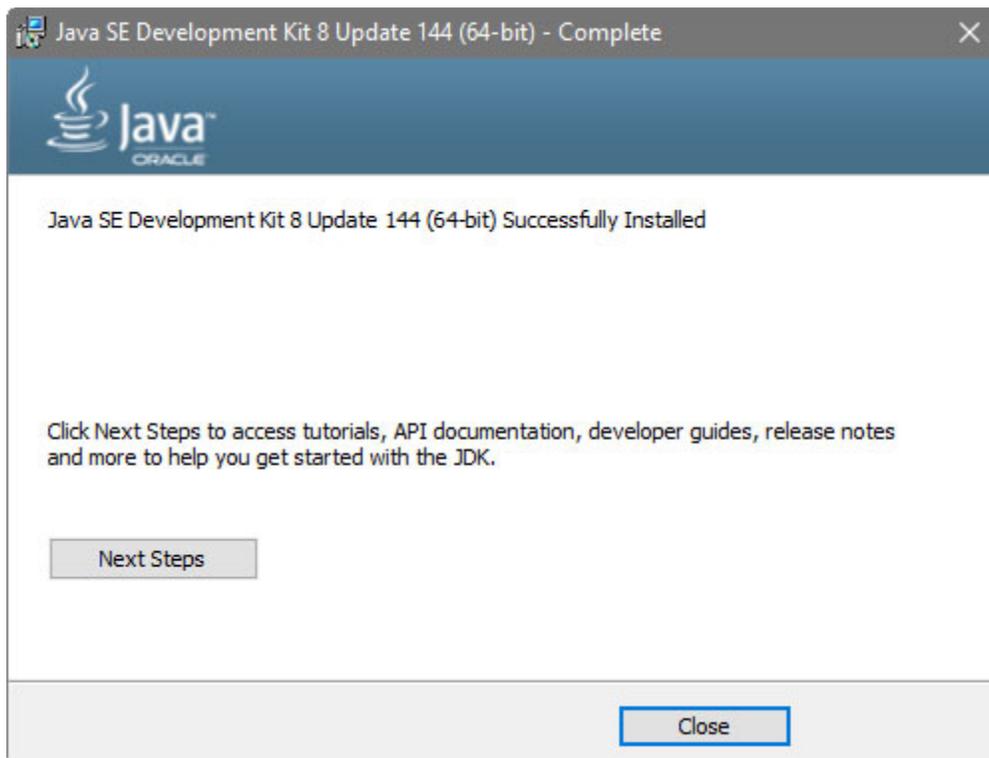
Take the defaults, but change the install folder to C:\ExtraView\jre8\_144.



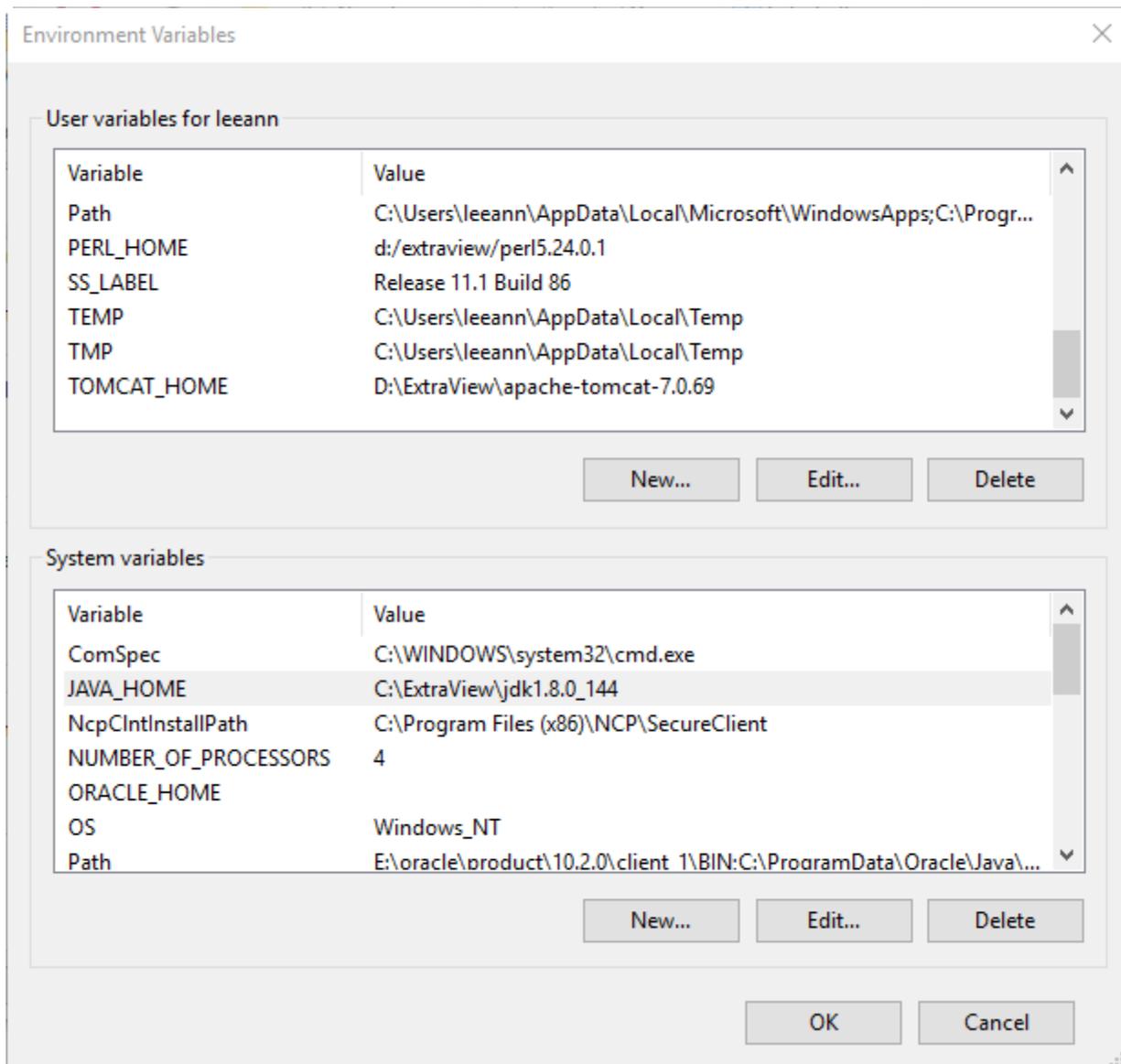
If you are installing the JDK, Java will prompt you to *also* provide a path for a JRE - change this destination as well. ExtraView does not use this JRE installation if you are installing the JDK - you will use your selected path in `C:\ExtraView\jdk1.8.0_144`



When the installation completes, you will see the confirmation screen:



If you will be using your installation as a development environment, you should make sure you have a `JAVA_HOME` environment variable set. It is worth setting this in any case, as it might be needed at some time in the future. Go to the Windows Control Panel and select System. Select the Advanced tab and click on Environment Variables. Under System Variables, define the variable `JAVA_HOME` as the directory where you installed Java: `JAVA_HOME=C:\Extraview\jre8_xx`



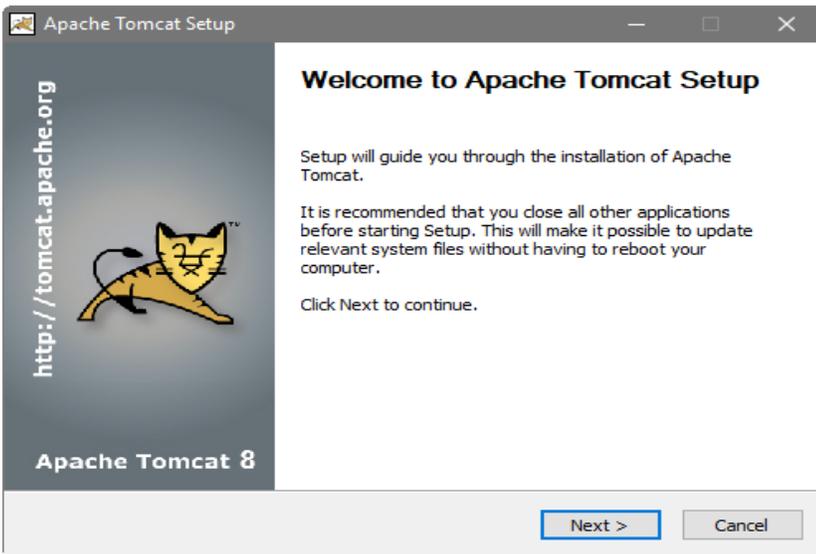
## Install Tomcat for Windows

ExtraView 11 requires Java JRE 8. If your system is on an earlier version of Java, you must upgrade to the required version. If your current version of Tomcat does not support Java 8, you must upgrade to a newer version. We recommend upgrading to Tomcat 8.5. When upgrading, ensure that the Tomcat service is stopped before installing the new version.

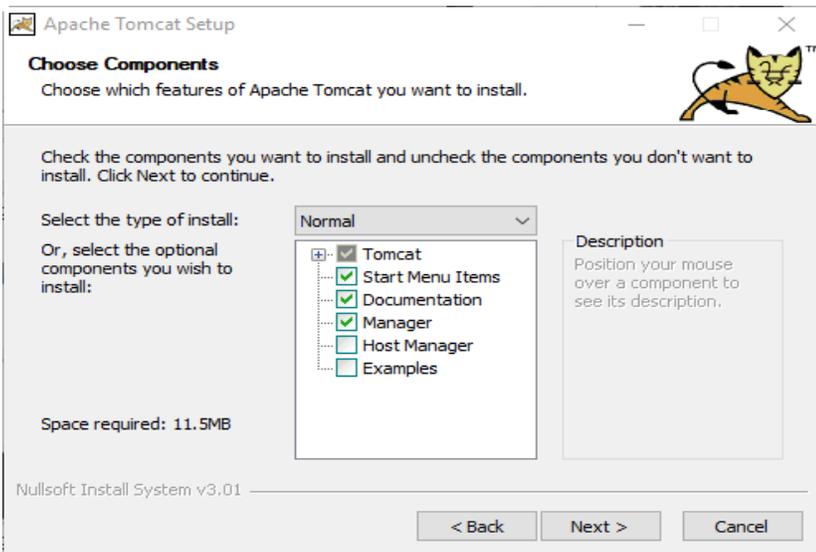
Note that if you are intending to use Microsoft IIS as your web server, you must still install Tomcat. IIS does not provide the same functionality as Tomcat.

Double click on the Tomcat Application server installation file that you downloaded. In our example it is called `apache-tomcat-8.5.23.exe`. You may get a Windows Security Warning - click **Run** to proceed.

Extract the `apache-tomcat-8.5.23` folder to your destination folder - `C:\ExtraView` - so that you end up with `C:\ExtraView\apache-tomcat-8.5.23`

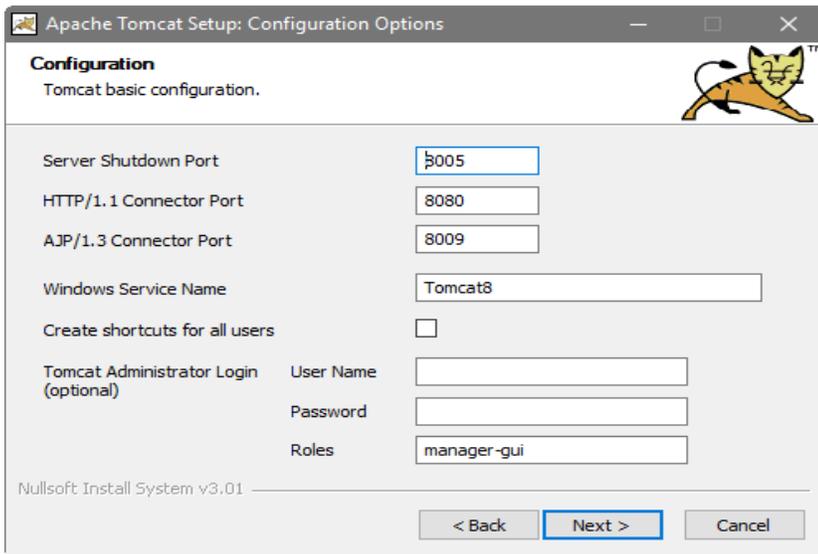


Include the selected defaults

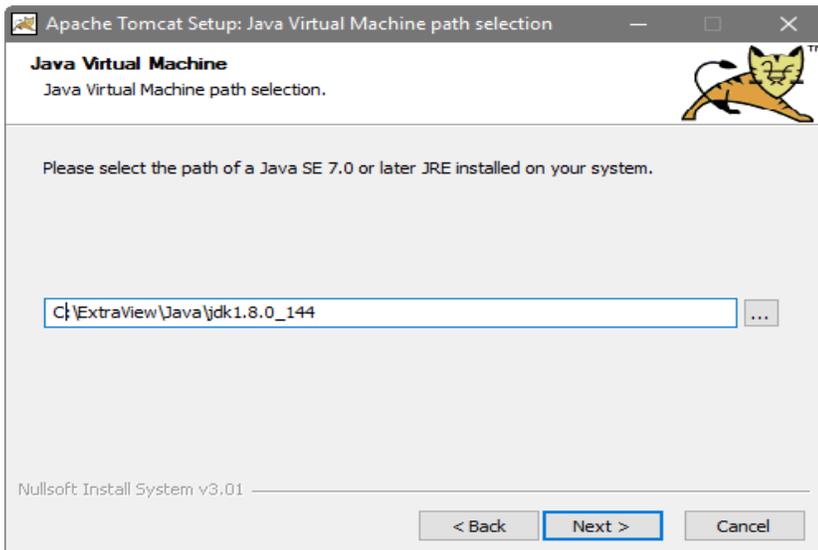


Open a command window, as Administrator, and navigate to the destination folder

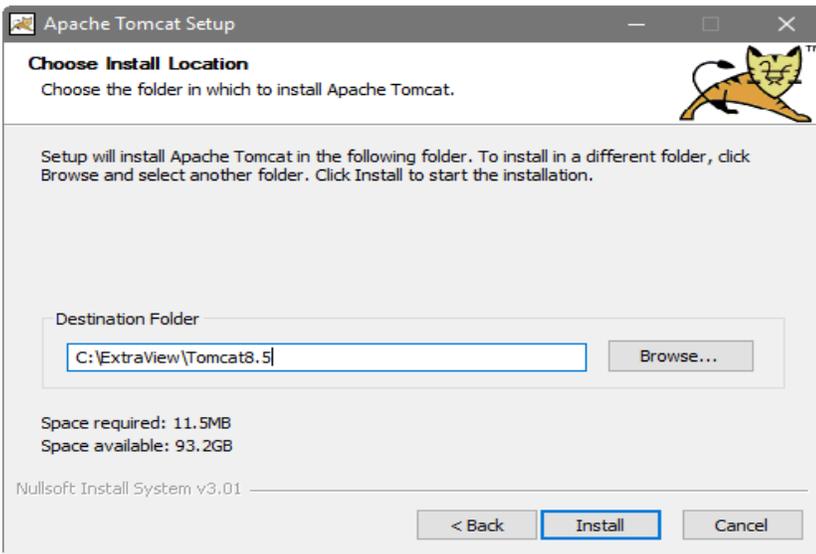
You can modify the ports Tomcat will run on, if you already have something else running on these ports. In this example, we will leave the defaults



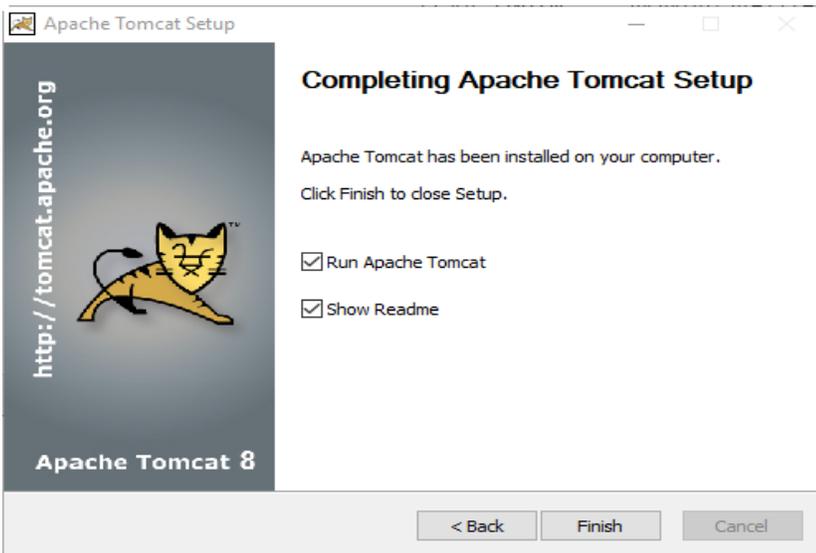
Browse to the Java 8 that you installed for ExtraView



Ensure that the destination path for the Tomcat installation does not contain any empty spaces in the folder names



Once Tomcat has successfully completed the installation, let it start up and close the installer window

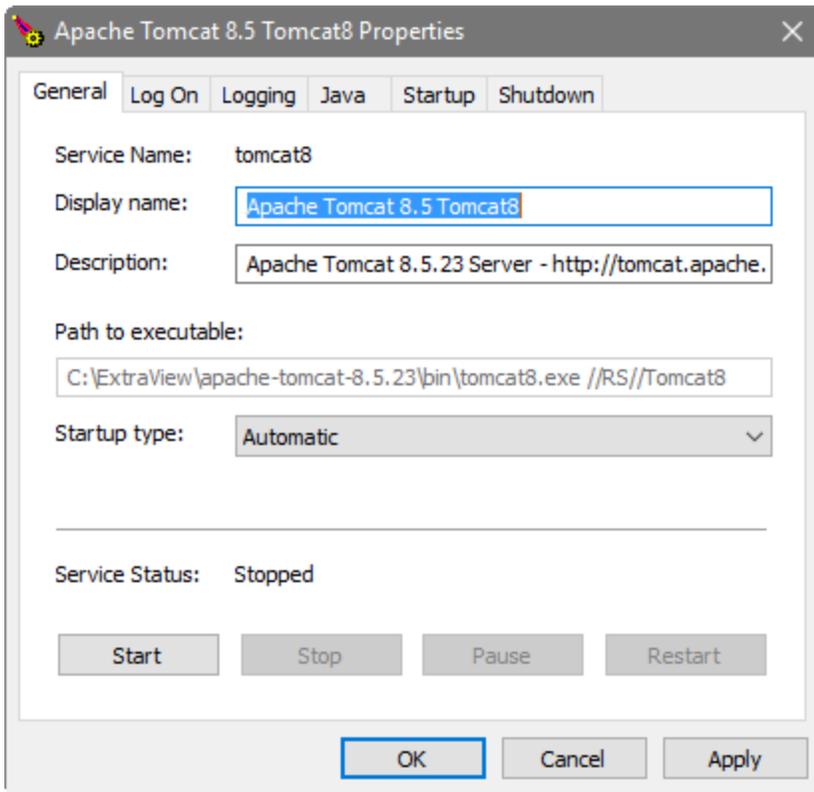


You can modify the service parameters once you have created it -

Navigate to the destination folder, and into the `/bin` folder where you will see the `tomcat8w.exe` application

Double click the `tomcat8w.exe` file to start it

On the General tab - set the service to start automatically



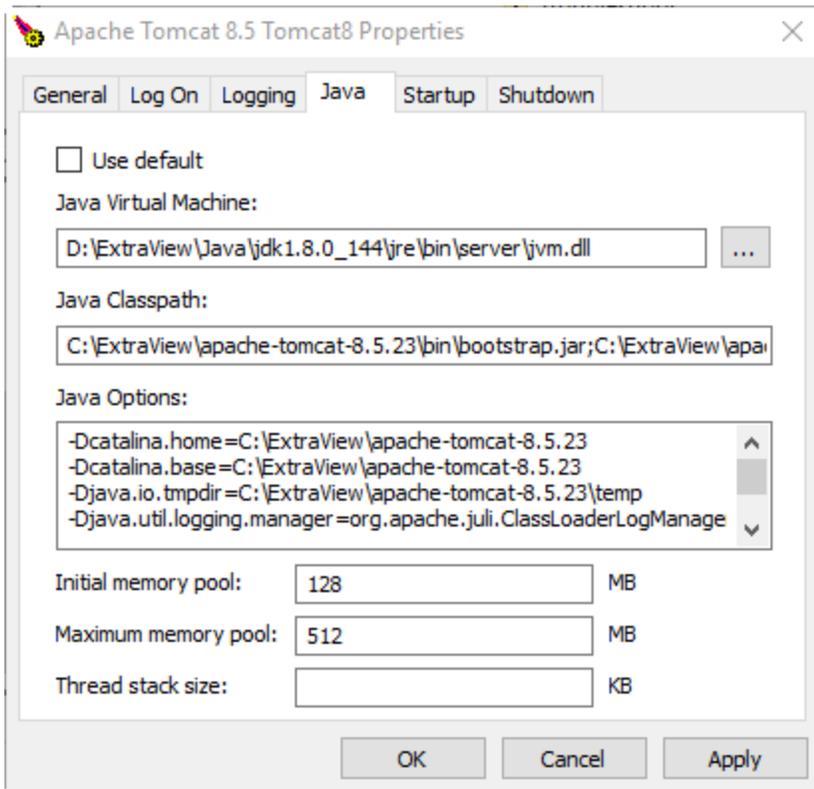
On the Java tab, you can select a different installation of Java if the JAVA\_HOME did not pick the correct installation.

Set the memory parameters to a minimum of:

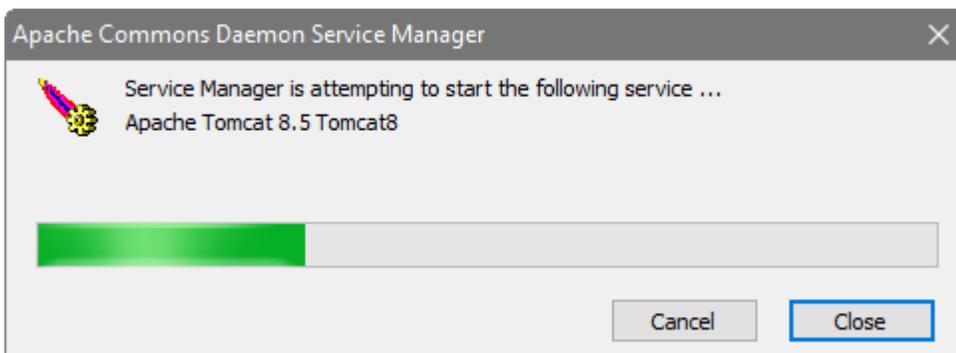
128 MB for **Initial memory pool**

512 MB for **Maximum memory pool**

We generally do not recommend setting the Maximum memory pool (the Xmx parameter) above 1024 megs at maximum. If your system usage is predicted to be high enough that you will require more memory, we strongly suggest installing a clustered set of multiple Tomcat nodes under a load-balanced Apache web server.



Now, on the General tab - start the service



If you enter `http://localhost:8080` into the local browser, you should get the Tomcat test page.

The screenshot shows the Apache Tomcat/8.5.23 website. At the top, there's a navigation bar with links for Home, Documentation, Configuration, Examples, Wiki, and Mailing Lists, along with a Find Help button. Below this, a green banner congratulates the user for successfully installing Tomcat. To the left of this banner is the Tomcat logo. To the right, there are three buttons: Server Status, Manager App, and Host Manager. Below the banner, there's a 'Developer Quick Start' section with links for Tomcat Setup, First Web Application, Realms & AAA, JDBC Data Sources, Examples, Servlet Specifications, and Tomcat Versions. The main content area is divided into three columns: 'Managing Tomcat' (with links for Release Notes, Changelog, Migration Guide, Security Notices), 'Documentation' (with links for Tomcat 8.5 Documentation, Tomcat 8.5 Configuration, Tomcat Wiki), and 'Getting Help' (with links for FAQ and Mailing Lists, tomcat-announce, tomcat-users, taglibs-user, tomcat-dev). At the bottom, there's a grid of 'Other Downloads', 'Other Documentation', 'Get Involved', 'Miscellaneous', and 'Apache Software Foundation' links.

## Using the APIs to Insert Large Amounts of Text

When using an API to insert very large amounts of text within a single issue you may encounter an error within the API function, exhibiting as a null pointer exception that originates within the Tomcat application server. This error may be remedied by inserting the modifying the Connector entry within the Tomcat configuration file. An example of the altered configuration is:

```
<Connector port="8082" protocol="HTTP/1.1" URIEncoding="UTF-8"
  connectionTimeout="20000" maxPostSize="209715200"
  redirectPort="8442" maxParameterCount="1000000" />
```

The `maxPostSize` parameter increases the size of Tomcat's buffer used to process the API command.

## Tomcat 8.5 Notes

1. Modify the `<Context>` entry in the `context.xml` file to be

```
<Context useHttpOnly="false">
```

You should add the following to the `tomcat/conf/context.xml` file:

```
<!-- Force use of the old Cookie processor (because this Tomcat version uses RFC6265
Cookie Specification) -->
<CookieProcessor className="org.apache.tomcat.util.http.LegacyCookieProcessor" />
```

2. Locate the following section in the Tomcat configuration file:

```
<!-- Uncomment this to disable session persistence across Tomcat restarts -->
<!--
<Manager pathname="" />
-->
```

and alter to use this setting:

```
<!-- Disable session persistence across Tomcat restarts -->
<Manager pathname="" />
```

3. Tomcat 8's standard installation altered the way in which several characters were accepted as valid URL characters. These are characters such as |, { and }. Some of these characters have long been used within the ExtraView application. To enable Tomcat's handling of these characters, insert this line into the Catalina.properties file:

```
tomcat.util.http.parser.HttpParser.requestTargetAllow=|{}
```

4. Tomcat 8.x has a security measure which mandates that you must configure a security measure. This measure rejects all calls to the Tomcat server unless a secret word is part of the request, with requests typically being sent by the Apache web server. Without this configuration, the Tomcat server will appear to spin without responding to the request or will respond with a 404 Not Found error. To configure this feature:

1. In the server.xml file, ensure the section for the AJP 13 connector, has these parameters:

```
<Connector protocol="AJP/1.3"
    address="0.0.0.0"
    port="8009"
    redirectPort="8443"
    secret="changeme" />
```

Note the port number is typically 8009

Note the secret word should be changed to your secret word

2. In the workers.properties file where you set the AJP 1.3 connector, add a parameter:

```
worker.tomcat1.secret = changeme
```

Note the secret word should match the entry in the server.xml file.

5. Make sure you restart Tomcat after altering its configuration.

## Install Apache

Note: If you are installing the Microsoft IIS Web Server, you should skip over this section.

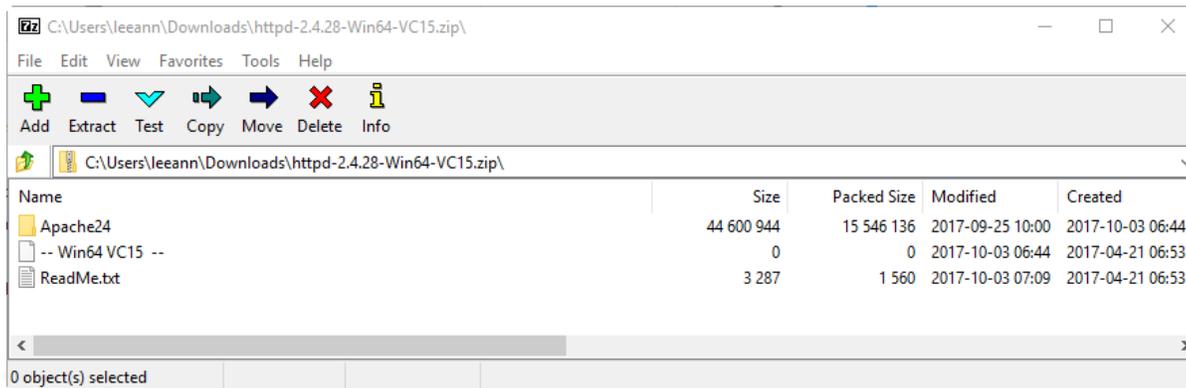
If you are upgrading, you do not need to upgrade your Apache installation. However, if you have upgraded your version of Tomcat, you will need to verify that the paths in your extraview.conf and httpd.conf files match the current paths to Tomcat - see the section **Configure Apache** below for instructions.

If you are upgrading from a version prior to 9.1, you may optionally enable the new ExtraView Spell Check utility. From ExtraView 9.1 onwards, this is configured automatically when you perform the initial installation. Click on [this link](#) to see the installation instructions.

The `extraview.conf` and `workers.properties` files referenced below can be downloaded from <https://www.extraview.com/site/content/support-software>

The following screenshots are for the installation of Apache 2.4. Apache.org does not provide downloadable binary files for the HTTP server for Windows. You can download Apache for Windows from <https://www.apachelounge.com/download/>

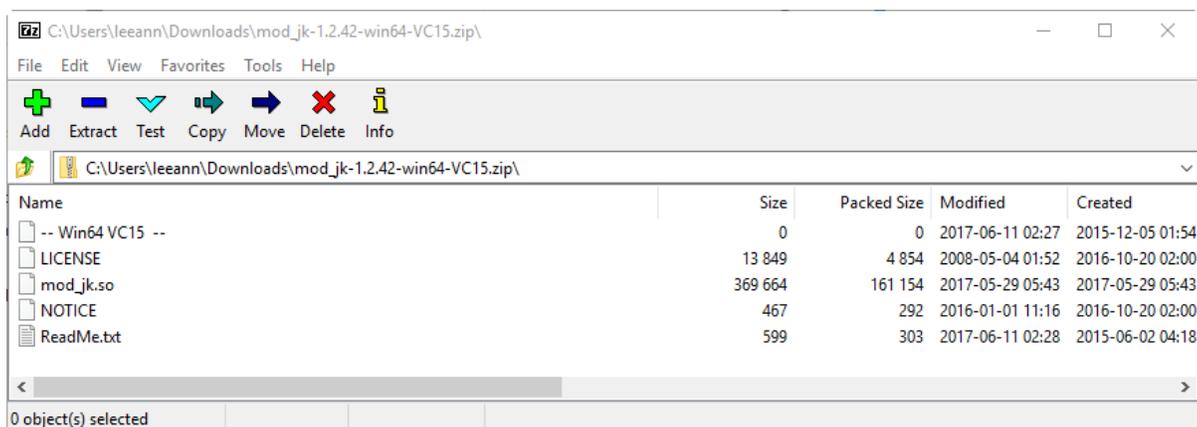
Open the `httpd-2.4.28-Win64-VC15.zip` file and extract the Apache24 folder to your destination location - `C:\ExtraView\` so that you have it installed in `C:\ExtraView\Apache24`



## Configuring Apache 2.4

You will have downloaded an Apache Tomcat Connector file from [apachelounge.com](http://apachelounge.com). In our example, we downloaded `mod_jk-1.2.42-win64-VC15.zip`.

Extract the file named `mod_jk.so` into `C:\ExtraView\Apache24\modules`, or the corresponding directory on your system.



Copy the workers.properties file into C:\ExtraView\Apache24\conf, or the corresponding directory on your system.

Copy the extraview.conf file into C:\ExtraView\Apache24\conf\extra, or the corresponding directory on your system.

Edit the file named httpd.conf in C:\ExtraView\Apache24\conf, or the corresponding directory on your system.

Find the line:

```
#ServerName www.example.com:80
```

Set it to a valid entry - do not use the URL/servername that you will use to access ExtraView - generally you can put the IP address of the machine here

```
ServerName 127.0.0.1:80
```

Find the line:

```
ServerRoot "c:/Apache24"
```

Set it to the path where Apache is installed

```
ServerRoot "c:/ExtraView/Apache24"
```

Find the line:

```
DocumentRoot "c:/Apache24/htdocs"
```

Set it to the path where Apache is installed

```
DocumentRoot "c:/ExtraView/Apache24/htdocs"
```

Find the line:

```
<Directory "c:/Apache24/htdocs">
```

Set it to the path where Apache is installed

```
<Directory "c:/ExtraView/Apache24/htdocs">
```

Find the line:

```
ScriptAlias /cgi-bin/ "c:/Apache24/cgi-bin/"
```

Set it to the path where Apache is installed

```
ScriptAlias /cgi-bin/ "c:/ExtraView/Apache24/cgi-bin/"
```

Find the line:

```
<Directory "c:/Apache24/cgi-bin">
```

Set it to the path where Apache is installed

```
<Directory "c:/ExtraView/Apache24/cgi-bin">
```

Now find the line:

```
# Include conf/extra/httpd-vhosts.conf
```

(Search for vhosts) and place this line below it:

```
Include conf/extra/extraview.conf
```

Verify the paths in the extraview.conf correspond to your installation locations.

Edit the file extraview.conf to point to the correct corresponding directories on your server.

```
<VirtualHost *>
```

```
ServerName yourserver.yourcompany.com
ServerAdmin serveradmin@yourcompany.com
DocumentRoot C:\ExtraView\Tomcat8\webapps\evj
```

```
Alias /evj/ "C:/ExtraView/Tomcat8/webapps/evj/"
JkMount /evj/ExtraView/* tomcat1
JkMount /evj/ExtraView tomcat1
JkMount /evj/IsItEvj tomcat1
JkMount /evj/ConnectionPoolMon tomcat1
JkMount /evj/images/CompanyLogo.gif tomcat1
JkMount /evj/Consumer tomcat1
```

```
<Directory "C:/ExtraView/Tomcat8/webapps/evj">
    AllowOverride None
    Options Indexes FollowSymLinks
    Require all granted
</Directory>
```

```
<Location "/evj/WEB-INF/">
    Require all denied
</Location>
```

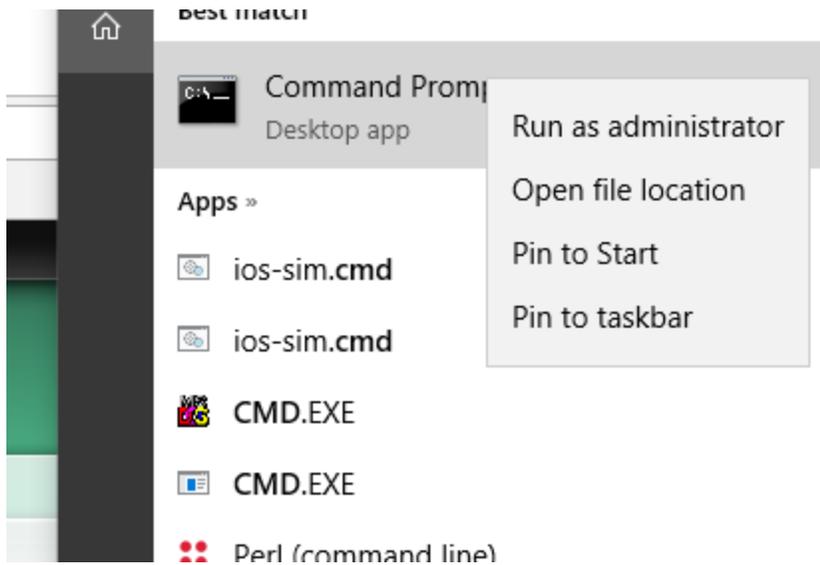
```
</VirtualHost>
```

```
LoadModule jk_module modules/mod_jk.so
JkWorkersFile C:/ExtraView/Apache24/conf/workers.properties
```

Locate the line at the bottom of the extraview.conf file that refers to mod\_jk.so and make any needed changes to match your mod\_jk file that you either compiled or downloaded: LoadModule jk\_module modules/mod\_jk.so If you enter the URL of the server into a browser, for example http://localhost, you should get the Apache test page.

## Installing the Apache 2.4 as a Windows Service

Open a command prompt as an administrator



Go to the `C:\ExtraView\Apache24\bin` folder where `httpd.exe` is located

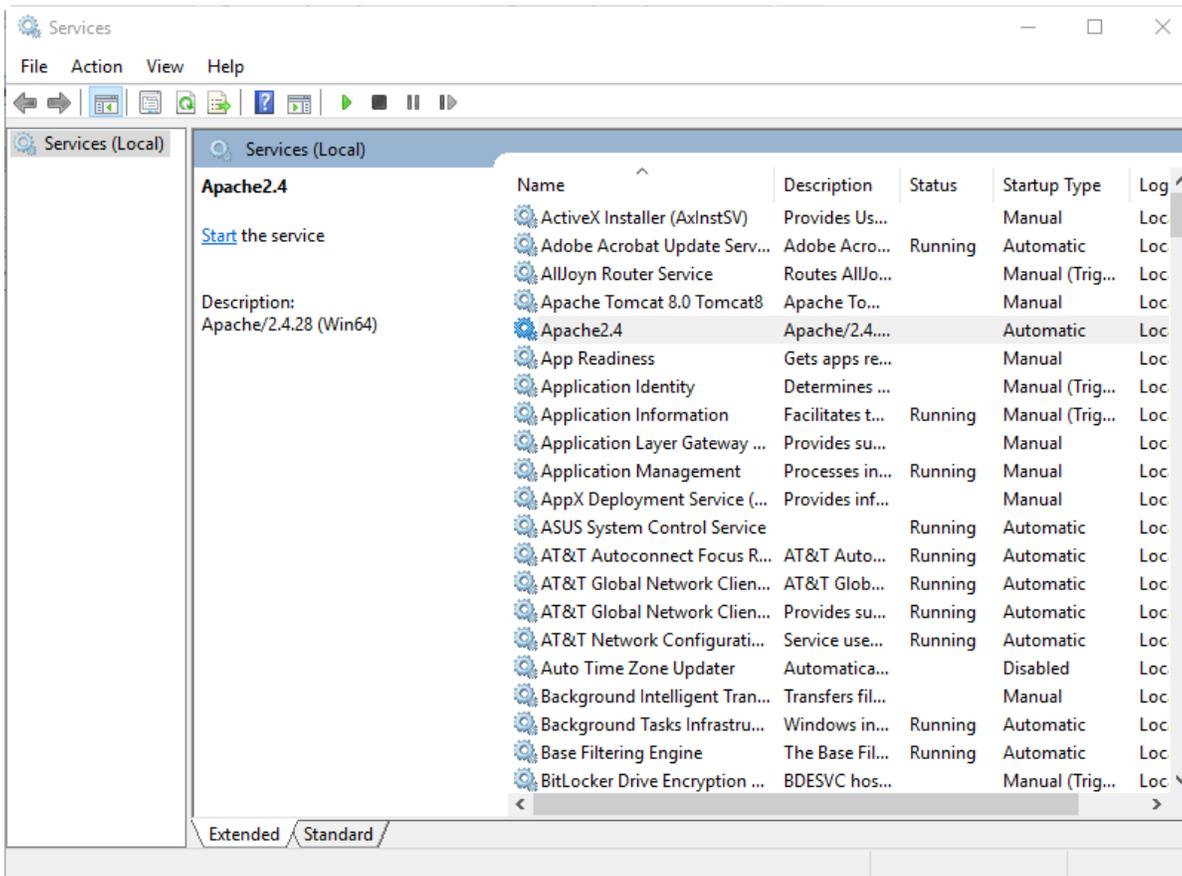
Install Apache24 as a service by typing in the command

```
httpd.exe -k install
```

```
Administrator: Command Prompt
09/25/2017 09:28 AM 192,512 libapr-1.dll
09/25/2017 09:28 AM 36,352 libapriconv-1.dll
09/25/2017 09:28 AM 279,552 libaprutil-1.dll
05/29/2017 05:10 AM 2,917,888 libcrypto-1_1-x64.dll
09/25/2017 09:28 AM 433,664 libhttpd.dll
05/29/2017 05:10 AM 495,104 libssl-1_1-x64.dll
09/08/2017 01:08 AM 1,320,960 libxml2.dll
09/25/2017 09:19 AM 56,832 logresolve.exe
04/21/2017 02:46 AM 189,952 lua52.dll
09/22/2017 01:10 AM 134,144 nghttp2.dll
05/29/2017 05:10 AM 487,936 openssl.exe
07/06/2017 01:24 AM 395,264 perl.dll
09/25/2017 09:19 AM 74,752 rotatelog.exe
09/25/2017 09:19 AM 18,432 wintty.exe
04/19/2017 08:25 AM 84,992 zlib1.dll
28 File(s) 7,957,992 bytes
3 Dir(s) 102,107,017,216 bytes free

C:\ExtraView\Apache24\bin>httpd.exe -k install
Installing the 'Apache2.4' service
The 'Apache2.4' service is successfully installed.
Testing httpd.conf...
Errors reported here must be corrected before the service can be started.
C:\ExtraView\Apache24\bin>
```

Start the service and verify if it works:



**It works!**

This assumes the location of Apache Tomcat and the ExtraView installation will be altered to suit those of your installation.

## Configuring Apache to Use JavaScript Compression

ExtraView ships with its JavaScript files in both a compressed and a non-compressed format. There may be a considerable speed advantage to using the compressed JavaScript files, especially if your users do not have access to a high bandwidth network. To enable the delivery of compressed JavaScript to your user's computers, set these directives in your `extraview.conf` file:

```
<Directory "C:/ExtraView/Tomcat8.0/webapps/evj/javascript">
  RewriteEngine on
RewriteCond %{HTTP:Accept-Encoding} \b(x-)?gzip\b
  RewriteCond %{REQUEST_FILENAME}.gz -f
  RewriteCond %{HTTP_USER_AGENT} !".*Safari.*"
  RewriteCond %{HTTP:Accept-Encoding} gzip
  RewriteRule (.*)\.js$ $1.\js\.gz [L]

<FilesMatch \.js\.gz$>
  ForceType text/javascript
  Header set Content-Encoding: gzip
</FilesMatch>
</Directory>
```

Now, find the following line in your `httpd.conf` file:

```
#LoadModule rewrite_module modules/mod_rewrite.so
```

Remove the comment character (#) at the beginning of the line.

Find the following line in your `httpd.conf` file:

```
#LoadModule expires_module modules/mod_expires.so
```

Remove the comment character (#) at the beginning of the line.

Lastly, look for the line:

```
#LoadModule headers_module modules/mod_headers.so
```

and remove the comment character (#) from the beginning of the line. The Apache server must be restarted after these changes.

## Using Drag-and-Drop File Upload with SSL Enabled

If your users are utilizing the drag-and-drop file upload for attachments, document fields and image fields, make sure that the Apache configuration has a `ServerName` or `ServerAlias` for the SSL virtual host that matches the hostname you are using. For example, you can customize this fragment to get the desired behavior.

```
<VirtualHost mydomain.com:443>
  ServerName mydomain.com
  ServerAlias www.mydomain.com
  ...
</VirtualHost>
```

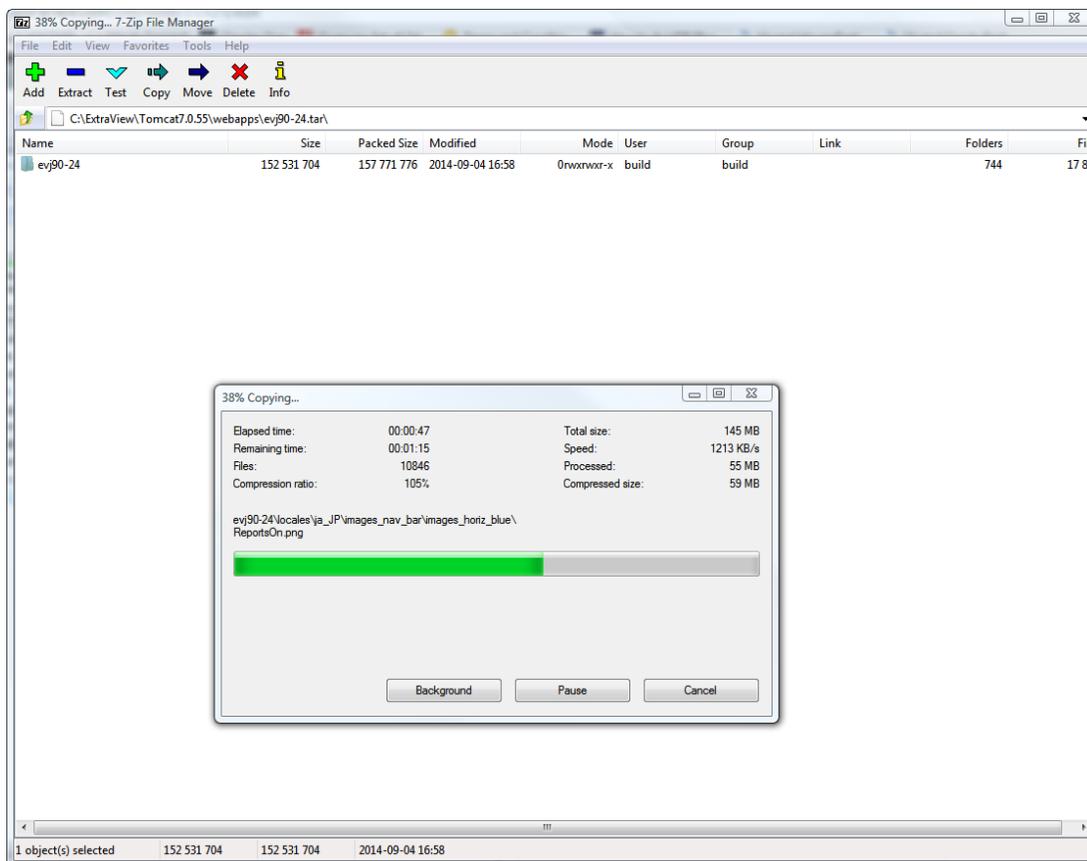
## Running ExtraView on a *localhost* with Windows 7 and Internet Explorer

There are reports of Internet Explorer hanging, and hanging all connections to Apache, when running on a *localhost* on Windows 7 as an operating system. This problem is not restricted to ExtraView, but to any web applications that use the combination of Apache 2.4, Windows 7 and Internet Explorer all running on the same computer. The fix for this is to add the following two lines to your httpd.conf file:

```
AcceptFilter http none
AcceptFilter https none
```

## Install the ExtraView Servlet

Use WinZip or a similar utility to expand the file named evjXXX.tar, where XXX is the version number of ExtraView that you are installing.



When asked to select a folder to extract to, enter C:\ExtraView\Tomcat7\webapps, or the corresponding value for your system.

A directory named evjXXX will be automatically appended to the path that you select.

Stop the Apache Tomcat service so that you can rename the directory named evjXXX to evj, and complete the following steps.

Edit the configuration file C:\ExtraView\Tomcat7\webapps\evj\WEB-INF\configuration\configuration.properties for the following entries:

DB_HOST	The IP address, localhost or fully qualified name for your database server
DB_USER	This is the name of the database user created previously
DB_PASSWORD	This is the password for the above database user
DB_URL	Make sure that the correct entry is uncommented and edited for your DBMS (Oracle, MSSQL or mySQL). The entry for HOST should be set to the same as DB_HOST above. The entry for SID should be the SID of the Oracle database, or the database name for MSSQL or mySQL
JDBCdriver	Make sure that the correct entry is uncommented and edited for your DBMS (Oracle, MSSQL or mySQL)
DBMS_INTERFACE	Make sure that the correct entry is uncommented and edited for your DBMS (Oracle, MSSQL or mySQL)

Note: Even though this is a Windows installation, you must use forward slashes “/” in paths in Configuration.properties.

The following is an example of the Configuration.properties using Oracle:

```

Configuration.properties x
1 # evj production
2 DB_HOST      = localhost
3 DB_USER      = extraview
4 DB_PASSWORD  = password
5
6 #Select the appropriate DB_URL pattern, JDBCdriver, and DBMS_INTERFACE for your database type
7
8 # Oracle driver
9 DB_URL       = jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS=(HOST=localhost) (PROTOCOL=tcp) (PORT=1521)
10 JDBCdriver  = oracle.jdbc.driver.OracleDriver
11 DBMS_INTERFACE = com.extraview.dbms.oracle.OracleDbms
12 DB_PROPERTIES = oracle.jdbc.RetainV9LongBindBehavior=true

```

The following is an example of the Configuration.properties using MSSQL:

```

Configuration.properties x
1 # evj production
2 DB_HOST      = localhost
3 DB_USER      = extraview
4 DB_PASSWORD  = password
5
6 #Select the appropriate DB_URL pattern, JDBCdriver, and DBMS_INTERFACE for your database type
7
8 # jTDS MS-SQL driver
9 DB_URL       = jdbc:jtds:sqlserver://localhost:1433/extraview
10 JDBCdriver  = net.sourceforge.jtds.jdbc.Driver
11 DBMS_INTERFACE = com.extraview.dbms.mssql.MssqlDbms
12

```

The following is an example of the Configuration.properties using mySQL:

```

Configuration.properties x
1 # evj production
2 DB_HOST      = localhost
3 DB_USER      = extraview
4 DB_PASSWORD  = password
5
6 #Select the appropriate DB_URL pattern, JDBCdriver, and DBMS_INTERFACE for your database type
7
8 # MySQL driver
9 DB_URL       = jdbc:mysql://localhost:3306/extraview
10 JDBCdriver  = com.mysql.jdbc.Driver
11 DBMS_INTERFACE = com.extraview.dbms.mysql.MysqlDbms
12 # uncomment the next line for MySQL server to eliminate potential hangs during pool recovery
13 DB_FORCE_CLOSE_METHOD = abortInternal
14

```

## Named Instances in MSSQL

You must configure SQL Server with mixed mode authentication, not just Windows authentication. For named instances, provide the port number in the JDBC URL - not the named instance name. For example, if your named instance is SERVERINSTANCE1 running on port 4000 then the parameters in the Configuration.properties file will be:

```
DB_HOST = SERVER DB_URL = jdbc:jtds:sqlserver://SERVER:4000/ev
```

where ev is the name of the database you created in the named instance. The SERVER name can be a server name, fully qualified domain name or IP address. It cannot be of the format SERVERINSTANCE1,4000.

Note:If you are running MSSQL:

Starting with ExtraView 5.x, ExtraView now provides a JDBC driver for MSSQL. We no longer require or support the Sprinta JDBC driver that was used in the 4.x versions of ExtraView.

If you are upgrading from 4.x and had previously been using the 20-connection Sprinta driver for MSSQL, you can now use the default values provided in the Configuration.properties for 9.x for ConnectionPoolSize and ConnectionPoolMax, instead of the previously-limited 20, as the new jTDS driver does not have a 20 connection limit.

## Additional Steps for Upgrades

Continue editing the Configuration.properties file within the new installation to populate the needed parameters. At this point, you can compare your evj\_old/WEB-INF/configuration/Configuration.properties with the current file to determine if you have made any other changes that you wish to maintain. In particular:

- Look for any LDAP / Active Directory or SSO fields that you may have configured
- There are also several lines relating to the ConnectionPool settings – if your existing settings are higher than the defaults, or if you have changed your settings to appropriate numbers for your system, you should copy the old settings into the new Configuration.properties file.

Next, copy over the files from your existing installation that are specific to your installation:

```
Copy file evj_old/images/CompanyLogo.gif to evj/images
Copy folder evj_old/WEB-INF/user_templates to evj/WEB-INF
```

If you have user custom JavaScript code that was written either by ExtraView Corporation or by your developers, you should add any of your custom methods in the evj\_old/javascript/user\_javascript

/UserJavascript.js file to the new file in evj/javascript/user\_javascript. If you have questions about this step, please contact the ExtraView support team.

You may or may not have files in the user\_javascript and user\_templates folders, depending on your initial installation.

If you have customized images other than the company logo (CompanyLogo.gif), those have to be copied as well. Depending on your installation, you may have installed images for additional locales. You then have to perform the same action for each locale, by replacing en\_US with the appropriate directory name. If you are upgrading from ExtraView 4.x or 5.x to 9.x, and you have a custom image set, please contact ExtraView support to get further information on updating your image set for the this version of ExtraView.

Copy folder evj\_old/locales/en\_US/images/images\_custom to evj/locales/en\_US/images

## UserCustom Java Class Upgrade

Only if there is User Custom code implemented on your site is this step necessary.

If you have User Custom code implemented, please review the name of your User Custom class(es) in the directory(ies) named

C:\ExtraView\Tomcat7\webapps\evj\WEB-INF\classes\com\extraview\usercustom\

and

C:\ExtraView\Tomcat7\webapps\evj\WEB-INF\classes\com\extraview\presentation\usercustom\

If you have files in these locations, and you are upgrading from a version of ExtraView older than 9.0, then you must contact ExtraView Corporation in order to make certain that you are upgrading your User Custom code to the correct new version. At the very minimum, these files should be recompiled using Java 7.

If you have files in the /usr/local/extraview/tomcat/webapps/evj/WEB-INF/classes folder that are not in the "usercustom" locations, you should *\*not\** copy these files to the new evj folder - please contact ExtraView Corporation for assistance. These files are likely bugfix patch classes, and are not needed in the new version.

## Upgrade the Database Schema

This step is required only if you are upgrading an existing version of ExtraView. If you are performing a new installation, you will have been provided with a database backup file that you will import into your Database installation instead. You can skip to the section that matches your selected Database - [Oracle](#), [SQL Server](#), or [MySQL](#) Database Configuration now.

You must backup your database before performing this step. ExtraView Corporation cannot guarantee that upgrades will complete successfully, therefore it is essential that you are able to revert to your existing installation.

You should take a full export of your database before running any of the following upgrade scripts. This will allow you to roll back to the previous version of ExtraView if there are any problems arising from the upgrade. Edit the following file:

```
C:\ExtraView\Tomcat7\webapps\evj\WEB-INF\data\runWindows.bat
```

Replace the following lines with the appropriate values for your system:

```
runPatches.bat C:\ExtraView\jre7-67 C:\ExtraView\Tomcat7 C:\ExtraView\Tomcat7\webapps\evj
```

Replace C:\ExtraView\jre7-67 with your path to your Java

Replace C:\ExtraView\Tomcat7 with your path to your Tomcat

Replace C:\ExtraView\Tomcat7\webapps\evj with your path to your evj folder.

Now save and exit from the editor.

To upgrade the database, now run runWindows.bat from a Windows/DOS Command line so that you can monitor the progress of the upgrade.

The upgrade process initiated by the above command looks at your installation to determine exactly which version of code and which version of the database schema is active. The process will then apply all the patches to bring your system up to the current level. Some patches are very simple, some are more complex, and the time taken is dependent on the amount of data in your database.

As the individual patches are applied, you will see many lines of text scroll past on the screen. At some point, depending on the amount of data in your system, the patches may appear to “hang” while they perform large operations on the database – allow a reasonable amount of time (possibly 20 minutes or more) before you assume there is a problem with any individual part of the upgrade process. If you have any questions, please contact ExtraView Corporation.

Once the script has finished running, and you are returned back to a command prompt, and your upgrade to the database is complete.

For your reference, there is a log of the changes made to the database in the directory named C:\ExtraView\Tomcat7\webapps\evj\WEB-INF\logs. These are held in a .log file (the exact name is specified in the Configuration.properties file). It is recommended that you save that file until you have verified your upgrade, so that the ExtraView Support can review this with you if you run into any issues. You can look through the log file to observe if any errors were generated during the upgrade process.

## Oracle Database Upgrade Requirements

This step is only required if you are running Oracle as your database. ExtraView has been affected by bugs in a number of Oracle releases. If you are running a version of Oracle prior to Oracle 11.2.0.2, you should upgrade your installation. If you have access to Oracle Metalink, you should download the patch set from there. If not, ExtraView Corporation can provide you with information on how to retrieve the appropriate patch set.

## Microsoft SQL Server Database Upgrade Requirements

This step is only required if you are running SQL Server as your database. ExtraView now requires SQL Server 2008 or later. If you are running an earlier version, you must upgrade your software.

## MySQL Database Upgrade Requirements

This step is only required if you are running MySQL as your database. ExtraView now requires MySQL 5.6. If you are running an earlier version, you must upgrade your software.

## Restart ExtraView

At this point, the install or upgrade process is complete.

You must stop and restart the Tomcat and Apache servers before signing on to ExtraView.

To stop and restart both Apache and Tomcat, use the Windows **Services** administration utility. Point to each of the Apache and Tomcat services and use the **Restart** button.

You should now be able to log in to ExtraView. If you have problems, consult the troubleshooting section in the Guide.

## Activation Key

When upgrading from a version of ExtraView older than 6.2, you must obtain a new activation key from ExtraView support. You will not be able to start the ExtraView application without this new activation key.

When you first log in to ExtraView after restarting Tomcat, you will see the following screen that allows you to upload the new activation key. You can also upload the activation key from the **Administration** menu, by clicking on the **Upload Activation Key** function.

The screenshot shows a web browser window titled "Upload Activation Key File". At the top right, there are three buttons: "Upload File", "Return", and "Print Page". The main content area is divided into three sections:

- Directions:** A text box explaining that a valid activation key file must be uploaded. It states that the file will be emailed to the user by ExtraView Corporation. Below this are two numbered steps:
  - 1 Press the **Browse** button and select the activation key file to install
  - 2 Press the **Upload File** button and the activation key file will be installed.
- Current License Details:** A section showing "Number of named users: 0" and "Number of licensed users: 11".
- Actions:** A section with the text "Choose activation key file to upload" and a text input field followed by a "Browse..." button.

At the bottom right of the window, there are three buttons: "Upload File", "Return", and "Print Page".

Following the successful upload of a valid activation key, you will see a verification screen that displays

the details of the key.

## Post-Upgrade Tasks

### Version Check

Start the ExtraView server and check the message at the bottom of the screen, beneath the ExtraView copyright. If there is a message such as **Schema Version(mismatched) Release x.x.x Build nn**, then the upgrade was not successful and you should contact ExtraView support for further assistance.

### End User Action

The JavaScript in this version of ExtraView contains many enhancements. Most users' browsers cache the JavaScript, so please communicate to your users that they should clear their JavaScript browser cache. Failure to do this can lead to unexpected errors.

In Internet Explorer, **Tools --> Internet Options --> Delete ... ---> Check Temporary Internet Files --> Delete.**

In Firefox, **Tools --> Options --> Clear Recent History ---> Check Cache --> Clear Now.**

In Safari, **Tools (Gear Icon) --> Reset Safari --> Check Empty the cache --> Reset.**

In Chrome, **Tools (Wrench icon) --> Options --> Clear Browsing Data ---> Check Empty the cache --> Clear browsing data.**

### Navigation Bar

Some navigation bar themes have been altered in ExtraView 9.0, to accommodate additional buttons. If your navigation bar is partially obscured, or otherwise looks incorrect, go to **Admin, Initial Setup Menu, User Interface Themes** and select the theme of your choice. Please note that vertical style navigation bars are no longer supported.

If you have a custom set of Navigation bar images, and you are upgrading from ExtraView 8.0 or older, please note that the image names for the buttons have changed. Please reference the [Images documentation](#) for a list of the new menubar images that are required.

### Business Rules

You will only have to perform this step if you are upgrading from a release earlier than 4.3.6 and you have been using the ExtraView Business Rules. The rules have been moved from the rules.txt file into the database. Log in to ExtraView as an administrator user and go to Administration --> Workflow --> Setup and Maintain Business and Email Rules. Copy the contents of the file:

```
evj_old/WEB-INF/configuration/rules.txt
```

into the rules section on the screen, and then press Update to save your changes.

### "HTML\_PRE\_xx" and "HTML\_POST\_xx" Fields

Data dictionary fields that begin with the characters `HTML_PRE_` and `HTML_POST_` are used to introduce formatting, such as shaded regions, onto add and *edit* screens. Beginning with ExtraView version 6.2, the syntax of the rules associated with these fields has altered, to accommodate Ajax refreshes and the need for precise HTML syntax within the browser for the advanced features offered with ExtraView 6.2. This provides for much improved performance for users. Wherever possible, the upgrade script rewrites the rule using the new syntax. However, not all such rules can be converted automatically. During the upgrade process, an entry is made into the ExtraView log that shows which rules were converted, and which were not. The consequence of not having valid syntax in the rule will be that the display will look incorrect. Functionality should not be affected. The intent of the `HTML_PRE_` and `HTML_POST_` functionality is to recognize that each row in an ExtraView layout is a complete row surrounded by `<tr>` and `</tr>` tags. We therefore need to inject a complete and valid row into the middle of an existing table which is the ExtraView layout. The layout rows within the `HTML_PRE_` and `HTML_POST_` therefore emulate a table with the same number of columns as that in the layout and keeps the HTML syntax complete and accurate. An example of a `PRE_HTML_` rule that might exist in your old site that could not be converted automatically is:

```
HTML_PRE_COMMENTS = "<!-- generated valid html - don't escape! --><div id=my_div style='display:none; background-color:#F5F5FF'><table><tr>";
```

The new format for the `HTML_PRE_` rule is:

```
HTML_PRE_COMMENTS = "<tr><td></td><td colspan=7><div id=my_div style='display:none; background-color:#F5F5FF'><table><tr><td>";
```

The need for the string `<!-- generated valid html - don't escape! -->` has been eliminated. The `<td></td><td colspan=7>` section first emulates an empty column where the field label normally resides and then spans the remainder of the columns of the layout. If you have a layout with 3 columns, the number 7 becomes 5. with 4 columns you use a span of 7, etc. An example of a `HTML_POST_` rule that might exist in your old site that could not be converted automatically is:

```
HTML_POST_COMMENTS = "<!-- generated valid html - don't escape! --></tr></table></div>
```

The new format for the `HTML_POST_` rule is

```
HTML_POST_COMMENTS = "</table></div></td></tr>
```

Again, the string `<!-- generated valid html - don't escape! -->` is not required, and the rule is simply closing the open table row from the `HTML_PRE_` comments, then closing the open table, then closing the open div tag.

## Removing the External BatchMail Utility

If you are upgrading from a version of ExtraView previous to version 6.0, you will have previously installed a standalone utility named BatchMail on your server. This utility was used to deliver outbound ExtraView email notifications. Starting in version 6.0 this utility is built into the ExtraView application, so during the upgrade to 6.x, you should turn off and/or uninstall the standalone BatchMail utility.

BatchMail is generally installed in `C:/Extraview/BatchMail` and is controlled via a Windows service. You should stop the `ExtraViewBatchMail` service and change it so that it does not start automatically.

Once you have completed the upgrade and verified that all is working, you can return to this guide and complete the un-installation of the `ExtraViewBatchMail` service. We recommend that you wait until you

are satisfied with the upgrade before completing this step, so that you can roll back to your previous version of ExtraView if need be.

The scripts for your BatchMail installation can usually be found in C:\ExtraView\BatchMail\scripts\.

If you are using BatchMail as a Windows Service, you will need to remove the service.

In your BatchMail/scripts folder, you should have the file ExtraViewBatchMail.exe.

Start a Windows Command prompt and run the following command: ExtraViewBatchMail -uninstall ExtraViewBatchMail

## If you Upgraded from ExtraView 5.3 or Earlier

If you have upgraded from a very early version of ExtraView and your users do not see many of their reports, then this is due to security permission settings not being correct for these reports. Go to **Admin, Fields & Layouts, Grant Security Privileges**, and choose the **\* Permissions to a group of keys \* Access to query and report permission settings** entry on the select list. Set the permissions for each user role as appropriate for each of the report types.

## Configuring the Built-in BatchMail Task

ExtraView will generate outbound email messages when issues are created or updated, when escalation routines are triggered, or when the Ad Hoc Email feature is used. These email message files are saved to a folder on the application server, defined in the EMAIL\_DIRECTORY behavior setting. There is only one EMAIL\_DIRECTORY location per ExtraView application – regardless of whether you are running a single instance, or if you are clustered or load-balanced across one or more servers.

The BatchMail task is a utility that polls the EMAIL\_DIRECTORY location on a timed basis, and if it finds any email messages in the folder, it uses your mail server to deliver the email message to the recipients specified. When performing an upgrade from a version of ExtraView with an external BatchMail program, it is best to start with a new internal BatchMail task.

At this point, check the BatchMail task in the Manage Tasks and Threads utility, and if one exists in your installation, it is recommended that you delete this. The following steps will copy over the BatchMail configuration from your previous version, then allow you to configure BatchMail as an internal ExtraView task.

To configure the BatchMail utility, you must set the SMTP server and mail directory locations. Within the ExtraView administration screens, you will then create and configure a BatchMail Task, and configure the application to write the email messages in the EMAIL\_DIRECTORY location.

Now, copy over the old BatchMail.properties configuration file, from the **evj.old/WEB-INF/configuration/** directory to the new **evj/WEB-INF/configuration/** directory.

In order to activate email notification, the following behavior settings must be configured from the ExtraView web interface.

In the ExtraView administration utility **Email Settings**, set the following behavior settings:

Entry	Purpose
EMAIL_DIRECTORY	Must be set to the same value as MAIL_DIR in BatchMail configuration file. This is C:\ExtraView\Tomcat7\webapps\evj\
WEB-INF/mailbox	In the example above. Both the application servers and the BatchMail services must have read and write access to this location
EMAIL_FROM_USER_ID	Must be set to a valid email address
EMAIL_NOTIFICATION	Must be set to YES for email notification to be turned on

You can get more information about the other email settings in the Administration Guide.

Now set up the BatchMail Task. Go to the ExtraView administration utility **Manage the Background Tasks**.

First, verify that you currently have at least 2 each of SESSION\_MONITOR and TASK\_CONTROL\_TASK tasks in the list, and that at least one of each of these tasks has a current status of STARTED.

Click on the **Add** a new task button.

From the drop down Task name list, select Batch mail. Enter a title for this new task.

From the Node ID drop down list, select the node on which you wish to run the BatchMail task. If you have a standard installation, the current node id will be WS\_A (this is the WEB\_SERVER\_NAME value from the Configuration.properties file for the current instance).

If you are running in a clustered or load-balanced environment, and if all of the instances (nodes) are on the same server, you should set up one BatchMail task to be shared by all nodes. If each node is on a separate server, you can either set the MAIL\_DIR to a location accessible by all nodes and have a single task on one node, or you can build a location mapping to MAIL\_DIR on each node, and have each node running its own BatchMail task.

## Install Perl & Command Line Interface

The ExtraView Command Line Interface is an optional component that requires the Perl interpreter to be installed first. Check the [software requirements page](#) for the recommended version of Perl for your computer system. Assuming you are installing Strawberry Perl, it is a three-step process to install the CLI.

### 1. Download and Install Perl with Required Modules

Download the appropriate version of Perl for your computer system (see [www.perl.org](http://www.perl.org)). Assuming you are installing Strawberry Perl, it is downloaded in a file named similarly to strawberry-perl-5.12.3.0.msi. Click on the file and install by following the instructions. When asked to select an install folder, enter C:\ExtraView\Perl, or another convenient location on your client computer from which you will run the CLI.

With the downloaded Perl modules, install each of these in turn by using the `cpan` command that comes with your Perl installation. For example, use `cpan Mail::Sendmail` to install the Sendmail module. The install process should be repeated for each of these files:

```
Mail::Sendmail Mail::POP3Client Mail::Sender MIME::Parser HTML::FormatText
```

## 2. Download and Install the CLI

Download the CLI from the ExtraView Support site download page. The download file is named `evcli_win.zip`.

If you are upgrading, you may have a directory named `evapi` or `evcli`. The new package will have a version-specific name. For the upgrade, simply copy the configuration file from your existing directory to the new directory created during the CLI installation, and start using the new version of the CLI commands.

Extract the files contained in the download file using an archive program, such as WinZip, into a separate directory for the CLI commands. For example, extract the CLI files in the following directory:

```
C:\ExtraView\evjNNN_evcli
```

Next, build the batch scripts for the CLI commands by executing the following commands with the paths appropriate for your system in a Command Prompt window:

```
cd C:\ExtraView\evjNNN_evcli
C:\ExtraView\Perl\bin\perl mkbat.pl -p "C:\ExtraView\Perl\bin\perl"
```

Next, edit the file `evconfig.txt` with a text editor, such as Notepad, to configure the CLI to connect to your ExtraView server. Set the `SERVER` setting to the URL of your ExtraView server. For example:

```
SERVER = extraview.yourdomain.com/evj/ExtraView
```

## 3. Test your Installation

Once the installation process completes successfully, run the `perl` command with the `-v` option in a Command Prompt window to make sure that the Perl interpreter can run. For example:

```
C:\ExtraView\Perl\bin\perl -v
```

The command should print some information about the version and license of the Perl interpreter installed. If the command does not run successfully, make sure that you are using the correct path to the `perl` executable file (i.e., `perl.exe`).

Lastly, test the CLI to make sure that it works and can communicate with the ExtraView server by executing the following commands in a Command Prompt window:

```
cd C:\ExtraView\evjNNN_evcli\bat evcheck
```

The `evcheck` CLI command will prompt you for a username and password and then attempt to access the ExtraView server with your credentials. The command prints information about the server,

version, and other settings. For example:

```
config file: C:\ExtraView\evjNNN_evcli\evconfig.txt
server: http://extraview.yourdomain.com/evj/ExtraView/ev_api.action
evapi version: Release 7.0.2 Build 65
modtime: 12/31/2011 05:10 PM
user: username - from command line
delimiter: :
```

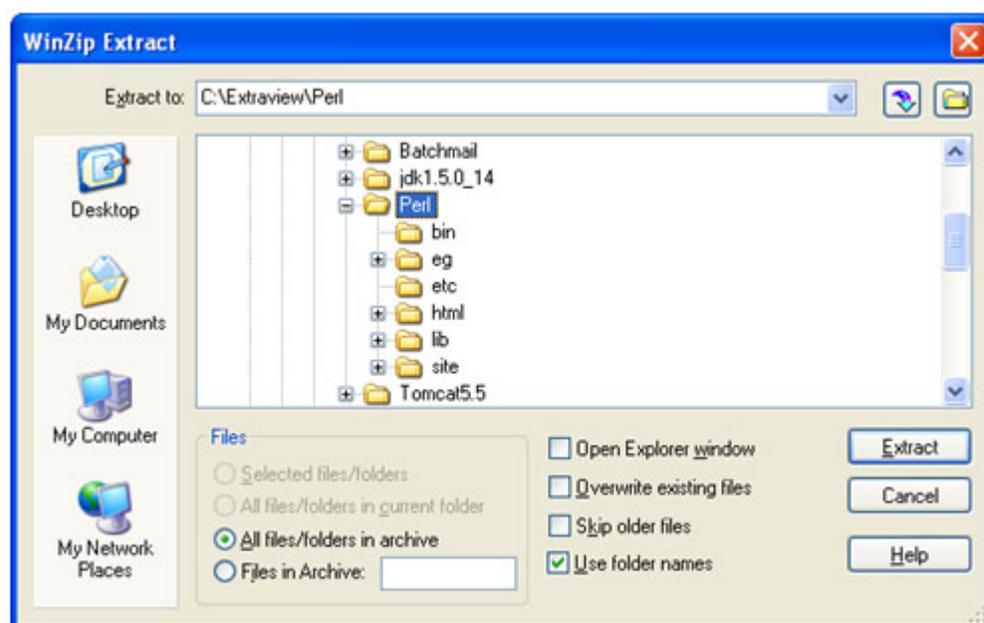
## Install the Command Line Interface

The ExtraView Command Line Interface is an optional component. First you must install the [recommended version](#) of Perl on your computer. The open source version can be downloaded from [www.perl.org](http://www.perl.org), or you may purchase a commercially supported version from [www.activestate.com](http://www.activestate.com). Install Perl before completing the remainder of these steps.

Download the CLI from the ExtraView Support site download page. Download the file named `evcli_unix.tar` and expand this file into a folder on your computer from where you will run the CLI.

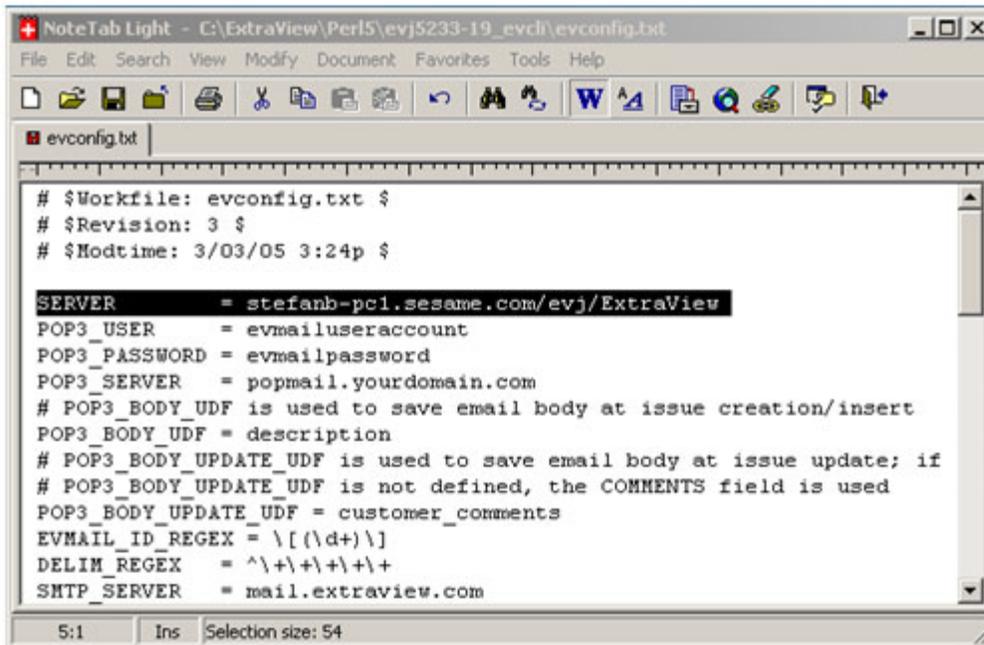
If you are upgrading, you may have a folder called `evapi` or `evcli`. The new package will have a version-specific name.

Use WinZip or a similar utility to expand the file. When asked to select a folder to extract to, enter `C:\ExtraView\Perl5`, or the corresponding folder for your system. A directory named `evjXXX_evcli` will be automatically appended to the path that you select where XXX is the version number of ExtraView.



Edit the configuration file `C:\ExtraView\Perl5\evjXXX_evcli\evconfig.txt` for the following entry:

```
SERVER - URL to your ExtraView site using the syntax extraview.yourdomain.com/evj/ExtraView
```



```

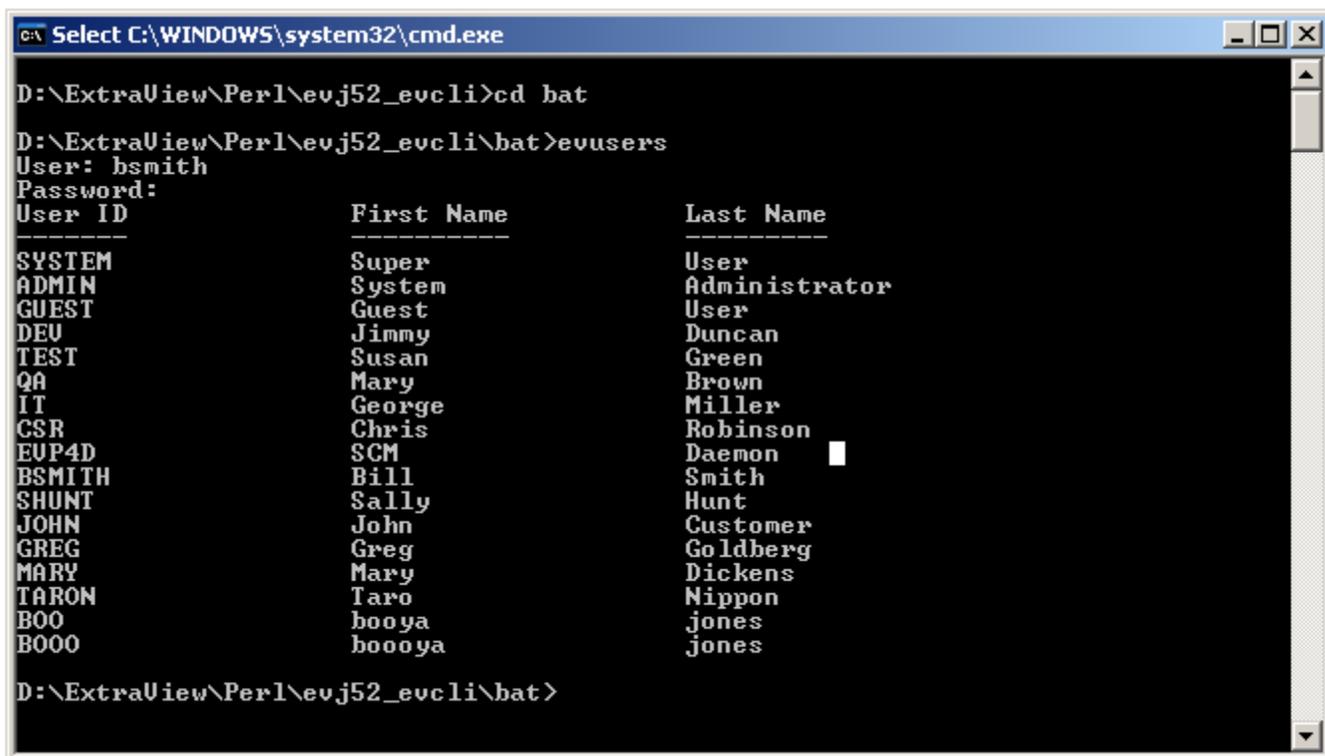
NoteTab Light - C:\ExtraView\Perl5\evj5233-19_evcli\evconfig.txt
File Edit Search View Modify Document Favorites Tools Help
evconfig.txt
# $Workfile: evconfig.txt $
# $Revision: 3 $
# $Modtime: 3/03/05 3:24p $

SERVER = stefanb-pc1.sesame.com/evj/ExtraView
POP3_USER = evmailuseraccount
POP3_PASSWORD = evmailpassword
POP3_SERVER = popmail.yourdomain.com
# POP3_BODY_UDF is used to save email body at issue creation/insert
POP3_BODY_UDF = description
# POP3_BODY_UPDATE_UDF is used to save email body at issue update; if
# POP3_BODY_UPDATE_UDF is not defined, the COMMENTS field is used
POP3_BODY_UPDATE_UDF = customer_comments
EVMAIL_ID_REGEX = \[(\d+)\]
DELIM_REGEX = ^\+|\+|\+|\+
SMTP_SERVER = mail.extraview.com

5:1   Ins   Selection size: 54

```

In order to use the CLI, double-click on the file named C:\ExtraView\Perl5\evjXXX\_evcli\evstart.bat. This is where you type in your CLI commands. For an extensive explanation of the CLI, refer to the ExtraView CLI and API Guide



```

C:\ Select C:\WINDOWS\system32\cmd.exe
D:\ExtraView\Perl\evj52_evcli>cd bat
D:\ExtraView\Perl\evj52_evcli\bat>evusers
User: bsmith
Password:
User ID          First Name      Last Name
-----
SYSTEM          Super          User
ADMIN           System        Administrator
GUEST           Guest          User
DEV             Jimmy          Duncan
TEST           Susan          Green
QA              Mary           Brown
IT              George         Miller
CSR             Chris          Robinson
EVP4D          SCM            Daemon
BSMITH         Bill           Smith
SHUNT          Sally          Hunt
JOHN           John           Customer
GREG           Greg           Goldberg
MARY           Mary           Dickens
TAROM          Taro           Nippon
BOO            booya         jones
BOOO           boooa         jones

D:\ExtraView\Perl\evj52_evcli\bat>

```

## Oracle Database Configuration

### Creating the Database User and Tablespaces

It is important that the database is created using the AL32UTF16/UTF8 character set. This step assumes that Oracle is already operational. It is recommended that an Oracle DBA carry out this step. To run the

required scripts and database import, you must be signed in to the target computer as the oracle user. You must also have access to the Oracle system user.

The first script will create four tablespaces required by ExtraView. When you run the script, you will be prompted for location of the data files. You can spread these out if you wish, or keep them in one directory (for example /oracle/oradata/ev). The script supplied allocates four tablespaces. If the size of your installation suggests you need differently sized tablespaces, this script can be modified. Please consult with ExtraView if you require help for this stage.

The second script will create the extraview user account within Oracle. Note that you must supply a password. Please ensure you keep a record of the password for future access. You will also need this in the installation process when you configure the Apache Tomcat application server.

Note: The time taken for the system to create and format the tablespaces is dependent on the size you select.

## Oracle 11g Configuration Requirement

There is a default setting in Oracle 11g, that must be changed before you import the ExtraView database.

```
ALTER system SET deferred_segment_creation=false;
```

For information on this setting, please refer to <http://www.dbsnaps.com/oracle/oracle-deferred-segement-creation/>

## Required Scripts

### create\_tablespace.sql

```
CREATE TABLESPACE "EXTRAVIEW"  
LOGGING  
DATAFILE '&extraviewTsLocation/extraview01.dbf' SIZE 1000M  
EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K;  
CREATE TABLESPACE "EXTRAVIEW_IDX"  
LOGGING  
DATAFILE '&extraviewTsLocation/extraview_idx01.dbf' SIZE 1000M  
EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K;  
CREATE TABLESPACE "EXTRAVIEW_SESSION"  
LOGGING  
DATAFILE '&extraviewTsLocation/extraview_session01.dbf' SIZE 300M  
EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K;  
CREATE TABLESPACE "EXTRAVIEW_LOB"  
LOGGING  
DATAFILE '&extraviewTsLocation/extraview_lob01.dbf' SIZE 1000M  
EXTENT MANAGEMENT LOCAL UNIFORM SIZE 128K;
```

### create\_user.sql

```
CREATE USER extraview PROFILE "DEFAULT"  
IDENTIFIED BY &&PASSWORD  
DEFAULT TABLESPACE "EXTRAVIEW" TEMPORARY TABLESPACE "TEMP" ACCOUNT
```

```
UNLOCK;  
GRANT "CONNECT" TO extraview;  
GRANT "RESOURCE" TO extraview;  
GRANT CREATE TABLE to extraview;  
GRANT CREATE VIEW to extraview;  
GRANT ALTER SESSION to extraview;  
exit
```

## For Linux Installations

```
cd $INSTALL  
sqlplus system/password @create_tablespace.sql  
sqlplus system/password @create_user.sql
```

## For Windows Installations

Open a command prompt Navigate to the database directory

```
sqlplus system/password @create_tablespace.sql  
sqlplus system/password @create_user.sql
```

## Import the ExtraView Database into Oracle

Your contact at ExtraView will have provided you with a database export file, either containing a system that is designed for your company's business processes, or a standard ExtraView system. Place that file in the same directory as the two files above.

Without signing off from the computer, perform this next step. This will import the ExtraView schema and initial data into Oracle from the installation directory.

Note: if the fromuser was not specified in an email from ExtraView, it will generally be the same as the filename of the provided dmp file. For example, a file named "evt701.dmp" would have a fromuser of "evt701"

```
imp system/password file=<your company>.dmp fromuser= touser=extraview commit=y
```

## Oracle Database Maintenance

The Oracle database requires minimal maintenance, and most routine maintenance can be scheduled on your server, using cron or the equivalent with a Windows-based operating system.

Oracle internally manages recovery of space from deleted records within your database. For efficiency, however, Oracle indexes may need to be rebuilt if there is a very intense use of updates and deletes. With most usage of ExtraView, this is not the case and there is no need to rebuild indexes on a routine basis.

If you are using nightly exports for your backup, there should be no transaction logs to worry about. If you are using hot backups, then you should have a cron job that deletes the old archive log files after they are backed up.

For the best performance, one task that should be done on a regular basis is to analyze the objects in the database. These are statistics used by the Oracle query optimizer when it builds query plans. It is

recommend that you do this once per week, via a cron job, and whenever large amounts of data have been loaded using evimport, or the web-based import tool, etc. Following is an example script that can be adapted and used for this purpose. Note that you have to edit the file `oracle.env` and `analyzeExtraView.sh` and substitute the appropriate directory paths and passwords.

#### File `analyzeExtraView.sh`

```
#!/bin/bash
# source in the env file
ENV=/u01/oracle/admin/prod01/dba/oracle.env
if [ -f "$ENV" ]; then
    . $ENV
else
    exit 1
fi
SCRIPT=$DBA/analyzeExtraView.sql
LOG=$DBA/analyzeExtraView.txt
cd $DBA
if [ -f "$SCRIPT" ]; then
    sqlplus $EXTRAVIEW_AUTH @$SCRIPT
else
    exit 1
fi
mail -s "Analyze schemas for $ORACLE_SID" $NOTIFY < $LOG
rm -f $LOG
```

#### File `analyzeExtraView.sql`

```
SET SERVEROUTPUT ON SIZE 5000
set echo off
set linesize 400
set term on
set feedback off
set head off
set pages 0
set verify off
spool analyzeExtraView.txt
exec DBMS_OUTPUT.PUT_LINE('Analyzing objects ' || to_char(sysdate, 'dd-MON-yyyy hh24:mi:ss'));
exec dbms_utility.analyze_schema(USER, 'COMPUTE');
exec DBMS_OUTPUT.PUT_LINE('Done analyzing objects ' || to_char(sysdate, 'dd-MON-yyyy
hh24:mi:ss')); spool off
exit
```

#### Entry for the crontab table

```
#MI HH DOM MOY DOW
13 01 * * * /u01/oracle/admin/prod01/dba/analyzeExtraView.sh
```

#### Entries in the `oracle.env` file

```
#!/bin/bash
# Oracle Environment
export ORACLE_BASE=/u01/oracle
export ORACLE_HOME=/u01/oracle/product/9.2
export ORACLE_SID=ev
export ORACLE_TERM=xterm
export NLS_LANG=American_America.UTF8;
export ORA_NLS33=$ORACLE_HOME/ocommon/nls/admin/data
export LD_LIBRARY_PATH=$ORACLE_HOME/lib:/lib:/usr/lib:/usr/local/lib
# Set shell search paths export PATH=$PATH:$ORACLE_HOME/bin:$PATH:/bin
```

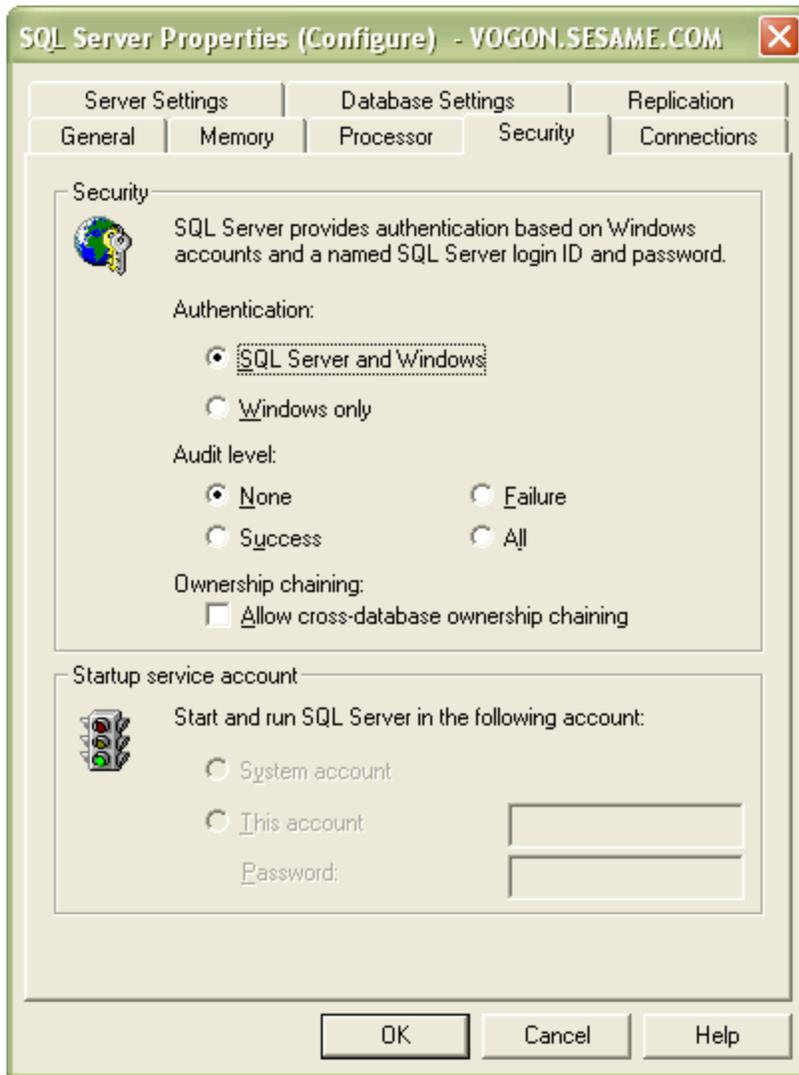
```
# admin directories
export UDUMP=$ORACLE_BASE/admin/$ORACLE_SID/udump
export BDUMP=$ORACLE_BASE/admin/$ORACLE_SID/bdump
export ARCH=/u02/oracle/arch/$ORACLE_SID
export BIN=$ORACLE_BASE/admin/$ORACLE_SID/bin
export DBA=$ORACLE_BASE/admin/$ORACLE_SID/dba
# misc
export SYSTEM_AUTH=system/XXX
export EXTRAVIEW_AUTH=extraview/XXX
export TODAY=$(date +%d-%b-%y)
export NOTIFY="valid email address"
export BACKUP_DIR=/u03/oracle/backup
export LOG=/tmp/log.txt
```

Finally, make sure you have Oracle's cursors configured to an adequate number. In a typical database installation, please configure at least 1,000, but if you are likely to support hundreds of concurrent users, consider a higher number. This is an inexpensive resource and there is little downside to configuring a large number of cursors.

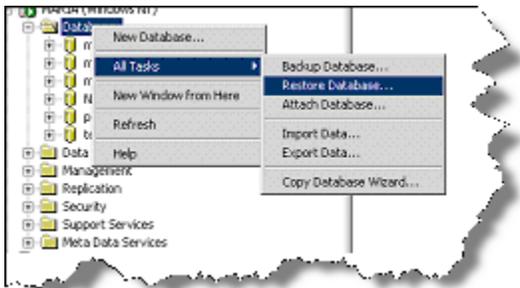
## SQL Server Database Configuration

### Importing an ExtraView Backup Database into MSSQL

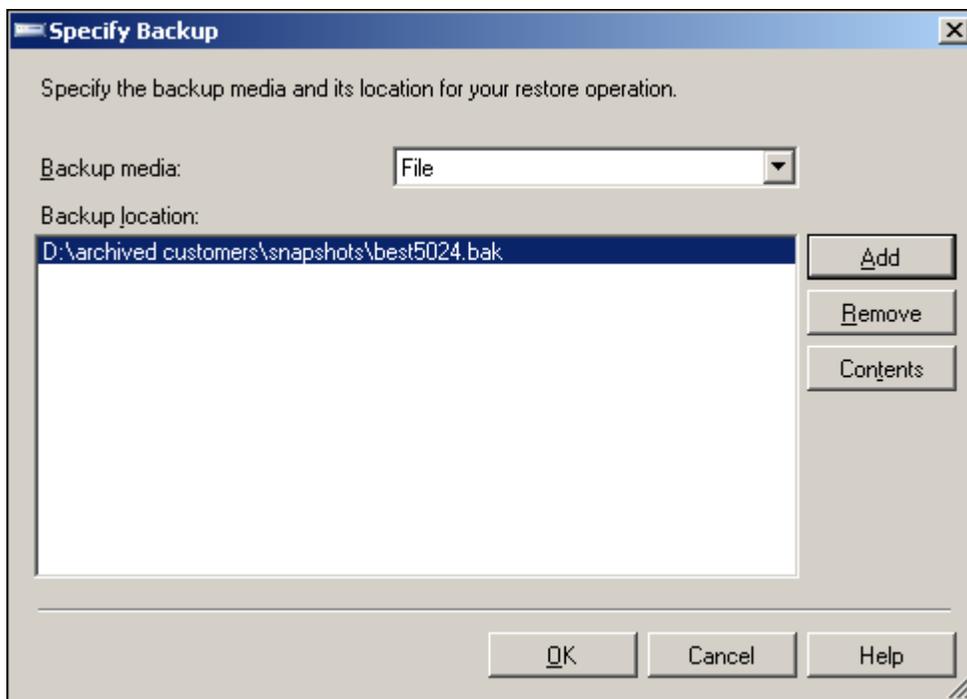
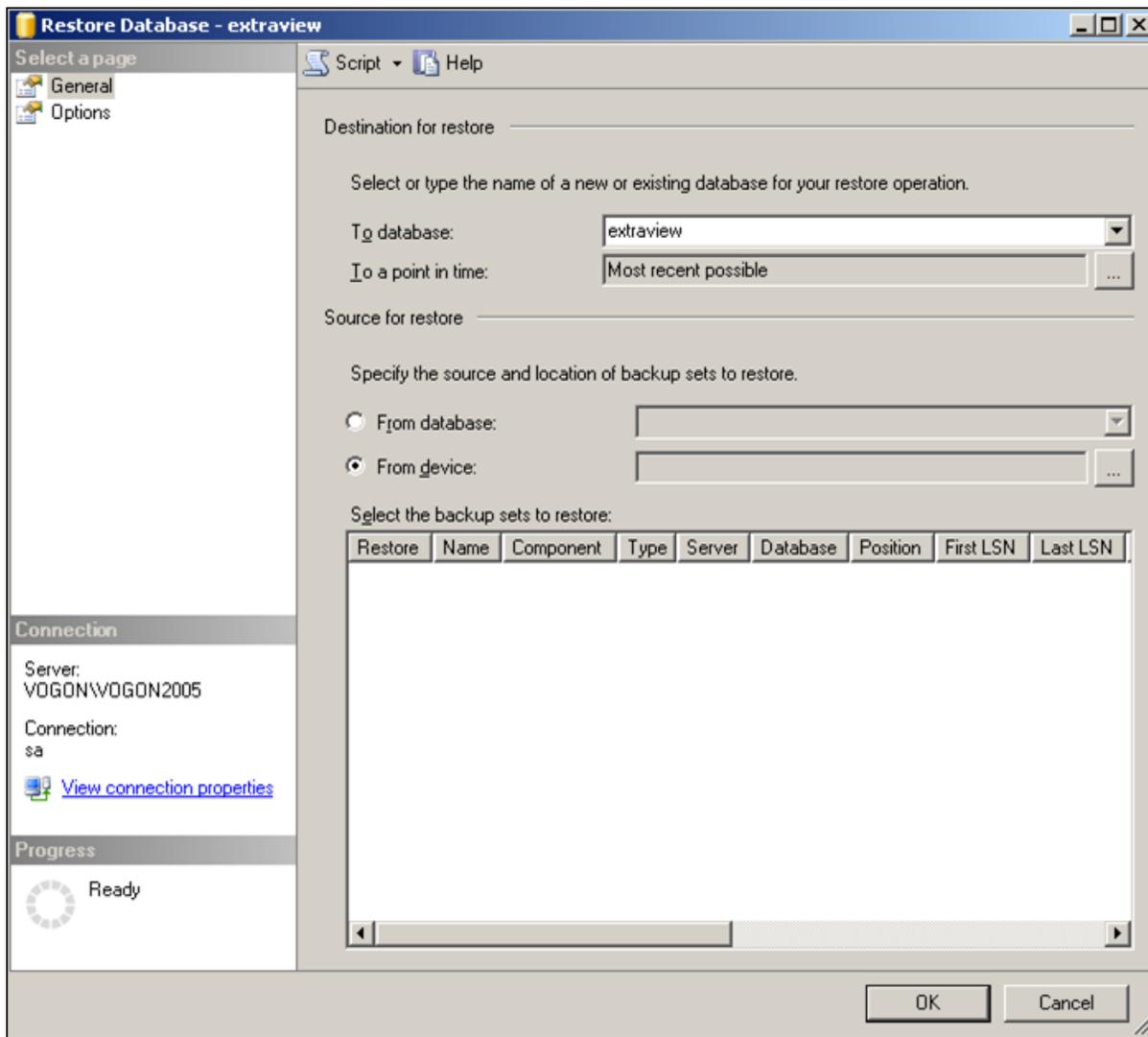
This step assumes that SQL Server is already installed and operational. It is recommended that an MSSQL DBA carry out this installation according to the instructions provided by Microsoft. One small point, is that you should ask the DBA to check that the character set and collation were set correctly. It is recommended that you use the Latin1 General, Case Insensitive, Accent Sensitive character options. Your contact at ExtraView will have provided you with a database backup file, either containing a system that is configured for your company's business processes, or a standard, empty ExtraView system. You will have been provided you with a file with a name like xxx.bak from ExtraView, containing the backup of the database you are going to import into your installation.



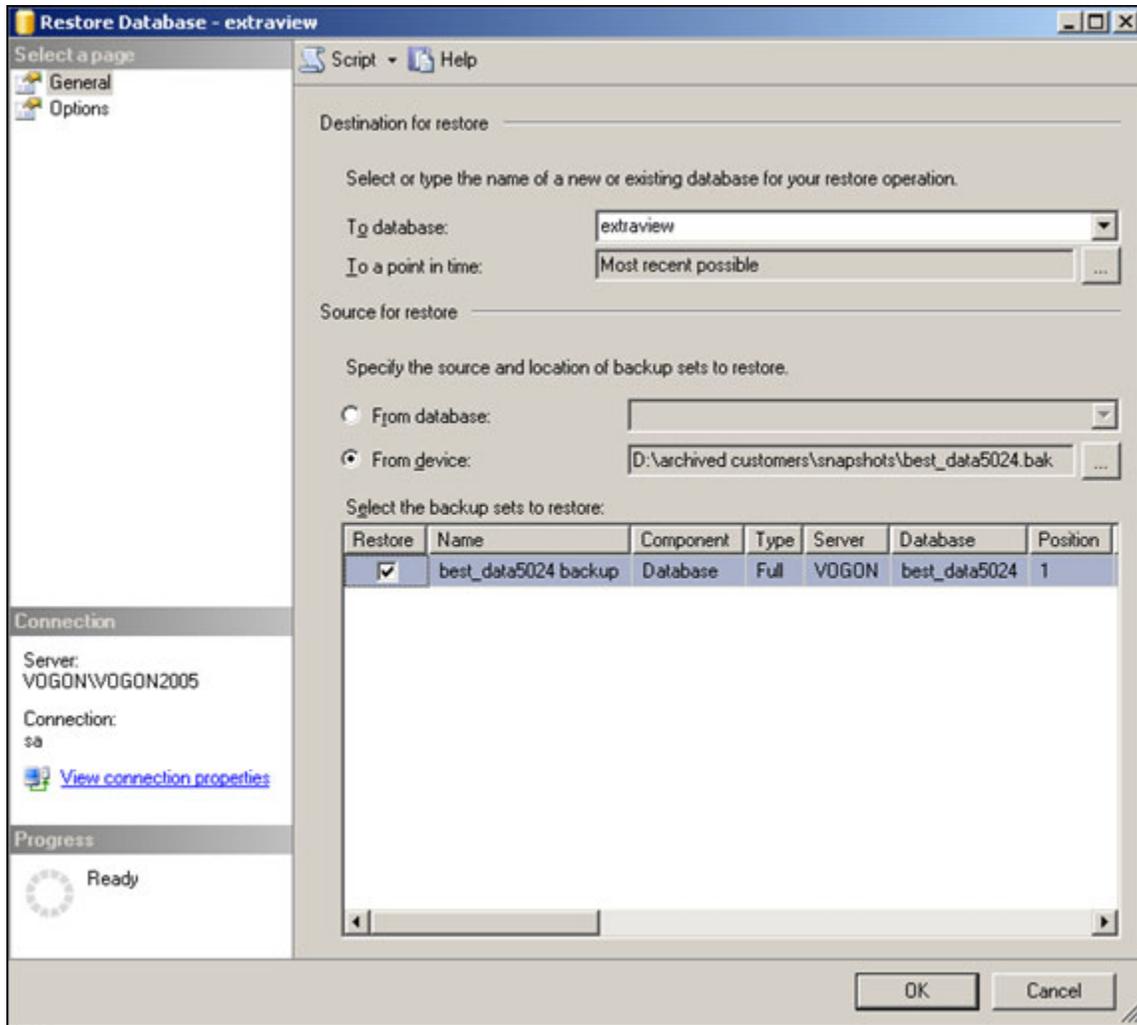
In the SQL Server Enterprise Manager, right click on the name of the database server, and choose Properties. Under the **Security** tab, make sure to set **SQL Server and Windows** rather than **Windows only**. Open the SQL Server Management Studio. Right-click on **Databases** --> **Restore Database...** You will see the “Restore database” dialog. Enter selections as below. Make sure to edit the physical file name and path to reflect your MSSQL installation.



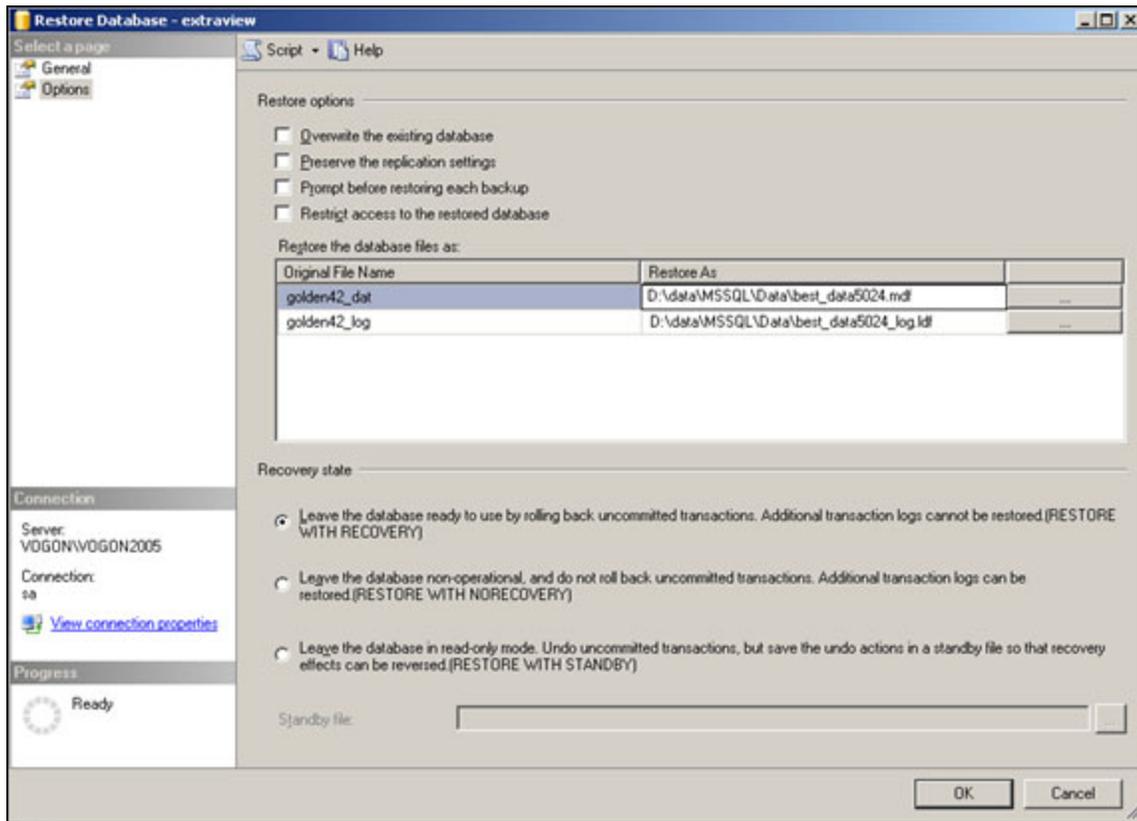
You will get the **Restore Database** dialog. Enter selections as below.



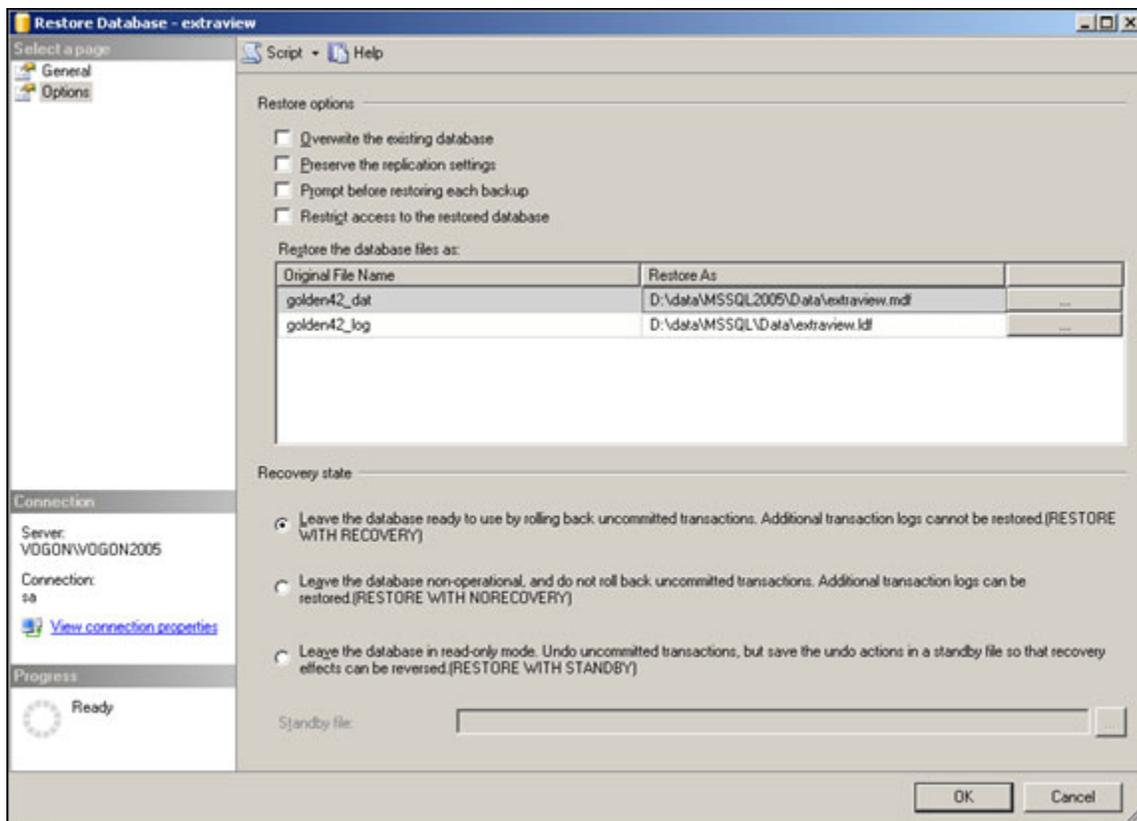
Browse to the location where you saved the .bak file and select it.

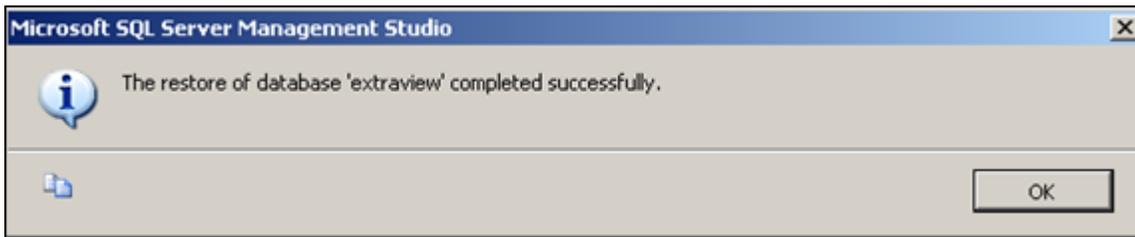


Once you have selected the file to restore, mark the checkbox next to the selected database.

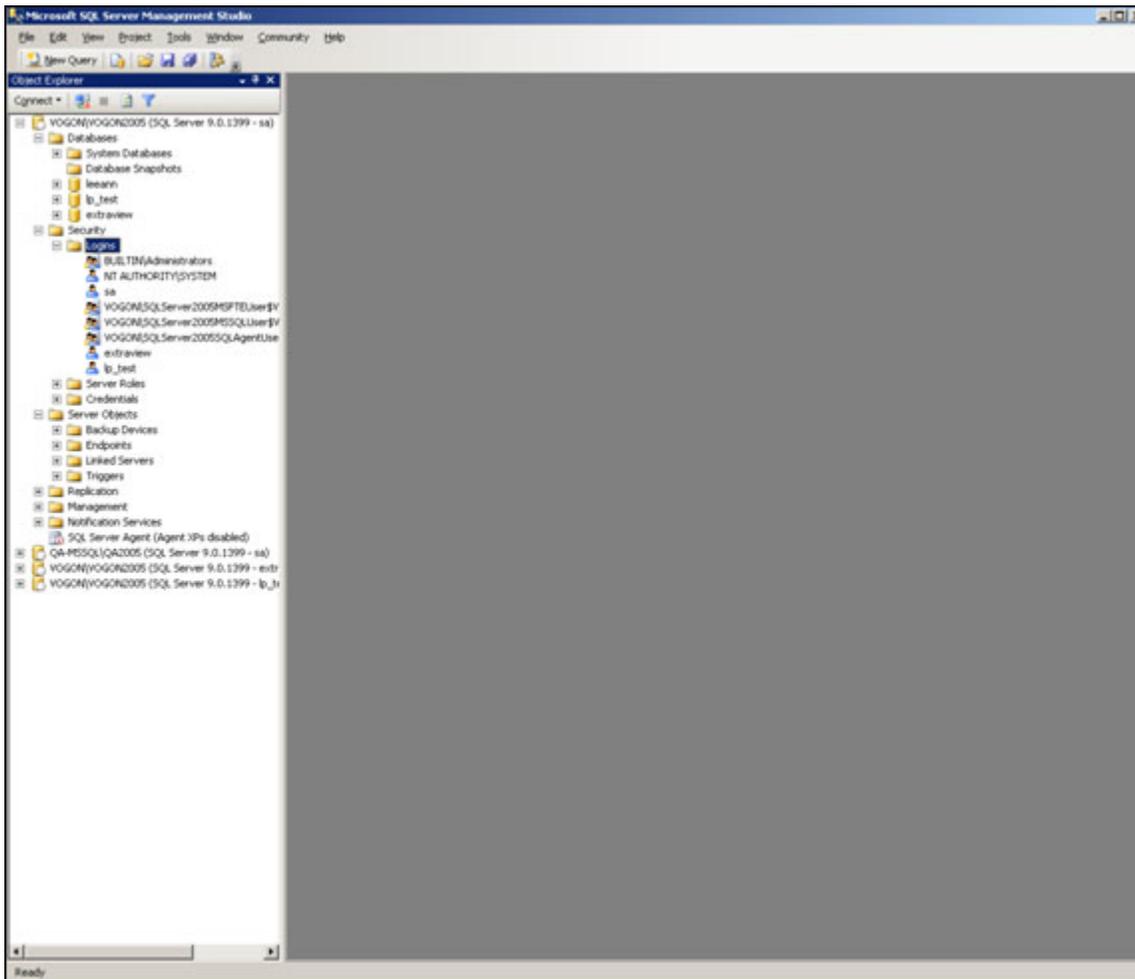


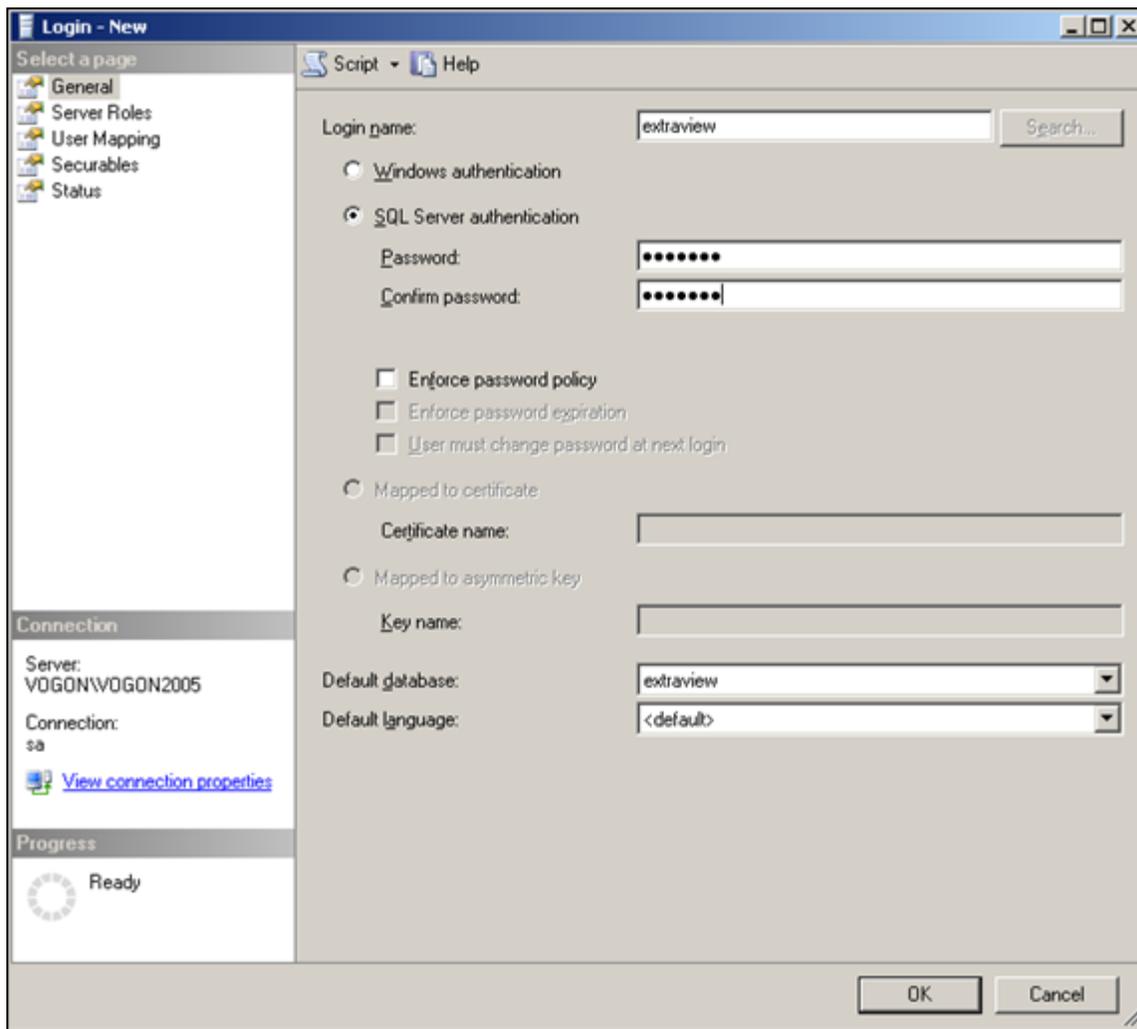
Make sure to edit the physical file name to reflect your MSSQL installation.



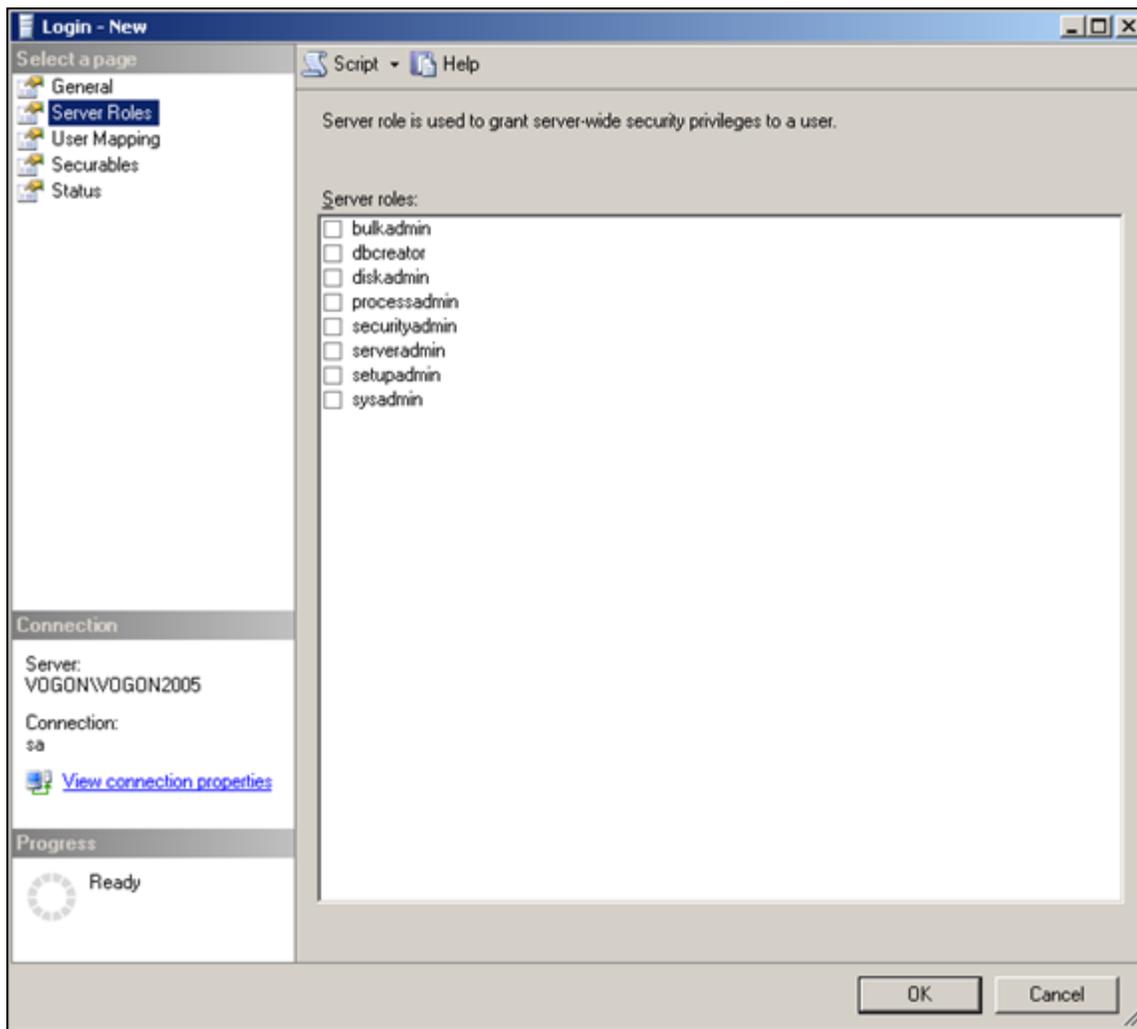


Now, create the ExtraView login in the database by clicking the **New Login** icon on the toolbar.

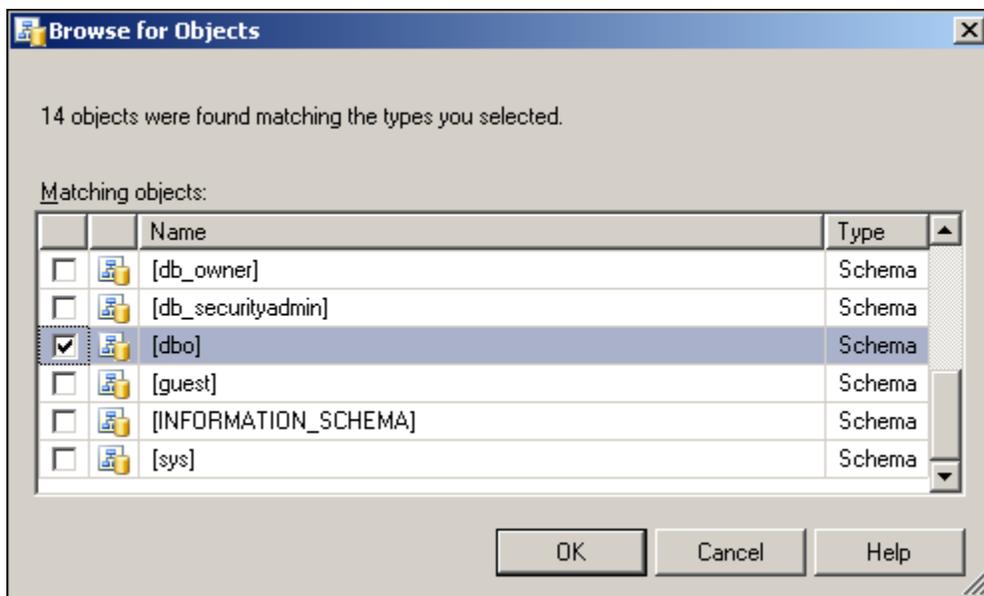




Create a new database user named extraview, which has the default database of extraview.

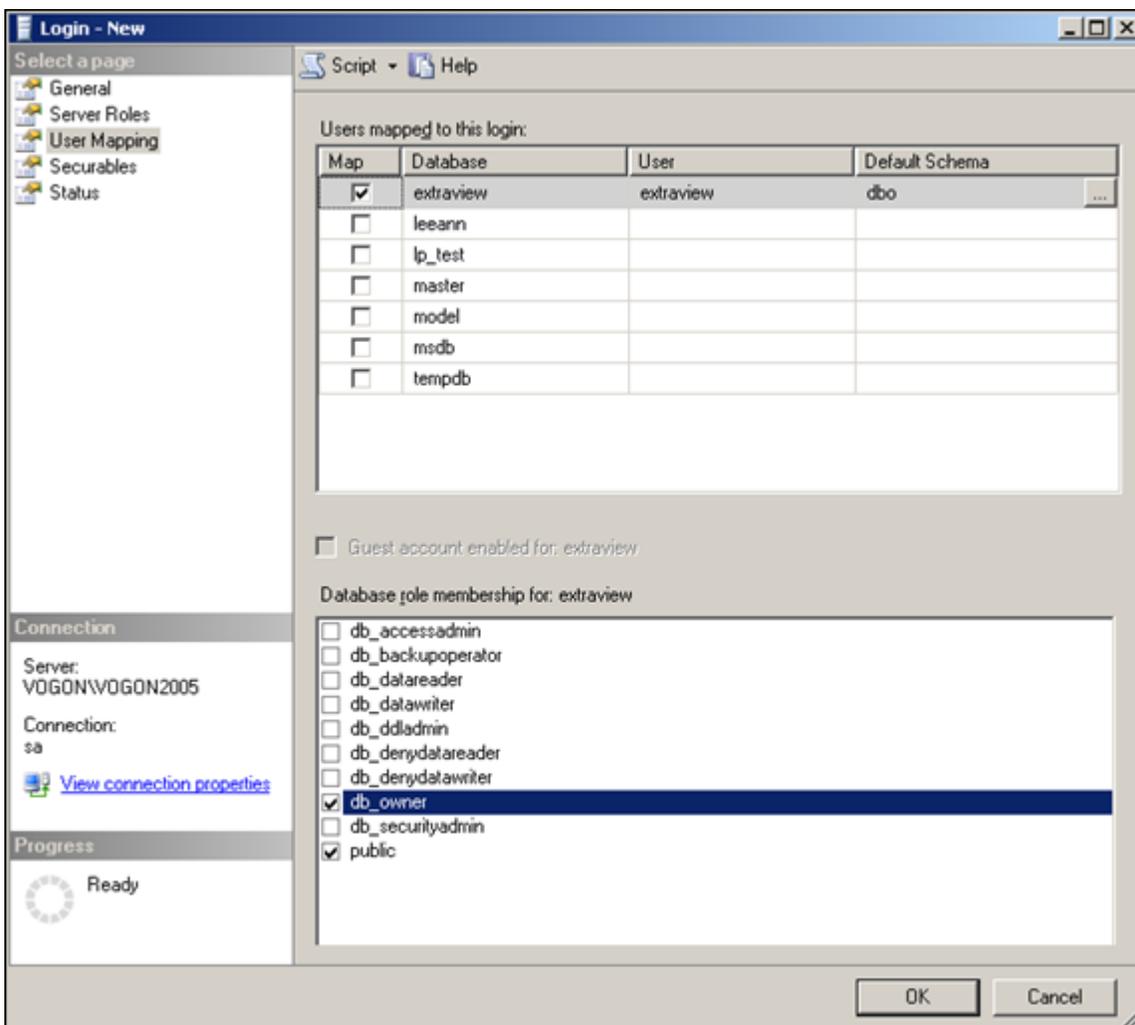
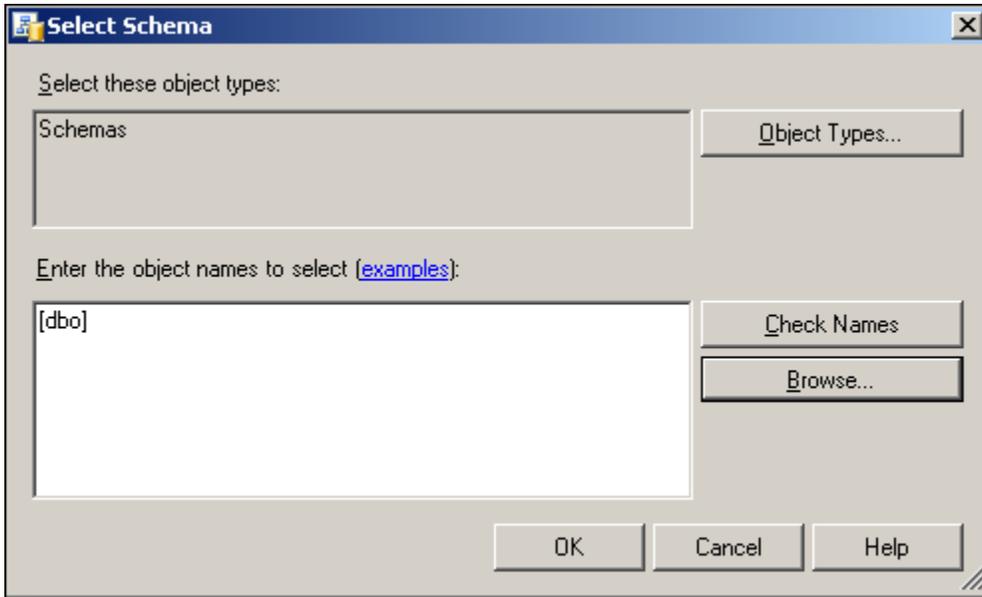


There is nothing to select on **Server Roles**.

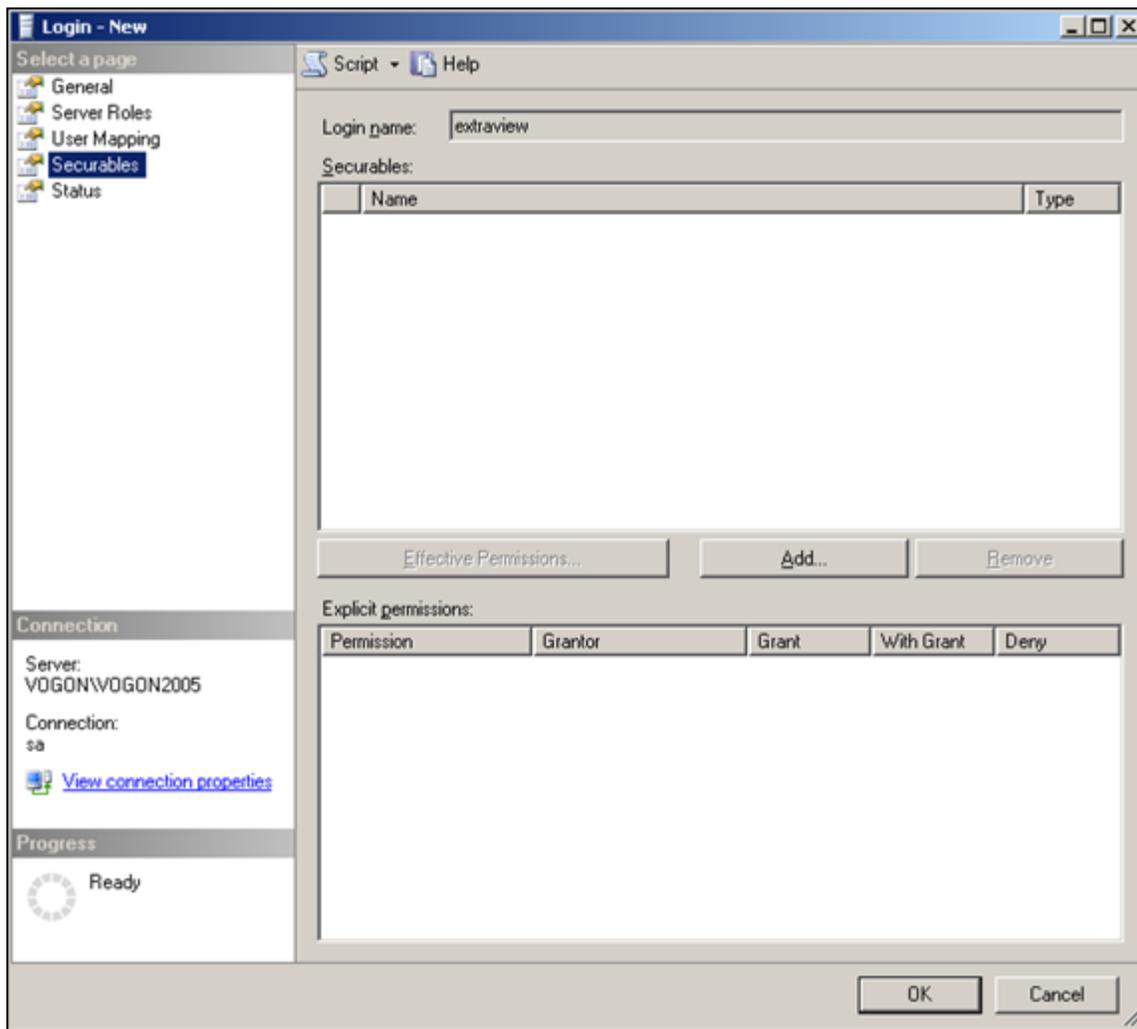


For the User Mapping:

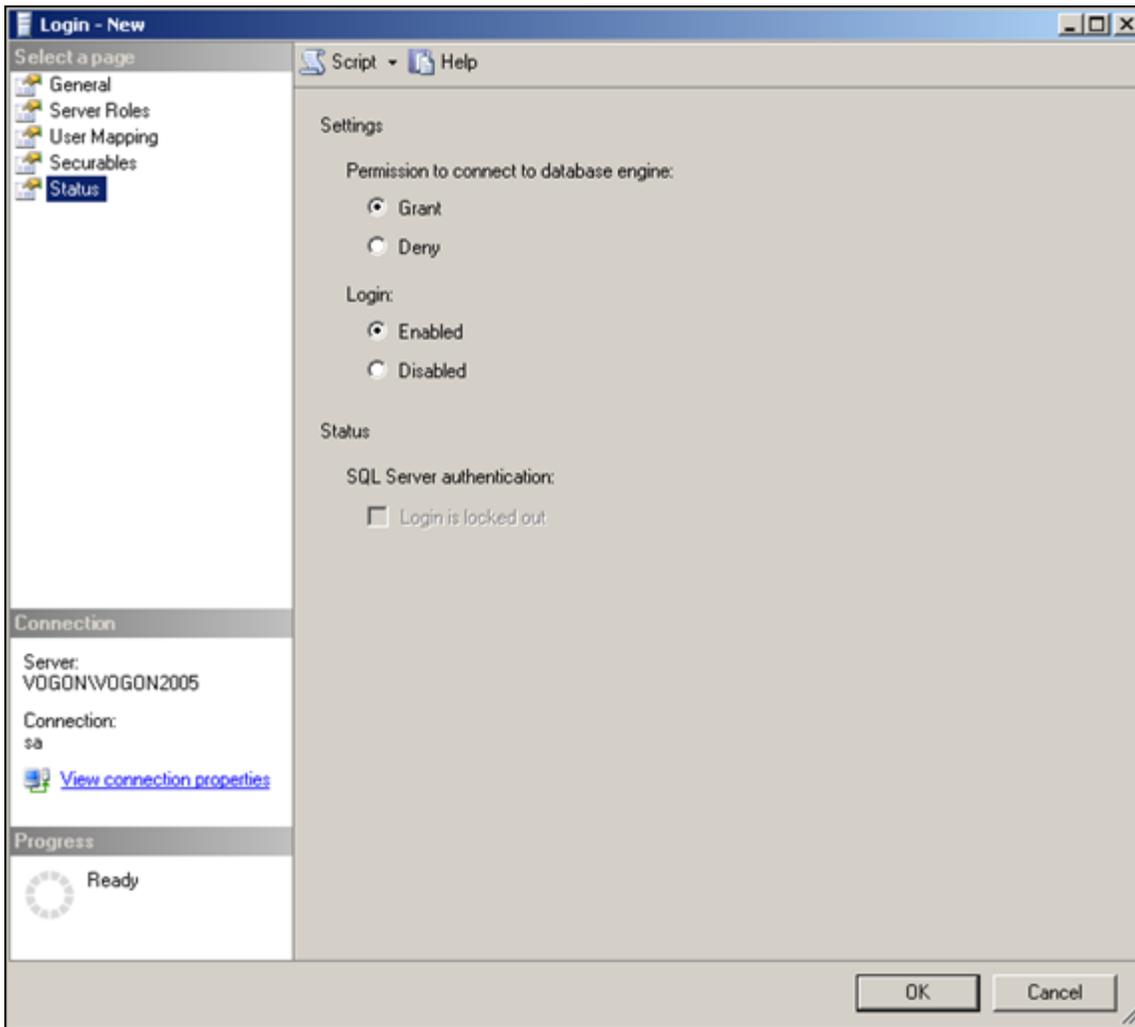
- Click on checkbox beside **extraview**
- Click on button in **default schema** cell and select [dbo]



Next, give db\_owner permission to the extraview user



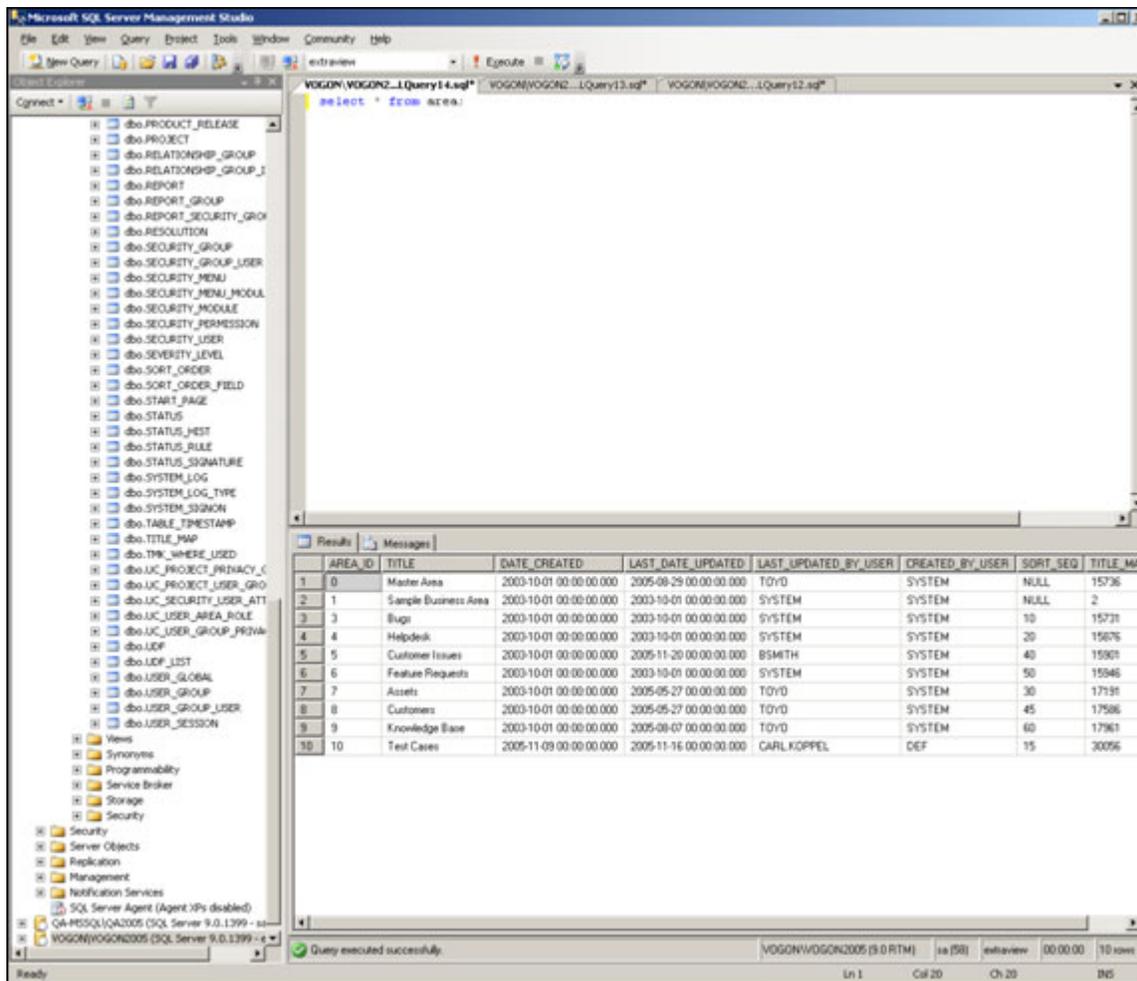
There is nothing to select on **Securables** tab Note the default values on the **Status** tab



The objects are all owned by **golden51** or similar name - this used to be the **object owner** – when importing into SQL Server 2005, this step makes this the **schema owner**. Next, connect to the database as the extraview user:



Enter a new query in the extraview database – select \* from area



## SQL Server Configuration Option

The SQL Server database has an “oddity” in the way it handles string concatenation. This affects how the ExtraView user who writes expressions for calculated fields will observe the results. By default, within SQL Server the concatenation of a null string with any other string yields a null string as a result. For example, if the user writes an expression where the values equate to the following:

'Thomas' + <null>

The result will be <null>, rather than 'Thomas'. The result may not be what the user expects. There is a SQL Server option that alters this behavior so that the user will get the result 'Thomas' rather than <null>. To accomplish this, the database administrator should enter the command:

```
alter database <db-name> set CONCAT_NULL_YIELDS_NULL off;
```

## Database Collation Information

By default the SQL Server database that ExtraView Corporation delivers is a .bak file, and is set to a collation of `SQL_Latin1_General_CP1_CI_AS`

You should follow these guidelines:

- You can import this database into a SQL Server database that has a different server-level collation
- You must not modify the database level collation - it must remain `SQL_Latin1_General_CP1_CI_AS` when you restore the database
- In general, ExtraView requires a CI case INsensitive collation
- You should not alter the database level collation after importing the .bak file

The collation is set at the column level as well as the database and server level. If the database level collation does not match the column level collation, then in an upgrade, when the upgrade patches are run, and new tables and columns are created, they will be created with the default database level collation. This means that if the collation is not the same as `SQL_Latin1_General_CP1_CI_AS` (i.e. the collation setting for the columns as delivered with ExtraView), then there will be different collation types for different objects in the database. It is important that you retain the `SQL_Latin1_General_CP1_CI_AS` collation.

Note that ExtraView will not run under a case sensitive collation.

## MySQL Database Configuration

The database configuration section within the `Configuration.properties` file initially looks like this:

```
# MySQL driver
#DB_URL      = jdbc:mysql://db.yourdomain.com:3306/evdbx?useInformationSchema=true
#JDBCdriver  = com.mysql.jdbc.Driver
#DBMS_INTERFACE = com.extraview.dbms.mysql.MySqlDbms
# uncomment the next line for MySQL server to eliminate potential hangs during pool recovery
#DB_FORCE_CLOSE_METHOD = abortInternal
```

You must uncomment the lines `DB_URL`, `JDBCdriver`, `DBMS_INTERFACE` and `DB_FORCE_CLOSE_METHOD`. Replace `db.yourdomain.com:3306` with the domain and port number of the database server.

The following changes to the **my** configuration file must be made. On Linux systems this file is named `my.cnf` and on Windows systems this file is named `my.ini`.

- Change the default packet size for the server section `[mysqld]` and the `mysqldump` `[mysqldump]` section.

```
# change default packet size
max_allowed_packet=16M
```

The `max_allowed_packet` size corresponds to the maximum attachment size that ExtraView will store in the database. You should change the default of 16M as appropriate for your installation, to allow larger attachments.

- Also in the `[mysqld]` section we need:

```
lower_case_table_names=1
```

- Example completed `[mysqld]` section tuned for ExtraView:

```
[mysqld] section
#must have lower case table names
lower_case_table_names=1
```

```
#must have a larger packet size
max_allowed_packet=16M
#name the transaction log file
log-bin=mysql-bin
#need to use ROW logging to binary log, default STATEMENT does not work
binlog_format=ROW
#turn off DNS lookup for client connections. Can slow things down
skip_name_resolve
```

- Example completed [mysqldump] section tuned for ExtraView:

```
[mysqldump] section.
# change default packet size
max_allowed_packet=16M
```

- innodb support must be available. Make sure that the skip configuration is commented out.

```
#skip-innodb
```

- Typically you will move the database files to a location of your preference:

```
**** INNODB Specific options ***
innodb_data_home_dir="F:/MySQL Datafiles/"
datadir="F:/MySQL Datafiles/"
```

- You should make the innodb buffer pool as large as possible on your system.

```
innodb_buffer_pool_size=200M
```

- You should now create a database user and import an initial database. This database is supplied by ExtraView Corporation. The following script will create the MySQL database user and will perform this import. Note that if any database with the given name exists, it will be dropped before the import of the new one.

```
#!/bin/sh
# Import a MySQL ExtraView database from a backup
# Any database by the given name will be dropped first.
# A default user for this database will be created with the database name.
#
if [ "$#" -ne 5 ]
then
    echo "usage: ImportExtraview.sh adminUser adminPassword dbname password backupname"
    exit 1
fi
MYSQL_ADMIN=$1
MYSQL_ADMIN_CRED=$2
dbname=$3
dbuser=$3
password=$4
backupname=$5
if [ ! -f $backupname.sql ]
then
```

```

    echo "database file does not exist"
    echo "terminating..."
    exit 1
fi
lowdbname="$(echo ${dbname} | tr 'A-Z' 'a-z')"
if [ $lowdbname = mysql ]
then
    echo "Cannot import to the mysql system database"
    echo "terminating..."
    exit 1
fi
cat >/tmp/imp_one$$$.sql <<EOF
drop database if exists $dbname;
create database $dbname default character set utf8 DEFAULT COLLATE utf8_bin;
grant all on $dbname.* to '$dbuser'@'localhost' identified by '$password';
grant all on $dbname.* to '$dbuser'@'%' identified by '$password';
grant trigger on $dbname.* to '$dbuser'@'localhost';
grant trigger on $dbname.* to '$dbuser'@'%';
grant select on mysql.* to '$dbuser'@'localhost';
grant select on mysql.* to '$dbuser'@'%';
grant super on *.* to '$dbuser'@'localhost';
grant super on *.* to '$dbuser'@'%';
EOF
mysql --user=$MYSQL_ADMIN --password=$MYSQL_ADMIN_CRED mysql
</tmp/imp_one$$$.sql
mysql --user=$dbuser --password=$password $dbname <$backupname.sql rm /tmp/imp_one$$$.sql

```

## Attachments and MySQL Databases

MySQL has some special considerations regarding file attachments. MySQL is very inefficient in the way it stores attachments in the database, and the Java driver software that accesses these requires a huge amount of memory when processing large attachments. To conserve memory, the maximum size of MySQL attachments is 16 MBytes. Therefore, if you believe that you are likely to store and retrieve attachments larger than this size with the MySQL database frequently, you should configure the attachments to work with external storage, where only the limitations of the operating system apply. Alternatively, you can modify the MySQL configuration file to change the default setting, although this is more expensive in terms of memory usage.

The configuration line is:

```
max_allowed_packet=16M
```

You can change the 16M value as required.

## Timeout Setting

There is a MySQL default setting for **wait\_timeout** that is likely set to 288000 (480 minutes). It is advised that this value be increased to 31536000 (365 days). ExtraView handles its own timeouts to the database.

# Upgrading Non-English Language Installations

This note refers to updating installations where English is not the default language locale. It is only of importance when the behavior setting named `MULTI_LOCALE` is set to `YES` and you are importing new messages as part of the update / upgrade process.

When the localization feature is used, the import process updates any titles in the import file which are *not in the default locale of the system*. For example, if the default locale in the behavior setting named `DEFAULT_LANGUAGE` is set to a value of `jp` for Japanese, only non-Japanese titles are updated.

If the default locale in the behavior setting named `DEFAULT_LANGUAGE` is set to a value of `en` for English, only non-English titles are updated. As a standard practice, if you are updating / upgrading the system when new non-English messages are present, you should set the `DEFAULT_LANGUAGE` setting to `en` before you perform the update / upgrade, to ensure that your local language messages are imported.

Once the update / upgrade is complete, you should set the `DEFAULT_LANGUAGE` back to its original value.

books:

[ExtraView 7.0](#)

## ExtraView with Microsoft IIS

This section covers installing Microsoft IIS as a web server to work with ExtraView.

Note: If you have already installed the Apache Web Server, you should skip this section. You do not require two web servers for ExtraView to work.

These instructions assume that you already have IIS installed and functional. It also assumes that you have followed the instructions in this document to install Java and Tomcat, and that you have imported the ExtraView schema/database into Oracle or MSSQL. IIS does not have sufficient capability as an application server to correctly run Java applications. It works as the web server, while Apache Tomcat works as the application server.

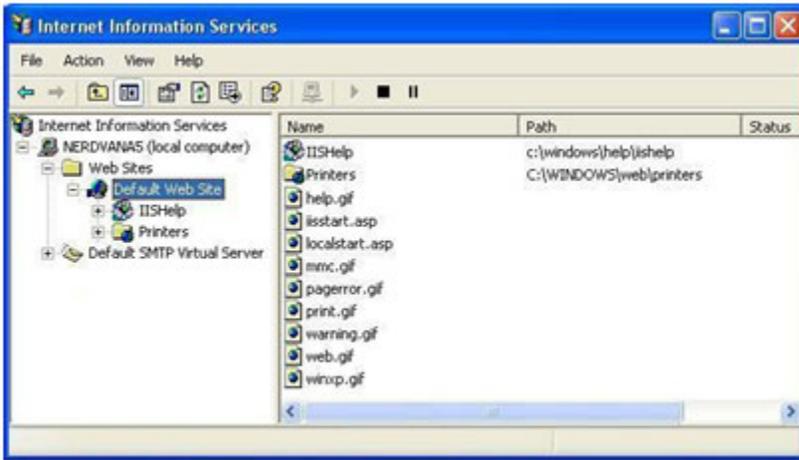
### Microsoft IIS Versions 5 & 6 with Tomcat 5.5

#### Install configuration files

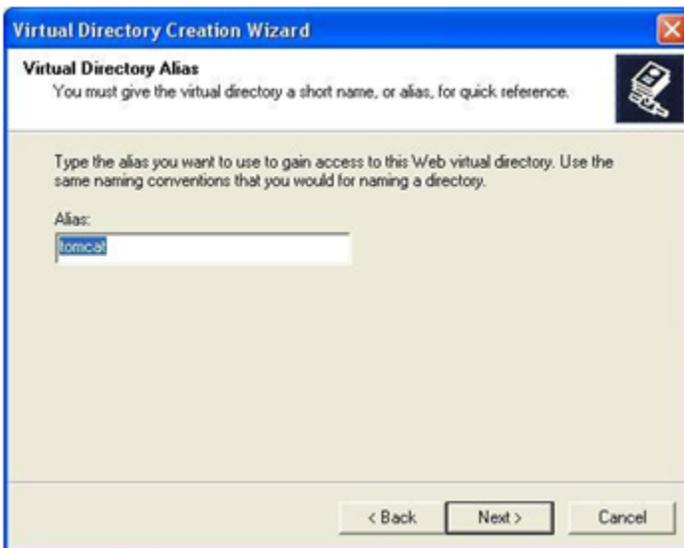
You have already downloaded these files as described earlier: `isapi_redirect.dll` `isapi_redirect.properties` `uriworkermap.properties` `workers.properties` If installing into a different directory than described in this document, please update `uriworkermap.properties` with the appropriate path names. Then, copy the four files into `C:\ExtraView\Tomcat5.5\conf`

#### Configure IIS

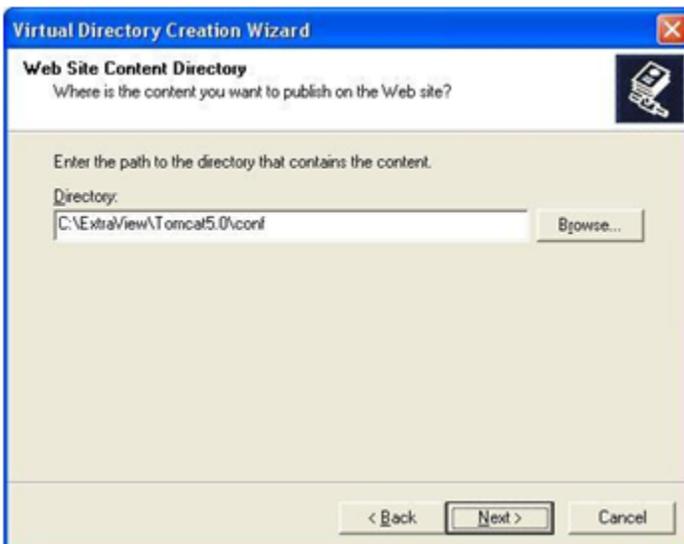
Open up your Windows Control Panel. Go to Administrative Tools and open the Internet Information Services Application. Expand your local computer entry, until you see the default Web site. You should see an image similar to the following:



Right-click on the default Web site and select Virtual Directory from the New menu. Select the Next button and enter the value tomcat in the Alias text box. Click Next.



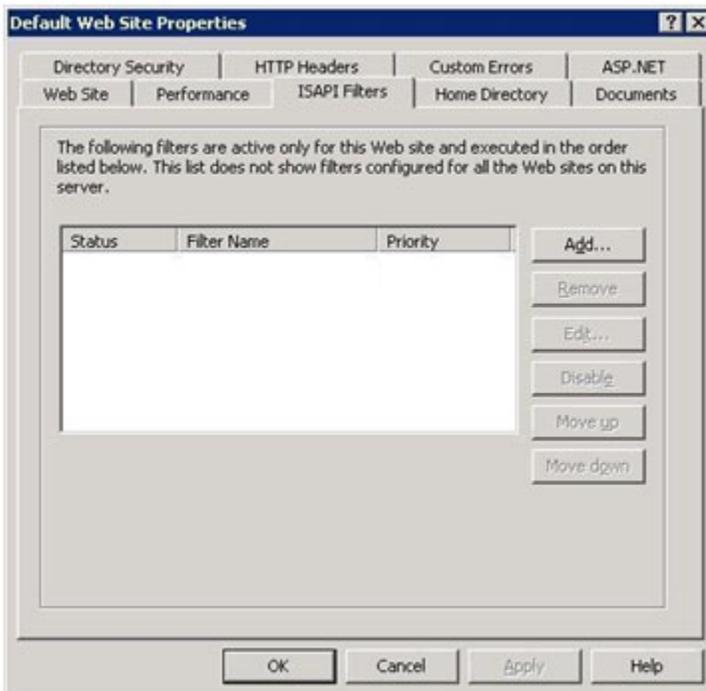
Browse to the directory containing your isapi\_redirector.dll file, which in our case should be C:\ExtraView\Tomcat5.5\conf and select the Next button.



Now make sure that you have the permissions set to read, run, and execute.



Continue through the Virtual Directory Wizard, until you reach the end. To add the ISAPI Redirector to the default Web site, right-click on the default Web site and select the menu item Properties. Select the ISAPI Filters tab.

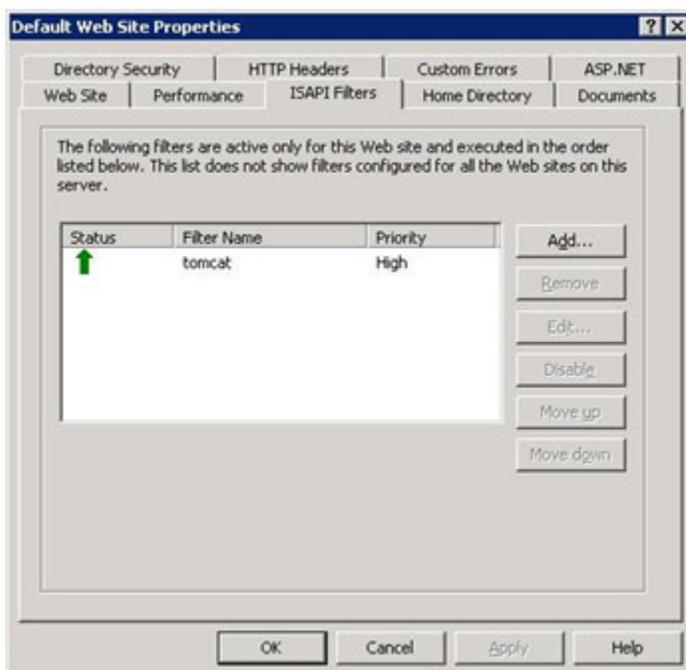


Press the **Add** button. Enter tomcat as the filter name and browse to the location of the isapi\_redirector.dll file.

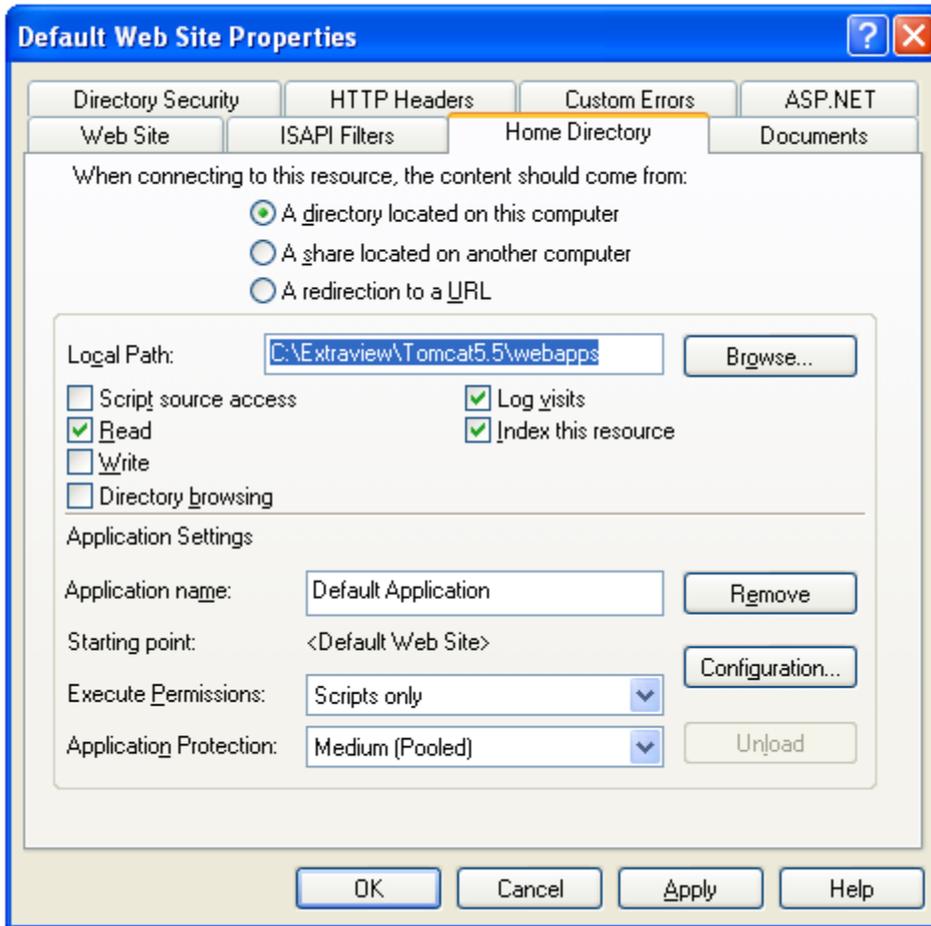


Now press the **OK** button until you are back at the Internet Information Services dialog. If you right-click, select Preferences and select the ISAPI Filters tab again, you should see a green up arrow beside Tomcat.

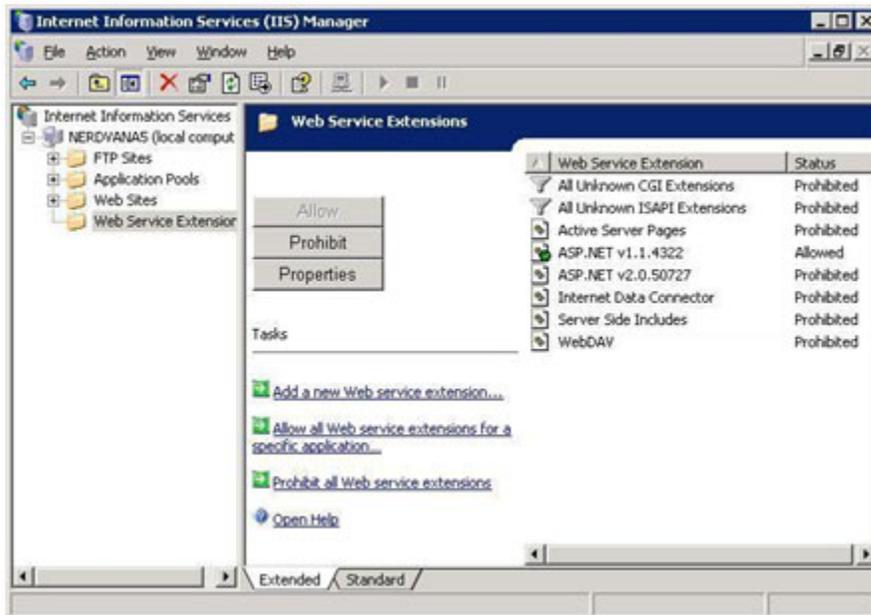
**Note** - For IIS 6.0 - If you check on its status, you may notice that the ISAPI filter hasn't been successfully loaded at this stage, even if you have re-started IIS. This is expected behaviour and is documented in the IIS6 Operations Guide. In an effort to optimize resources in IIS 6.0, an ISAPI filter is not loaded until a request is made to a Web site that requires the ISAPI filter. Until this request is made, IIS Manager does not display the status of the ISAPI filter. You should continue to the end of the configuration, and then try loading ExtraView.



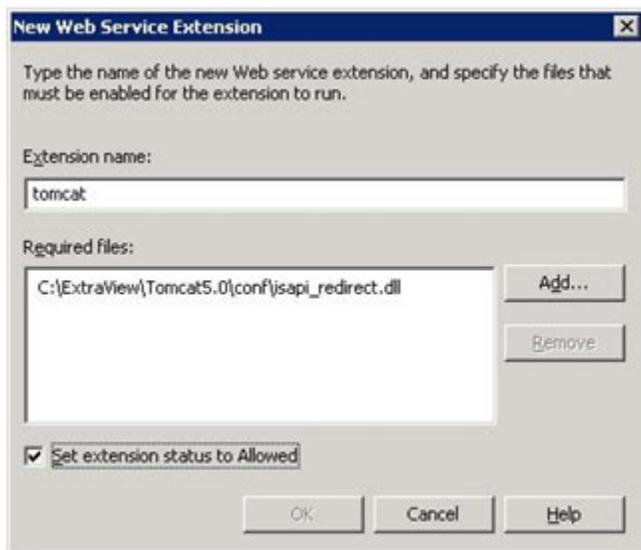
Next on the Home Directory tab set the local path to C:\Extraview\Tomcat5.5\webapps



Finally, we have to allow the web service extension for Tomcat. In Internet Information Services (IIS) Manager, click on Web Service Extensions. Select Allow a New Web Service Extension.



In the dialog, enter tomcat as the extension name and browse to isapi\_redirect.dll under Required files. Check the check box to Set extension status to Allowed and click **OK**.



Now, you are ready to restart the Internet Information Services (IIS) Service and bring up ExtraView in a browser window. Depending on your configuration of IIS, there may be errors when a user accesses a function that requires JavaScript. For example, going to the *Add* or the *Query* screens may show JavaScript errors. The solution to this is to move the ExtraView evj folder to the root of the IIS home location.

## Microsoft IIS Version 7 or Tomcat 7.0

IIS Version 7 has changed considerably. The key differences are in the installation procedure and in the connector to the Apache Tomcat application server. To assist in this configuration, please see the following web pages:

- <http://learn.iis.net/page.aspx/484/configure-3-tier-deployment-architecture-using-application-request-routing> - a resource that shows how to configure a 3-tier deployment architecture using Application Request Routing
- <http://www.iis.net/download/ApplicationRequestRouting> - an explanation of Application Request Routing
- <http://www.iisadmin.co.uk/?p=72> - this helpful page covers how To configure IIS 7.0 and Tomcat with the JK 1.2 connector. Note the comments if you receive a "404 - Page Not Found" error: "If you are running a 32 bit version of Tomcat with a 32 bit JK connector on an x64 OS you have to configure the Application Pool -> Advanced Settings -> Enable 32 bit Applications = TRUE. You also need to ensure that the NTFS permissions are set for the user defined by Identity."
- <http://jspors.blogspot.com/2009/01/setting-up-64-bit-tomcat-6-on-iis7.html> - A helpful page on setting up the 64-bit Tomcat 6 on IIS7
- [http://tomcat.apache.org/connectors-doc/webserver\\_howto/iis.html](http://tomcat.apache.org/connectors-doc/webserver_howto/iis.html) - IIS HowTO

## ExtraView with WebLogic

WebLogic from Oracle is an alternative application server to Apache Tomcat, and ExtraView Corporation supports its use with ExtraView. This support extends to using WebLogic in a clustered environment. The WebLogic software must be licensed directly from Oracle. If you want to access the code by download from Oracle, visit <http://www.oracle.com>. ExtraView Corp assumes that you have expertise in installing and configuring WebLogic. Support for this installation is from Oracle, not ExtraView. The following is just a brief guide of the key points to watch for. We suggest you install a reference system first, and then

migrate this to your corporate environment. There is no need for multiple instances of the same servlet to be initiated in a single WebLogic container, and we do NOT want any of the following WebLogic behaviors to be configured:

- Dynamic reloading of the servlet
- Session migration from one servlet/WebLogic instance to another; we require sticky sessions
- SingleThreadModel behavior (the ExtraView servlet does NOT implement SingleThreadModel)
- Automatic shutdown of the servlet except by administrator command
- EJB or other bean processing (ExtraView does not use beans)
- WL Connection pool; ExtraView maintains its own connection pool
- WL JDBC; ExtraView should only use versions of JDBC software that have been qualified with ExtraView
- Specific EAR behaviors; ExtraView runs with WAR's and exploded class directories and does not expect or use any features related to EAR packaging

If you want to install with EAR's LDAP and / or SSO, it is strongly suggested that you install and verify the standard installation, then move to configure these components. Please consult the full installation instructions available with WebLogic. A short synopsis of these instructions that will install WebLogic as a reference system follows:

Task	Recommended response
Create WebLogic Home	c:\beaxxx for the Windows platform
Install Custom	<p>Just install the WeblogicServer. <b>Do not install the Weblogic Workshop. Do not install the service</b></p> <p>Run the configuration wizard to make a user_project. This example shows the creation of a user project named ev in user_projects. Start the Configuration Wizard.</p> <pre>myserver SvrA SvrB</pre> <ol style="list-style-type: none"> <li>1. Create new WebLogic Configuration (This will end up under user_projects)</li> <li>2. Basic WebLogic domain</li> <li>3. Custom</li> <li>4. name=myserver port=7001</li> <li>5. Yes to add managed servers</li> <li>6. Press add In the name field enter SvrA, port field enter 7010 Press add In the name field enter SvrB, port field enter 7020</li> <li>7. Press next NO Clusters Added</li> <li>8. Press Add for the add machine option name = myMachine</li> <li>9. Add all the servers to myMachine since all the servers are on this physical machine</li> <li>10. No JDBC options</li> <li>11. NO JMS options</li> <li>12. Add an admin password</li> <li>13. Add to shortcut (optional) No to add service</li> <li>14. Browse to your own Java installation. ExtraView strongly recommends using a Java installation you install, as opposed to the default installation provided with WebLogic. d:\javajava_150_14</li> <li>15. Configuration name ev (or whatever user_project/name you selected)</li> </ol>
Configuration Wizard	

Optional Configuration	If you are planning for a database with hundreds of thousands, or more, issues, it is worth increasing the default value of the Weblogic parameter <b>WLIOTimeoutSecs</b> from the default value of 300 seconds to something like 1500 seconds.
Create startSvrA.cmd	In the user_projects/ev directory create a startup file as required for WebLogic. This script is specific to WebLogic and ExtraView assumes you have the expertise to create this script.

Once you have the basic installation with WebLogic configured, you can migrate the system to your working environment. This is fairly simple if it is done one step at a time. If you are using a single corporate database server, this server is prepared with ExtraView scripts and the database imported from the reference site; the corporate application server then is pointed to the corporate database. Again, a short acceptance test should confirm that everything is still working correctly. Now, extras such as LDAP and SSO can be enabled, preferably one feature at a time. When the system fails, you need only step back to the prior step to get it working again, then move forward more slowly or debug what changed in the latest step because the variables are fairly isolated. During this entire time, you may revert to the reference system to see what the "correct" behavior looks like in comparison to the system under installation.

## File Attachment Storage

With the default installation, attachments are stored as BLOB's in the database. With simple configuration, it is possible to store some or all the file attachments on the file system of attached storage. The file system must obviously have sufficient storage for the volume of attachments you expect, and you must ensure you have a proper backup procedure in place for this storage. There are three behavior settings that control the storage of attachments, and these should be set after you install ExtraView and ensure it is functioning (see the following section). These settings are found in the Environment Settings section of Administration:

If you have existing attachments in the database and would like to migrate them to the file system, see the section [Configure Attachments](#)

Attachment behavior settings	Default Value	Description
ATTACHMENT_REPOSITORY_DMAX	999	The maximum number of files or directories that will be created under one node of the external directory structure. The default for this value is 999. It is not likely that this value needs to be altered.
ATTACHMENT_REPOSITORY_OPT	INTERNAL	This setting controls whether attachments are stored internally within the database, externally on the file system, or in some combination of the two methods. If the value of this setting is INTERNAL, then all attachments are stored internally within the database. If the value of this setting is EXTERNAL, then all the attachments are

stored on the external file system. Alternatively, you may provide a comma separated list of file extensions and then all files with these extensions will be stored externally while all other files will be stored in the database. For example, if you set the value of this setting to "avi, png, gif, jpg" then files of these types will be stored externally. This strategy leaves the files stored internally in the database as searchable by keywords, while the image and video files are stored externally. The default for this value is INTERNAL. Also, ensure that the setting ATTACHMENT\_REPOSITORY\_ROOT is set correctly before storing attachments outside the database.

The name of the directory on the file system where file attachments will be stored. Before any attachments are stored externally, you must also provide a valid setting for the setting ATTACHMENT\_REPOSITORY\_OPT. You must also ensure that the path is valid from the application server(s) that are running ExtraView, and that you have all the permissions to read and write to the storage. You must also ensure that you set up a separate backup method for this external storage as backing up your database will no longer backup the file attachments.

ATTACHMENT\_REPOSITORY\_ROOT

## LDAP / Active Directory Access

ExtraView supports both LDAP and LDAPS servers as well as Microsoft Active Directory. Their configuration is described in the [Administration Guide](#). Please view this for instructions on how to configure.

## Single Sign On Servers

You should not attempt to connect a Single Sign On server to ExtraView, until ExtraView has been installed stand-alone and you have verified its operation. SSO with ExtraView is an optional setting that allows users to gain access to ExtraView without ever seeing the standard sign on page. The SSO software authenticates each user access and passes this information to ExtraView. SSO software is available from third parties and organizations that have developed their own solutions. There are several products available. ExtraView is known to work with many of these products, but has not been tested with all. It should be possible to customize any SSO product with ExtraView, but this is dependent on the SSO software following standardized conventions. Netegrity from CA is an example of a popular SSO mechanism that is compatible with ExtraView. To work, there is a Single Sign On software running in the

same network space as ExtraView. ExtraView gives up authentication of the user ID and password to the SSO software. ExtraView then receives a request from the SSO software, specifying that the user has been authenticated and is therefore authorized to use ExtraView. ExtraView needs to know who the authenticated user is, and this is achieved by the SSO software placing the User ID in the request header to ExtraView. Within ExtraView, the behavior setting named `SSO_STATE` is set to a value of `YES`. With this in place, ExtraView looks to see if the incoming request to sign on has the User ID within the request header. If this is present and is a valid user within the ExtraView database, the user is automatically signed on to ExtraView. No sign on screen is seen by the user. For a full list of the behavior settings connected with SSO, see the page [LDAP and SSO Behavior Settings](#). Also see the section on the [Configuration.properties File](#) in this guide for details on how to configure SSO correctly. ExtraView customers may use their SSO software with ExtraView by configuring their SSO to work in this way and as further exemplified by the example that follows. This can be customized further, for example by having ExtraView automatically create user accounts for User ID's that it does not recognize in the request. If this functionality is required, please contact the ExtraView Professional Services team who will be pleased to help develop a specification for this, and to provide a quotation for the customization.

## User Attributes

These are defined in the Configuration.properties file. The property value is the name of the header in the SSO request containing the respective user attribute for upserting the user: `SSO_PRIMARYKEY` `SSO_SURNAME` `SSO_GIVENNAME` `SSO_EMAIL` `SSO_STREET` `SSO_CITY` `SSO_STATE` `SSO_POSTALCODE` `SSO_COUNTRY` `SSO_PHONE` `SSO_MOBILE` `SSO_PAGER` `SSO_COMPANYNAME`

## Example

- In the ExtraView Configuration.Properties file you have or will insert an entry – `SSO_PRIMARYKEY = SM_USER` This tells ExtraView which header field to look at to find the User ID.
- The behavior setting named `SSO_STATE` is set to a value of `YES` within ExtraView
- The request header generated by the SSO software has a field:  
`SM_USER=GEORGE.FRANKENSTEIN`
- When the SSO software calls the ExtraView application, with the request header in step 3, it will have authenticated that `GEORGE.FRANKENSTEIN` is a valid user for ExtraView
- ExtraView will see that the request from the SSO software contains the header `SM_USER = GEORGE.FRANKENSTEIN`
- The user `GEORGE.FRANKENSTEIN` is then signed on automatically, and no sign on screen is generated. Typically the user lands directly on the ExtraView Home Page.

Note: Single Sign On is not the same as LDAP (Lightweight Directory Access Protocol) or the same as Active Directory (broadly speaking this is the Microsoft version of LDAP). SSO mechanisms may be used with or without LDAP or Active Directory, according to their capabilities.

# Automating Start-Up Scripts

It is important to add the following ExtraView components into the automated startup scripts of your server, in order that ExtraView functions correctly when you boot or reboot the computer.

The following components should be started automatically, preferably in the order shown:

- Oracle/MSSQL/mySQL database
- Apache Tomcat application server
- Apache web server

## Linux Platforms

Below you will find a sample startup script to start up the Apache and Tomcat services in a Linux environment. Make sure to change any path names according to your installation. After installation is completed, reboot your server to verify that all the separate pieces of the support software are started properly.

```
#!/bin/sh
#
# Copyright (c) 2015 by ExtraView Corporation
# All rights reserved.
#
case "$1" in
'start')
su - extraview -c /usr/local/extraview/tomcat/bin/startup.sh
/usr/local/extraview/apache/bin/apachectl start
;;
'stop')
/usr/local/extraview/apache/bin/apachectl stop
su - extraview -c /usr/local/extraview/tomcat/bin/shutdown.sh
;;
*)
echo "Usage: $0 { start | stop }"
exit 1
;;
esac
exit 0
```

## Windows Platforms

If you followed all the steps in the installation guide, the different components of ExtraView will be installed as services. Open your services menu and verify that they are configured to start automatically at server startup. After installation is completed, reboot your server to verify that all the separate pieces of the support software are started properly.

# WAR File Deployment

The default deployment for ExtraView is as an exploded directory. However, like many other web applications, ExtraView can be deployed as a .war file. When deploying ExtraView as a .war file, there are configuration parameters that must be modified from the default values, in order to allow the application to write log files and temporary files to locations outside of the application subdirectories that are the default paths.

Prior to building the .war file, you will modify the WEB-INF/configuration/Configuration.properties file to set the database connection information, as well as all other configuration settings for your installation.

You will also need to modify the following settings within the Configuration.properties file:

- LOG\_FILE\_PATH\_NAME

- CHART\_DIR TEMP\_DIR
- DATA\_DIR

These settings should be commented, and the following parameters and appropriate values should be used instead:

- LOG\_FILE\_PATH\_NAME\_ABSOLUTE = c:pathtologfile/EVJ.log
- CHART\_DIR\_ABSOLUTE = c:pathtotempfolder
- TEMP\_DIR\_ABSOLUTE = c:pathtotempfolder
- DATA\_DIR\_ABSOLUTE = c:pathtotempfolder

The selected paths must already exist on the file system, and must be writeable by the user that will start up the application server process. Obviously, you should alter the path names to suit your server.

## WAR File Deployment in Clustered Systems

If you will be deploying the .war file to multiple nodes (i.e. you have a clustered system), and each node is on a different machine, please ensure that each node has the same path.

Note: each node will need to write to its own log file, so if multiple nodes are on the same machine, or if the LOG\_FILE\_PATH\_NAME\_ABSOLUTE is on a shared file system, you will need to ensure that each node has a unique path to the log folder, or a unique log name. If multiple nodes write to the same log file, the process will be unable to roll over the log file and the log will grow forever, rather than starting a new file when it reaches 20 MB in size.

Also, please note that within each instance of ExtraView, each node must have a unique value set in the Configuration.properties file, for the parameter WEB\_SERVER\_NAME.

For multi-node installations where it is desired to construct a single .war file and deploy it to all nodes, you will need to use variable substitution in the Configuration.properties parameters, in order to have the necessary unique values, while having a single .war file to deploy.

In the evj/WEB-INF/configuration/Configuration.properties file, you will find the parameter WEB\_SERVER\_NAME = WS\_A Replace the actual configuration settings with the name of your environment variable, surrounded by \$\$.

```
WEB_SERVER_NAME = $$MANAGED_SERVER_NAME$$
```

Now, in your application server startup scripts for each managed server, set a -D option -DMANAGED\_SERVER\_NAME to be the unique name of each node in the cluster.

Please see the section on [Configuration File Settings](#) for further details.

## Configuration.properties File

## Connection Pool Configuration

The ExtraView application manages many different users, each of whom may be performing many different tasks by communicating to the back-end database via a utility called a *connection pool*.

Making a connection to the underlying database from the Java language consumes a significant amount of processing time. ExtraView uses the Connection Pool to manage and optimize this connection and ensure that this is as efficient as possible.

Many of the parameters used in managing the connection pool are configurable.

When a new database connection is established, these parameters set up the initial working, and ensure that a minimum number of connections are made and are instantly available.

As ExtraView usage increases the size of the pool increase dynamically, and without any need for the system administrator to make adjustments. As the usage decreases over time the size of the connection pool will shrink down to the minimum. Upon periods of extended inactivity, connections may time out but no new connections will be made until a new request from ExtraView is made.

One major advantage of ExtraView using its own internal connection pool manager is that if the connection to the database is disrupted for any reason, such as a network or database failure, then ExtraView will rebuild the connections when the service is restored. In most cases, users will therefore not experience any loss of their sessions with such a failure. This greatly outweighs using any other connection pool software, such as that shipped with some application servers.

The connection pool is typically configured when ExtraView is first installed, and unless dramatic changes take place in the usage, these will not need further adjustment. The configuration of the parameters for the connection pool manager takes place within the file named WEB-INF/configuration /Configuration.properties. The default parameters look like this:

```
# Connection pool settings
ConnectionPoolSize = 20
ConnectionPoolMax = 200
ConnectionUseCount = 500
ConnectionTimeout = 10
ConnectionPoolTimeout = 20
```

## Parameters

ConnectionPoolSize	This is a minimum size of the pool. Upon creation this is how many connections are made. The default value is 20 connections.
ConnectionPoolMax	The number of connections the pool can grow to. If and when this number is reached no more connections will be created. If more connections are requested from this point, a null connection will be passed out. Fundamentally, when the maximum number of connections is reached, and a user makes a request, the request will wait for an existing connection to become available before progressing.
ConnectionUseCount	This is the number of times a connection will be used. After this many times the connection is closed and a new one is created. This keeps any connection from having a memory leak or some other problem and this problem persisting through time.
ConnectionTimeout	This is a period in minutes. If a connection is not used for this amount of time it is closed and a new one is created when a new request occurs. This keeps any existing connection from becoming stale for any reason.

ConnectionPoolTimeout This is a period in minutes. This measures the amount of time the connection pool goes without receiving any requests. After this time, the pool will not make a new connection when connections time out. When the next request comes in the pool will again create the minimum number of connections, and then pass out the connection.

## Monitoring the Connection Pool

A servlet named ConnectionPoolMon is installed along with ExtraView. This displays the current usage of the connection pool, as seen in the following screenshot.

ID	In Use	Last Access	Times Used	Created Time	User Name
1	true	46:00:16	17	46:00:23	Anonymous
2	true	46:00:21	1	46:00:22	Anonymous
3	true	00:01:31	5	00:01:31	Anonymous
4	true	00:00:27	36	00:01:31	Anonymous
5	true	00:00:55	11	00:01:31	Anonymous
6	true	00:00:50	25	00:01:31	Anonymous
7	false	00:00:00	93	00:01:20	--
8	false	00:00:00	22	00:01:20	--
9	false	00:00:26	4	00:01:20	--
10	false	00:01:20	0	00:01:20	--
11	false	00:01:20	0	00:01:20	--
12	false	00:01:20	0	00:01:20	--
13	false	00:01:20	0	00:01:20	--
14	false	00:01:20	0	00:01:20	--
15	false	00:01:20	0	00:01:20	--
16	false	00:01:20	0	00:01:20	--
17	false	00:01:19	0	00:01:20	--
18	false	00:01:19	0	00:01:19	--
19	false	00:01:19	0	00:01:19	--
20	false	00:01:19	0	00:01:19	--

Displayed is the current usage, refreshing every few seconds. This can be used to optimize the settings. To see the connection pool monitor, use a URL similar to the following, using your own domain information: <http://www.mycompany.com/evj/ConnectionPoolMon>

# Configuration File Settings

The following is a list of all of the possible parameters available in the Configuration.properties. Not all of these settings are required for your installation. If the setting you wish to configure does not appear in the Configuration.properties file you can simply add it to the file.

Entry	Purpose
DB_HOST	The IP address or fully qualified name for your database server
DB_USER	This is the name of the database user created previously
DB_PASSWORD	This is the password for the above database user

Make sure that the correct entry is uncommented and edited for your DBMS (Oracle, mySQL or MSSQL). The entry for HOST should be set to the same as DB\_HOST above. Examples of this entry are as follows.

For Oracle connection:

DB\_URL

```
jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS=(HOST=db.yourdomain.com)(PROTOCOL=tcp)(PORT=1521))(CONNECT_DATA=(SID=ev)))
```

For SQL Server connection with JTDS driver:

```
jdbc:jtds:sqlserver://db.yourdomain.com:1433/extraview
```

For mySQL Server connection:

```
jjdbc:mysql://db.yourdomain.com:3306/ev
```

Make sure that the correct entry is uncommented and edited for your DBMS. Examples are:

For Oracle connection

```
oracle.jdbc.driver.OracleDriver
```

JDBCdriver

For SQL Server connection with JTDS driver

```
net.sourceforge.jtds.jdbc.Driver
```

For mySQL connection with mySQL driver

```
com.mysql.jdbc.Driver
```

Make sure that the correct entry is uncommented and edited for your DBMS. Examples are:

For Oracle connection

DBMS\_INTERFACE

com.extraview.dbms.oracle.OracleDbms

For SQL Server connection

com.extraview.dbms.mssql.MssqlDbms

Sets the `DEBUG_LEVEL` at startup. The level of messages directed to the log is controlled with a debug level. This is a number between 1 and 12, with higher numbers offering increasing amounts of information written to the log file. The default is 6. This number should not be increased without cause, as there will be a hit on system performance, and the size of the log file may increase dramatically. The level of messages that is sent to the log is controlled by a URL and is used as follows, substituting the appropriate domain and application name:

DEFAULT\_LOG\_LEVEL

<http://server.yourdomain.com/ExtraView?DEBUG=6>

Note that users or administrators do not have access to this URL, unless the behavior setting named `ALLOW_DEBUG_URL` within the System Debugging & User Custom Settings on the Advanced administration menu is set to YES.

PSP\_LOG

This may have values of YES, NO or ALL. The default is NO. When this is YES, then the ExtraView log will contain the SQL of all key statements executed. Setting the value to ALL will write all SQL statements executed to the log. This can be useful for debugging purposes

AJAX\_LOG

This may have the value of YES or NO. The default is NO. When this is YES, then the ExtraView log will contain additional information about Ajax calls made from the client browsers to the server, including the execution time of each Ajax call. This can be useful for debugging purposes

TASK\_LOG

This may have the value of YES or NO. If omitted, it has the value of NO. When set to YES, ExtraView tasks will write additional information to the log file when they execute

LOG\_FILE\_DIR\_ABSOLUTE

The absolute directory name (directory only)

LOG\_FILE\_DIR

The relative directory name (directory only)

LOG\_FILE\_MANAGE\_SCRIPT

This script will be called instead of deleting log files. The script and filename of the log file will be executed in separate process. The filename is passed as a single

	parameter to the script.
LOG_FILE_MAX_RETAINED	The maximum number of log files retained before the oldest is deleted. The default is 10.
LOG_FILE_MAX_SIZE	The maximum size of the log file in kilobytes. The log file is automatically archived when it grows beyond this size, and a fresh one is created. The old log is renamed, using the rule set in LOG_TIME_AT_CREATION to rename the file. If you are working within a clustered application server environment, all nodes on the cluster share one log file. The default maximum is 20,000
LOG_FILE_PATH_NAME_ABSOLUTE	The absolute full path name (directory and filename)
LOG_FILE_PATH_NAME	The pathname to the log that ExtraView will be written to. The default path is logs/EVJ.log. Note that this path is relative to the WEB-INF directory
LOG_TIME_AT_CREATION	If true log will have a DATETIME stamp in its name. At creation no renaming will be done. The default is false.
XML_LOG_FLAG	TRUE or FALSE. If this is FALSE (the default) then the log is written in text format. If the value is TRUE, then the log is written in XML format
WEB_SERVER_NAME	The name of the web server that will be used internally in ExtraView. With one application server, this name is not important, but if you have a cluster of application servers, then these should be named logically to identify which web server carried out which action and to ensure that sessions initiated at a client browser will “stick” to the same application server
TEMPLATE_DIR	The name of the directory, relative to WEB-INF where the ExtraView HTML templates are stored. There is normally no need to alter this path
USER_TEMPLATE_DIR	The path to the directory, relative to WEB-INF where user HTML templates are stored. These are stored independently from the ExtraView HTML templates so they may be retained during an upgrade
CHART_DIR	When ExtraView creates charts, it requires a directory in which to store temporary files. This path is also relative to WEB-INF. The administrator should create a process that cleans out old files from this directory on a periodic basis
TEMP_DIR	This path, relative to WEB-INF is used to store temporary files. The administrator should create a process that cleans out old files from this directory on a periodic basis
DATA_DIR	This path, relative to WEB-INF is used to store temporary files. The administrator should create a process that cleans out old files from this directory on a periodic basis

DEBUG_SWITCH	<p>The default is ON. If you want to turn off debugging, then this may be set to OFF. This is not recommended</p>
DEBUG_LOG_LEVEL	<p>This may have an integer value from 1 to 12. The default level is 6. At any level, all messages for this level and greater are logged. At the default level of 6, all server accesses to ExtraView are recorded in the log file, with the entry to the service being logged as well as the exit from the service. At the exit time, additional information such as the length of time that the service took to execute, and the user ID of the person making the access is also recorded. If there is any error message with a debug level higher than 6, this is also placed in the log file. For example, any warnings or program exceptions will be placed in the log</p>
SSO_DO_UPSERT	<p>If you are using a SSO server and making use of the “upsert” feature, then this should be set to YES, else leave this at the default value of NO</p>
SSO_DN_USER_ID_ATTRIBUTE	<p>This is the SSO header attribute from which to extract the User ID as a value in a distinguished name (DN) in the SSO header. This takes the form of &lt;attribute&gt;[&lt;instance&gt;], where the &lt;attribute&gt; is the type of the relative distinguished name (RDN) and the &lt;instance&gt; is the number of the RDN of that type, counting from the right-hand side of the DN</p>
MAILBOX	<p>The path name of the mailbox that notification will use</p>
NOTIFICATION	<p>This is an optional property, and based upon RFC 1891 (see <a href="http://www.ietf.org/rfc/rfc1891.txt">http://www.ietf.org/rfc/rfc1891.txt</a>). The property may be any combination of:</p> <p>NOTIFY_DELAY NOTIFY_FAILURE NOTIFY_SUCCESS</p> <p>with each option separated by a semi-colon. If this property is set, and your SMTP server supports this RFC, then the appropriate header is set in all SMTPMessage’s originated by the BatchMail process. This functionality allows for an audit trail to be followed for emails sent via your email server.</p> <p>This is an optional property, and based upon RFC 1891 (see <a href="http://www.ietf.org/rfc/rfc1891.txt">http://www.ietf.org/rfc/rfc1891.txt</a>). The property may be either:</p>
RETURN_OPTION	<p>RETURN_FULL or RETURN_HDRS</p> <p>If this property is set, and your SMTP server supports this RFC, then the appropriate header for return emails is set in all SMTPMessage’s originated by the BatchMail process. This functionality allows for an audit trail to be followed for</p>

emails sent via your email server.

The property `ENCRYPT_PROPERTIES=YES` will enable the capability of encrypting property values in the `Configuration.properties` file as an added security measure. Each property value to be encrypted has the form:

```
<property-name> = ENC(encrypted-value)
```

ExtraView has a utility that will encrypt values, and provide the result as a base64-encoded binary string. This string is used within the parentheses in the `ENC()` to provide the encrypted value. The password for the decryption is located in a file named `pdata` located in the configuration directory, or it is located in a file with the file name defined by the `PDATA_FILE_NAME` property. If the file cannot be read or does not exist, the password used is `magic`. To encrypt a text string to use as a password, you use the Windows batch script or the Linux `sh` script named `encrypt.bat` or `encrypt.sh`. The scripts are found in the directory named `WEB-INF/data`. There are required parameters, as follows:

### Windows

There are 5 required parameters:

`ENCRYPT_PROPERTIES`

- `JAVA_HOME`, more specifically the bin directory
- `TOMCAT_HOME`, where the application server is installed
- `INSTANCE`, the ExtraView instance name
- `valueString`, the value to be encrypted
- `passwordString`, the password to be used for the decryption

For example:

```
encrypt.bat c:\java\jdk1.6.0_26 c:\Apache\tomcat7 evj  
myValue myPassword
```

The output will show the encrypted value appropriate for the insertion in the `ENC()` value of a property in the configuration file. Copy this value and paste it in between the parentheses.

### Linux

Modify the file named `encrypt.sh` before you run this. You should substitute the appropriate values for your system, for the following:

- JAVA\_HOME, more specifically the bin directory
- TOMCAT\_HOME, where the application server is installed
- EV\_BASE, the path to your ExtraView instance

The syntax to execute the command then becomes:

```
encrypt.sh evj myValue myPassword
```

where

- evj is the ExtraView instance name
- myValue, the value to be encrypted
- myPassword, the password to be used for the decryption

The output will show the encrypted value appropriate for the insertion in the ENC( ) value of a property in the configuration file

PDATA\_FILE\_NAME

See the previous entry ENCRYPT\_PROPERTIES for a description of how this property is used

DB\_FORCE\_CLOSE\_METHOD

If specified, this names a Connection method that can be used to force a Connection closure, without waiting for database resources. This has occasionally been found necessary on MySQL databases, where the MySQL Connector/J driver does not always behave predictably, causing ExtraView to hang. In the case of MySQL, the method name should be abortInternal. It is unusual to need this setting.

FROM\_WAR

If this setting is present, and has a value of **TRUE**, then ExtraView recognizes it is being run from within a WAR file. In most instances this is not needed as ExtraView automatically recognizes the WAR file configuration, but some application servers (notably JBoss) do not correctly report the presence of the WAR file configuration. In these cases, it is required to set this parameter

Connection pool settings

These are described in detail in the page of this guide named [Connection Pool Configuration](#)

## Converting Text Area Fields to HTML Area Fields

Providing a rich text environment to users is often more productive than allowing them to enter and update

pure text. ExtraView's HTML Area and Log Area field types have an extensive range of features that go beyond text. The key features are:

- Formatting of text, including bold, underline and italics. Text may be in different fonts, colors, sizes and styles. Text may be justified to the left, right, centered or full-justified
- Text may be indented and bulleted
- Images may be embedded directly into the body of the field, placed there via copy and paste or by selection from files
- Entire documents / images may be embedded within the body of the field
- Links to web pages may be inserted
- Tables of any number of rows / columns may be created

Note that Log Area fields must have the option to **Present as HTML** set to provide rich text.

When configuring new layouts, the administrator may create new fields with the HTML Area display type and to create new Log Area fields with the **Present as HTML** option. When upgrading existing installations, it is possible to convert these existing Text Area and Log Area fields to utilize rich text, using the following utility. You must be an Administrator to perform this task, and you must be able to run the Java utility that ExtraView provides to perform the conversion. It is not recommended that you simply alter the display type of an existing field, especially if your existing data contains any references to HTML codes, as these will not appear correctly after the alteration of the field type.

- It is strongly recommended that you take a backup of the entire ExtraView database before beginning this process and that the system is offline to users while you perform the conversion. The utility offers the ability to back up the database table that contains the text
- The utility must be run on one field at one time. If you wish to convert multiple fields, run the utility once per field
- The utility will work with Text Area and Log Area display type of fields. After the conversion utility is run, use the data dictionary to update the display type of Text Area fields to HTML Area fields. With Log Area fields, you enable the **Present as HTML** option after you run the utility
- ExtraView provides a batch file to run the file on Windows operating systems, and a shell file to run the file on Linux/Unix operating systems
- The following is an example of the conversion process for Windows:

- Enter a command window

- Navigate to your ExtraView root directory. Alter the path to match your Apache Tomcat folder. The example assumes your root ExtraView directory is named evj

```
cd C:\ApacheHome\apache-tomcat-8.5.12\webapps\evj\WEB-INF\data
```

- If not already set up, create the following environment variables, again matching the locations to those of your system:

```
set TOMCAT_HOME="C:\ApacheHome\apache-tomcat-8.5.12"
```

```
set JAVA_HOME="c:\PROGRA~1\java\jdk1.8.0_121"
```

```
set EV_BASE="C:\ApacheHome\apache-tomcat-8.5.12\webapps\evj"
```

- Run the conversion utility upon the field you wish to update. The optional `-b` parameter takes a backup of the fields that are being converted and stores them in a database table. The

field\_name is the name of the field being converted

```
doTextToHTMLConverter.bat [-b] field_name
```

- Once the conversion program is complete, sign on to ExtraView as an administrator and alter the display type of the Text Area field you converted from Text Area to HTML Area. With Log Area fields, you enable the **Present as HTML** option after you run the utility
- You may also want to adjust the size of the field as it is used in various layouts, either with a global data dictionary attribute or with layout cell attributes on the individual layouts. HTML Area fields often look better when they are wider than their Text Area counterparts. For the standard toolbar used, a SIZE layout cell attribute of 160 is typically correct for all browsers to display the rich text correctly
- Perform sample checks of the field you have converted to ensure the process was successful.

## Quickfind

Quickfind is the indexing mechanism for all text information within ExtraView. It is recommended that this be configured for all ExtraView installations, although querying for information will work without this being turned on. The major advantage of Quickfind is that the speed of searching and querying is greatly increased.

Quickfind configuration is completed by setting up behavior settings and configuring the Quickfind indexing task.

Note that documents and attachments larger than 16MB are not indexed.

The Quickfind indexes are held externally to the ExtraView database, utilizing an open source set of libraries from the Apache Foundation. The libraries are known as Lucene.

### Quickfind Task

The section on [Managing Quickfind](#) contains full information on Quickfind configuration. This page solely discusses how to perform the initial configuration and subsequent upgrading of the Quickfind indexes.

Within a new installation all the setup and configuration may be accomplished within the Manage Quickfind task, or can be managed with the information following on this page.

This Quickfind task automatically indexes newly added text to all issues entered or updated by users. Once configured and started, this task will keep the indexes up-to-date as users add or update any text within issues.

For new installations, once you have completed all the steps on this page, go to the [Managing Quickfind](#) page to configure and start the Quickfind task.

### Behavior Settings

## Behavior Setting

## Purpose

QUICKFIND\_ACTIVE\_INDEX

This setting determines which index is currently active for QuickFind. The value may be PRIMARY or ALTERNATE. Quickfind keyword searches are performed using the directory in QUICKFIND\_INDEX\_LOCATION as the primary or QUICKFIND\_INDEX\_LOCATION\_ALT as the alternate respectively

QUICKFIND\_INDEX\_ENUMERATED

This setting controls whether the titles to UDFs are indexed. If indexed, keyword searches that contain issues with the values of these titles will be returned within the results

QUICKFIND\_INDEX\_LOCATION

The name of the directory on the file system where Lucene full text indexes will be stored. Before any indexes are built, you must also enable full text searching by setting ENABLE\_QUICKFIND. You must also ensure that the path is valid from the application server(s) that are running ExtraView, and that you have all the permissions to read and write to the storage. You must also ensure that you set up a separate backup method for this external storage as backing up your database will not backup the full text indexes

QUICKFIND\_INDEX\_LOCATION\_ALT

This is an alternate directory path for the QUICKFIND index files. When using the ALTERNATE QUICKFIND\_ACTIVE\_INDEX, keyword searches are performed using this directory.

QUICKFIND\_INDEX\_USERS

This setting controls whether Quickfind includes user IDs in the text search for keyword searches. Valid values are YES and NO.

QUICKFIND\_MAX\_HITS

This is the maximum number of search hits in the QuickFind index permitted with any single query. When a greater number of issues are returned from the index, only the first QUICKFIND\_MAX\_HITS are used. The default is 20,000.

## Preparation

Before setting up Quickfind, you should carefully consider where to store the index files that are created. The following pointers should be taken into account:

- You should have sufficient space for the index storage. This is dependent upon the size of database and the amount of text that is contained within it. Indexes can vary in size from tens of Megabytes of space to several Gigabytes of space in a very large system
- You must have write permission from the ExtraView WEB-INF folder to this location
- The path to the index files may be relative to WEB-INF, or be an absolute path. It is recommended that you choose an absolute path. The reason is that upon a system upgrade, you will probably rename and replace the old ExtraView installation, and the relative path that contains the indexes will no longer be in the correct location.

## FullTextIndexSetup

If you are enabling Quickfind on an existing installation, you index all the existing information by using an

external program named FullTextIndexSetup. This should be accomplished with the task named Quickfind Synchronization Task (FULL\_TEXT\_SYNCHRONIZE) turned off, or the ExtraView application server stopped. Some upgrades may also require the indexes to be rebuilt, using the same FullTextIndexSetup program. As discussed below, it is possible to keep your ExtraView installation online while you upgrade Quickfind.

The FullTextIndexSetup utility is extremely quick on a new database, but may take some time on a very large existing database. It is difficult to predict exactly how long this will take on a large database, as there are many factors such as processing speed, memory, amount of text, and the number of stored attachments that all have an impact. Your users can continue working during the period of indexing, and the search results will improve as the process continues. Our recommendation is to start the process after the majority of users leave work for the day.

The FullTextIndexSetup utility is found in the directory named WEB-INF/data.

The syntax to run this utility is:

Windows platforms -

```
FullTextIndexSetup.bat JAVA_HOME TOMCAT_HOME EV_BASE  
[app_server_name] [-no_reset] [-alternate altIndexDir]
```

Linux platforms -

```
FullTextIndexSetup.sh JAVA_HOME TOMCAT_HOME EV_BASE  
[app_server_name] [-no_reset] [-alternate altIndexDir]
```

- JAVA\_HOME is the path to your Java
- TOMCAT\_HOME is the path to your application server
- EV\_BASE is the path to the ExtraView installation
- app\_server\_name is the name of the application server node on which the indexes are to be stored within the path defined by the behavior setting named QUICKFIND\_INDEX\_LOCATION. Quickfind only runs on one node within a multi-node environment and this parameter specifies which node is to be used. If you are running with a single application server then ExtraView will ascertain the name of the application server and this parameter is not needed
- It is likely that you will have environment variables set for JAVA\_HOME and TOMCAT\_HOME, and possibly EV\_BASE but these can be set in the batch file or shell script file if needed
- -alternate altIndexDir provides a location for an alternate index to be used, when upgrading the Quickfind software. The location for the index is taken from the behavior setting named QUICKFIND\_INDEX\_LOCATION if this is not set
- -no-reset allows for a restart of the process in the case where processing was interrupted for any reason.

## Updating Quickfind

From time-to-time ExtraView recommends that the libraries be updated, for bug fixes and performance enhancements. Unfortunately, the Apache Foundation do not always maintain backwards compatibility with the format of the indexes that are stored. The re-indexing of the Quickfind indexes within ExtraView may take a long time with large databases, and it can introduce unacceptable downtime if a system is required to be kept offline while the re-indexing occurs.

To mitigate this, ExtraView Corporation has built a methodology that allows the new indexes to be built

whilst the old ones are maintained in the live system, and for a switch to the new indexes being made at any point in time, without the loss of any indexing that's completed or in progress.

The process is this, assuming that the active index is set to a value of PRIMARY. At the outset, your behavior settings will look something like this:

- QUICKFIND\_ACTIVE\_INDEX - PRIMARY
- QUICKFIND\_INDEX\_LOCATION - */usr/locn/indexes*

We want to set up an alternate set of indexes in the new location of */usr/locn2/indexes* and switch to using these for the future.

## Step 1

Backup the existing indexes stored in the location */usr/locn/indexes*.

## Step 2 - Process for Large Installations

For smaller databases where you can stop the ExtraView server while you perform the update, see the alternate step 2.

This creates a new set of indexes in the location */usr/locn2/indexes* while your ExtraView installation continues with normal operations. On large sites this may take many hours, or even days. This is accomplished external to ExtraView with the FullTextIndexSetup utility so that the normal functionality of ExtraView is not disrupted while the re-indexing is underway.

Run the FullTextIndexSetup as described in the previous section for this step, but use the `-alternate altIndexDir` parameter to build the new indexes in the path */usr/locn2/indexes*.

## Step 2 - Alternate Process for Smaller Installations

Stop the application server - usually Tomcat. Reindex using the FullTextIndexSetup process. Restart the application server. Note that users cannot access the installation during this time. Step 3 is unneeded if you choose this step.

## Step 3

Once the FullTextIndexSetup is complete, you will switch ExtraView to point to the newly built indexes. There is not a problem if there is a delay between building the new indexes and switching from the old ones as the indexing task recognizes the precise point in time at which the new indexes were built, and will simply add to the new indexes any information that needs to be processed in the time gap between the completion of building the new indexes and the current point in time on the live system.

To point to the new indexes, alter the two behavior settings as follows:

- QUICKFIND\_ACTIVE\_INDEX - ALTERNATE
- QUICKFIND\_INDEX\_LOCATION - */usr/locn2/indexes*

The Quickfind task will immediately point to the new index location and will process any issues to bring the new indexes completely up-to-date.

# Checking Aliased Lists

Over time, some customers have reported that list fields with aliases do not retain their synchronization. The reasons for this were some early bugs in the feature, and customers who manipulated the values in the lists outside of the ExtraView GUI. This page describes a stand-alone tool named `checkAliases` that will verify the consistency of the aliases and will optionally correct any problems found. The utility is found in the directory named `WEB-INF/data`. Aliased lists consist of an original field with a display type of list or popup, which can be edited by the GUI and one or more alias lists that should have identical contents. If the aliased list is found to be different than the original list, the utility reports them as different. The `-sync` option will cause the tool to fix the lists to be consistent. Consistency is imposed by adding values, where needed, to make the lists have the same content. This means that both the original list and any aliased list will have values added, if they are missing from the super set of all values.

## Microsoft Windows

- run the `checkAliases.bat` file with arguments `JAVA_HOME`, `TOMCAT_HOME` and `EV_BASE`.

For example:

```
checkAliases.bat C:\ExtraView\jre1.7.0_67 C:\apache-tomcat-7.0.55 C:\apache-tomcat-7.0.55\webapps\evj
```

If any errors are reported, run again with the additional argument `-sync` to correct the errors. - run the `checkAliases.bat` file with arguments `JAVA_HOME`, `TOMCAT_HOME` and `EV_BASE`. `-sync` to fix any problems found.

For example:

```
checkAliases.bat C:\ExtraView\jre1.7.0_67 C:\apache-tomcat-7.0.55 C:\apache-tomcat-7.0.55\webapps\evj  
-sync
```

## Linux

- Edit the `checkAliases.sh` file to set `JAVA_HOME` and `TOMCAT_HOME` for your filesystem
- Run the `checkAliases.sh` file with argument `evj` where `evj` is the name of your webapps folder. For example: `sh checkAliases.sh evj` If any errors are reported, run again with an additional argument `-sync` to correct the errors
- Run the `checkAliases.sh` file with arguments `evj -sync` where `evj` is the name of your webapps folder, to fix any problems found. For example: `sh checkAliases.sh evj -sync`

To get meaningful tests, it may be necessary to manually alter values in either the original list or any alias list. If any errors are reported, run again with an additional argument `-sync` to correct the errors. Observe that lists are correct after modification. Note: This tool only creates new list values and doesn't delete or change any existing values in any list.

# Spell Checker

ExtraView has a spell checker which may be used in preference over any spell checking capability provided by your user's browsers. It is optional to provide this to your users. For new ExtraView installations from version 9.1 onwards, the Apache configuration is done for you, but if you are upgrading

an older installation to version 9.1 or greater, you must configure your web server if you want to enable it. The advantages of the ExtraView Spell Checker are:

- Consistent user interface across all browsers
- Users may add words to a shared, company-wide dictionary
- The following dictionaries are provided:
  - US English
  - UK English
  - Canadian English
  - Australian English
  - Spanish
  - French
  - Dutch
  - English Medical Dictionary

For new installations from version 9.1 onwards, you just need to set the value of the behavior setting `ENABLE_SPELLCHECK` to `YES`.

To configure the web server when upgrading from a version of ExtraView prior to 9.1, please follow this procedure, assuming you are using Apache.

- Edit the `extraview.conf` file. Your installation may have used a different name for this file. It is the name of the file in the `INCLUDE` statement within the `httpd.conf` file
- Locate the section with the `JkMount` statements
- Add the following line:

```
JkMount /evj/rapidSpell/a.rapidspellweb tomcat1
```

Obviously, the path to the software should match the other `JkMount` statements and the `tomcat` should be the appropriate one for your installation.

## Checking ExtraView is Functional

### Main ExtraView Application

If you are upgrading your ExtraView installation, it is important that all users refresh their browser caches before using the new release. Please communicate to all users that they should:

1. Use the browser option to clear all the temporary cache files from all the browsers they use
2. Immediately restart the browsers, before accessing ExtraView or any other website.

Sign on to ExtraView and check it is operating correctly. The base installation of ExtraView is sufficiently configured so that it can be used immediately, although you may be planning a significant implementation with a significant amount of customization. Your address to access ExtraView was defined as you installed the software.

Note that you must sign on with the fully qualified domain name, using either the IP address of the server within the name or using the fully qualified URL, such as **extraview.mycompany.com**. This assumes you have DNS configured for your server or it is within the **hosts** for your computer. If you do not enter a fully qualified domain name, you are likely to see a screen showing that you have a cookie error. The initial sign

on information is: User Name = admin Password = Welcome The password is case sensitive. You should alter the password to the admin account as soon as possible to ensure security of the system.

Note: Beyond the initial check that ExtraView is operational, you should not use the admin user account for any purpose, unless directed to do so by ExtraView's support personnel. The admin account has special properties that bypass many features within ExtraView, such as the checking of field-level security permissions, which make it a very poor choice to use for any operational work. At the same time, you should never deactivate the admin account within your system. This account does not occupy a user license.

Click on each menu button in the navigation bar to ensure that the program is operating correctly. If you see the appropriate contents within each section, you can be sure you have installed ExtraView correctly.

## Multi-Language Installations

If you changed the behavior setting `DEFAULT_LANGUAGE` to perform an upgrade of messages in a language other than English, remember to restore the value of this setting to the appropriate one for your installation.

## Charting

The charting functionality requires an additional check to ensure that it is operating correctly. To check that charting is configured correctly, simply ensure you have at least one issue entered within ExtraView, and produce a chart from within the **Query --> Create New Chart** function. If a chart is displayed, the configuration is correct. If you see a program exception, the most likely reason is that ExtraView cannot find the path to a temporary directory, or the directory has incorrect permissions set.

The temporary directory is where ExtraView stores the chart images that will be displayed. The path to this directory is set up as part of the installation procedure within the `Configuration.properties` file. You will find that the default entry within this file is `CHART_DIR = tmp` This path is relative to the `WEB-INF` directory. As shown there should be a directory named `tmp` within the `WEB-INF` directory. If this is not present, or it does not have read and write permissions, charts cannot be created and displayed. You may choose a different path name if it is required for any reason within your environment. If you require a path to be set up, that is not relative to `WEB-INF`, you can use an alternative entry within `Configuration.properties`:

```
CHART_DIR_ABSOLUTE = pathname
```

# Configure Outgoing Mail

## Configure the BatchMail Task

ExtraView will generate outbound email messages when issues are created or updated, when escalation routines are triggered, or when the Ad Hoc Email feature is used. These email message files are saved to a folder on the application server, defined in the `EMAIL_DIRECTORY` behavior setting. There is only one `EMAIL_DIRECTORY` location per ExtraView application – regardless of whether you are running a single instance, or if you are clustered or load-balanced across one or more servers.

The BatchMail task is a utility that polls the `EMAIL_DIRECTORY` location on a timed basis, and if it finds any email messages in the folder, it uses your SMTP mail server to deliver the email message to the

recipients specified.

To configure the BatchMail utility, you must set the SMTP server and mail directory locations. Within the ExtraView administration screens, you will then create and configure a BatchMail Task, and configure the application to write the email messages in the EMAIL\_DIRECTORY location.

You must also set up the BatchMail Task. In the ExtraView administration section, go to **Administration --> Operational Tasks --> Task Manager**.

First, verify that you currently have at least two SESSION\_MONITOR and two TASK\_CONTROL\_TASK tasks in the list, and that at least one of each of these tasks has a current status of STARTED. If this is not the case, please contact ExtraView support.

Click on the **Add a new task** button. From the Task name selection list, select BatchMail.

Enter a title for the task. From the Node ID selection list, select the node on which you wish to run the BatchMail task. Even if you are running on a clustered application server environment, you only need run the BatchMail task on a single node.

A configuration text entry area will appear, with sample properties configured. At a minimum, you must configure the MAIL\_SERVER and MAIL\_DIR settings to provide valid values for your system.

old line --> MAIL\_SERVER=mail.yourdomain.com  
new line --> MAIL\_SERVER=<name of a valid SMTP server>

old line --> MAIL\_DIR=C:/ExtraView/Tomcat/webapps/evj/WEB-INF/mailbox  
new line --> MAIL\_DIR=<path to where ExtraView will write email messages>

A default location is provided for the mailbox directory under tomcat/webapps/evj/WEB-INF/mailbox, but you can provide any absolute path.

In order to activate email notification, the following behavior settings must be configured from the ExtraView web interface. In ExtraView administration section (**Administration --> Email Settings**), set the following behavior settings:

EMAIL_DIRECTORY	Must be set to the same value as MAIL_DIR in BatchMail configuration file, C:/ExtraView/Tomcat/webapps/evj/WEB-INF/mailbox in the example above. Both the application servers and the BatchMail services must have read and write access to this location.
EMAIL_FROM_USER_ID	Must be set to a valid email address
EMAIL_NOTIFICATION	Must be set to YES for email notification to be turned on

You can get more information about the other settings in the ExtraView Administration Guide.

You must also set up the BatchMail Task. In the ExtraView administration section, go to **Administration --> Operational Tasks --> Manage Tasks and Threads**.

First, verify that you currently have at least 2 each of SESSION\_MONITOR and TASK\_CONTROL\_TASK tasks in the list, and that at least one of each of these tasks has a current status of STARTED.

Click on the **Add a new task** button. From the drop down Task name list, select BatchMail. Enter a title for the task. From the Node ID drop down list, select the node on which you wish to run the BatchMail task.

If you have a standard installation, the current node id will be WS\_A (this is the WEB\_SERVER\_NAME value from the Configuration.properties file for the current instance).

If you are running in a clustered or load-balanced environment, if all of the instances (nodes) are on the same server, you can set up one BatchMail task to be shared by all nodes. If each node is on a separate server, you can either set the MAIL\_DIR to a location accessible by all nodes, and have a single task on one node, or you can build a location mapping to MAIL\_DIR on each node, and have each node running its own BatchMail task.

## Configure Incoming Mail

### EVMail

The EVMail feature allows incoming emails to be used to create and update issues within the ExtraView database. For instructions on how to configure EVMail, please go [here](#).

## Configuring Microsoft Exchange Server

This section is only applicable if you are using ExtraView with Microsoft Exchange Server.

Starting with Exchange 2007 and subsequently with Exchange 2010, the Exchange server strips off the plain text version emails and only forwards the HTML version. This is the default setting of Exchange.

Customers who wish to use EVMail with Exchange, should ensure that the mailbox for EVMail is configured not to do this, and to include the plain text version of the email.

References on this behavior are found at:

[http://technet.microsoft.com/en-us/library/gg491244\(EXCHG.80\).aspx](http://technet.microsoft.com/en-us/library/gg491244(EXCHG.80).aspx)

[http://technet.microsoft.com/en-us/library/aa997869\(v=exchg.80\).aspx](http://technet.microsoft.com/en-us/library/aa997869(v=exchg.80).aspx)

Exchange 2007 includes the following MIME message retrieval options for POP3 and IMAP4 clients:

- Text
- HTML
- HTML and alternative text
- Enriched text
- Enriched text and alternative text
- Best body format

By default, Exchange 2007 uses the Best body format option for POP3 and IMAP4 message retrieval. The Best body format retrieval option represents the native content of a message that is stored on a server that is running Microsoft Exchange. This format retrieval option is used to reduce the likelihood of unnecessary content conversion operations on the server. Because POP3 and IMAP4 client protocols do not let clients specify Exchange content retrieval options when they retrieve messages from Exchange, the message

retrieval options must be configured on the server that is running the Exchange Client Access server role. These settings control how the content is requested from the Exchange Mailbox server and how the content is sent to the POP3 or IMAP4 clients.

You can use the Exchange Management Shell or the Exchange Management Console to manage the message retrieval options for POP3 or IMAP4 users. For more information, see *How to Manage POP3 and IMAP4 Message Retrieval Format Options*.

## Change in the "Best body format" retrieval behavior in Exchange 2007 SP3 Update Rollup 1

Exchange 2007 SP3 Update Rollup 1 introduces a change in the behavior of the Best body format retrieval option. In some situations after you apply Exchange 2007 SP3 Update Rollup 1, legacy POP3 or IMAP4 clients may be unable to render content that is retrieved from an Exchange 2007 Client Access Server (CAS).

In versions of Exchange 2007 that are earlier than Exchange 2007 SP3 Update Rollup 1, the Best body format option is functionally equivalent to the HTML and alternative text retrieval option. In this scenario, POP3 or IMAP4 clients that use the Best body format or HTML and alternative text retrieval option receive an HTML message together with a text-only copy of the message. This lets clients that cannot render the HTML message format view the text copy of the message.

When you apply Exchange 2007 SP3 Update Rollup 1, the behavior of the Best body format option changes. In this scenario, POP3 or IMAP4 clients that use the Best body format option only retrieve the native content that is stored on the Exchange Mailbox server. The POP3 or IMAP4 clients no longer receive an additional text-only copy of the message. If a POP3 or IMAP4 client cannot render the HTML message content, the client may be unable to view the retrieved message content.

If you require the earlier behavior of the Best body format option in an organization, modify the POP3 or IMAP4 retrieval settings to use the HTML and alternative text retrieval option. You must configure these settings on every Exchange 2007 Client Access server that provides services to POP3 or IMAP4 clients. After you modify these settings, you must restart the following services, as appropriate:

- Microsoft Exchange POP3
- Microsoft Exchange IMAP4

### PopMessagesRetrievalMimeFormat

0. Text Only
1. HTML Only
2. HTML and Alternative Text
3. Enriched Text Only
4. Enriched Text and Alternative Text
5. Best Body Format

You can manage the message retrieval options for IMAP4 and POP3 access for an individual user's mailbox by using the Exchange Management Console or by using the Set-CASMailbox cmdlet in the Exchange Management Shell. The following table describes the message retrieval format options that are available for POP3 and IMAP4 users.

- In the console tree, expand Server Configuration, and then click Client Access
- In the work pane, click the POP3 and IMAP4 tab
- In the work pane, select POP3 and then, in the result pane, click Properties

- On the POP3 Properties page, click the Retrieval Settings tab
- In the Message Retrieval pane, select "HTML and alternative text" from the drop-down list under Message MIME format
- Click Apply, and then click OK to save your changes
- Run the command:

Set-CASMailbox -Identity CAS01 -PopMessagesRetrievalMimeFormat *value*.

Use "HTML and alternative text" - 2 - as the *value*

## Configure Attachments

Note: It is strongly recommend that you back up your database prior to performing any of the procedures described on this page.

This configuration is relevant for file attachments, document field display types and image field display types. Attachment files uploaded to ExtraView are, by default, stored as binary objects in the database. The Administrator has the choice to configure the system to store some or all of the uploaded attachments on a file system accessible to the application server. ExtraView keeps track of where all attachments are located within the database. Prior to the conversion, all attachments are marked as being stored “internally” – within the database. As part of this migration process, as each individual file is extracted and copied to its final location on the file system, the system marks that attachment as now being stored “externally”. The migration process may be done as a background task, without impacting the availability of attachments to the end users, at any point.

This means that there is no need for a significant outage period if you have tens or hundreds of thousands of attachments to move from the database to the file system. The Administrator may choose to have all files stored internally in the database, all files stored externally in the file system, or have a mixture of some file types stored within the database, and some file types stored on the file system.

### MySQL Database Attachments

MySQL has some special considerations regarding file attachments. MySQL is very inefficient in the way it stores attachments in the database, and the Java driver software that accesses these requires a huge amount of memory for large attachments. To conserve memory, ExtraView constrains the size of MySQL attachments to 16 MBytes. Therefore, if you believe that you are likely to store and retrieve attachments larger than this size with the MySQL database, you should configure the attachments to work with external storage, where only the limitations of the operating system apply.

### Configuring External Storage

To configure attachment storage options, sign on to ExtraView with the Administrator role. Click the **Admin** button on the navigation bar, and then choose the **System Controls** tab, then select **Environment Settings**, and edit the following settings:

- **ATTACHMENT\_REPOSITORY\_OPT** - This setting controls whether attachments are stored internally within the database, externally on the file system, or in some combination of the two methods. If the value of this setting is INTERNAL (the default value), then all attachments are stored internally within the database. If the value is set to EXTERNAL, then all the attachments are stored on the external file system.

Alternatively, you may provide a comma separated list of file extensions and then all files with these extensions will be stored in the database while all others will be stored externally in the file repository. For example, if you set the value of this setting to "txt,doc,htm" then files of these types will be stored internally. This strategy leaves files of these types stored internally in the database and they remain searchable by keywords, while image and video files are stored externally. Regardless of the setting, ExtraView will continue to store dynamically generated thumbnail-sized image files in the database as these are relatively small files and must, for performance reasons, be more readily available.

There is a third value for the setting. If the value is CUSTOM, then user custom code will handle the storage of file attachments.

- **ATTACHMENT\_REPOSITORY\_ROOT** – This setting defines the location outside the database where attachments will be stored. You must ensure that the path is valid from the application server(s) that are running ExtraView and that you have all the permissions to read and write to the storage. In a clustered or load-balanced environment, you must ensure that all instances of ExtraView can read and write to the same file system using this path.

Note: If you change this setting, new attachments will be saved to the new location, and existing attachments will still reference the old location. You will need to ensure that the previous file path is still accessible by the ExtraView instance, or these existing attachments will not be available to end users.

Ensure that you set up a backup method for this external storage as backing up your database will no longer backup the file attachments

- **ATTACHMENT\_REPOSITORY\_DMAX** - This setting defines the maximum number of files or directories that are created under one node of the external directory structure. The default for this value is 999. It is not likely that this value needs to be altered.

## Sizing the file system

We suggest that you ensure that there is adequate space for future growth when sizing the file system to be used for storing attachments externally. To do this, have your DBA connect to your ExtraView database using Query Analyzer (SQL Server) or SQL Plus (Oracle) and run the following queries:

```
-- return the total size of the attachments stored in the database, in bytes.  
select sum(file_size) from attachment;  
-- return the number of attachments in the database  
select count(*) from attachment;
```

## Migration Utility Options

In order to allow current customers to easily migrate existing attachments to the file system location, a command line utility is provided to extract the attachment files out of the database and to save them to the file system. This step is only required if you wish to extract the existing attachments from the database and store them on a file system on your network. You must pass several parameters into the ExtraView command line utility:

You can move one attachment by providing either a single attachment ID:

```
doAttachmentMigration "-id 10000"
```

or you can move batches of attachments by providing a range of attachment IDs:

```
doAttachmentMigration "-from 10000 -to 50000"
```

Attachment ID values can be found by having your DBA run the following SQL query against the ExtraView database:

```
select min(attachment_id), max(attachment_id) from attachment;
```

Optional parameters can be added inside the double quotes in the command line parameters:

**-report *filename*** - Generates a specific report file (by default the report will be dumped into ExtraView log file)

**-delete** - If specified, this deletes the attachment content blob from the database after it has been migrated successfully. We would not generally recommend this if you have a large number of attachments, as it is much more efficient to simply have your DBA truncate the table when you have completed the migration and have validated your results.

**-testOnly** - This allows a dry run of the attachment migration without any modification to the database or the repository.

**-noValidation** - This prevents the CRC-32 check on the stored migrated attachments, and may be somewhat faster. Use of this parameter is not recommended, because the extra time to validate the file content vis-à-vis the blob content is nominal, and the consequences of storing a blob in the file system incorrectly due to I/O error or network error could include a loss of valuable data. If the CRC-32 validation fails, the attachment is not migrated and an error is posted to the log and/or report file.

## Running the Migration Utility

The migration command line utility is included in the ExtraView application package. It requires Java be installed on the application server where you run it. We provide shell and batch file scripts that you can use to run the utility. If you have deployed ExtraView in a WAR/EAR file, you will need to set up an exploded directory to run this script. The scripts are located in the evj/WEB-INF/data folder on your application server (ie Tomcat, WebLogic).

- **Windows Tomcat** Edit the doAttachmentMigration.bat file Locate the lines:

```
set JAVA_HOME=%1
set TOMCAT_HOME=%2
set EV_BASE=%3
```

Replace %1 with your path to Java (e.g. C:\ExtraView\jre1.7.0\_67)

Replace %2 with your path to Tomcat (e.g. C:\ExtraView\Tomcat7)

Replace %3 with your path to ExtraView (e.g. C:\ExtraView\Tomcat7\webapps\evj)

Save and exit the edit session. Open a command window in the evjWEB-INF\data folder and type the following command:

```
doAttachmentMigration "parameters"
```

where "parameters" is a double-quote enclosed list of parameters as per the options listed above

- **Linux Tomcat** Edit the doAttachmentMigration.sh file Locate the lines:

```
TOMCAT_HOME=/usr/local/extraview/tomcat
JAVA_HOME=/usr/local/extraview/java
```

Set TOMCAT\_HOME and JAVA\_HOME to your correct paths for your installation.

Save and exit the edit session.

At the command prompt, type the following command:

```
sh doAttachmentMigration.sh "parameters"
```

where "parameters" is a double-quote enclosed list of parameters as per the options listed above

- **Linux WebLogic** Edit the doAttachmentMigrationWeblogic.sh file Locate the lines:

```
JAVA_HOME=/usr/local/extraview/java
WL_HOME=/usr/local/boa/weblogic12c
EV_BASE=/path/to/extraview/application/evjxxx.jar
```

Set JAVA\_HOME, WL\_HOME and EV\_BASE to your correct paths for your installation.

Save and exit the edit session.

At the command prompt, type the following command:

```
sh doAttachmentMigrationWeblogic.sh "parameters"
```

where "parameters" is a double-quote enclosed list of parameters as per the options listed above.

## Validation and Completion

While the migration utility runs, it displays information on the console. It will also write detailed log entries to a file in the evj/WEB-INF/log folder (or to the file defined in the -report parameter option). Once the process has completed, you can check the log file to determine if there were any problems. If all attachments were migrated, you can verify that the attachments are available to download and view through the ExtraView GUI. Once you are satisfied, you can have your DBA remove the binary attachments from the database.

If you have selected the option to have all attachments stored in the file system, your DBA can simply run the command:

```
update attachment set thumbnail_id = null where thumbnail_id is not null;
truncate table attachment_content;
```

Note: this will remove all thumbnails. The thumbnail will be regenerated dynamically the next time the

attachment is referenced, e.g., as part of a detailed report.

If you have selected the option of having some types of file stored in the database and some files stored externally, your DBA will need to run some variant of:

```
delete from attachment_content
where attachment_id in
( select attachment_id
  from attachment
  where STORED_INTERNAL = 'N' );
```

- [Add new comment](#)

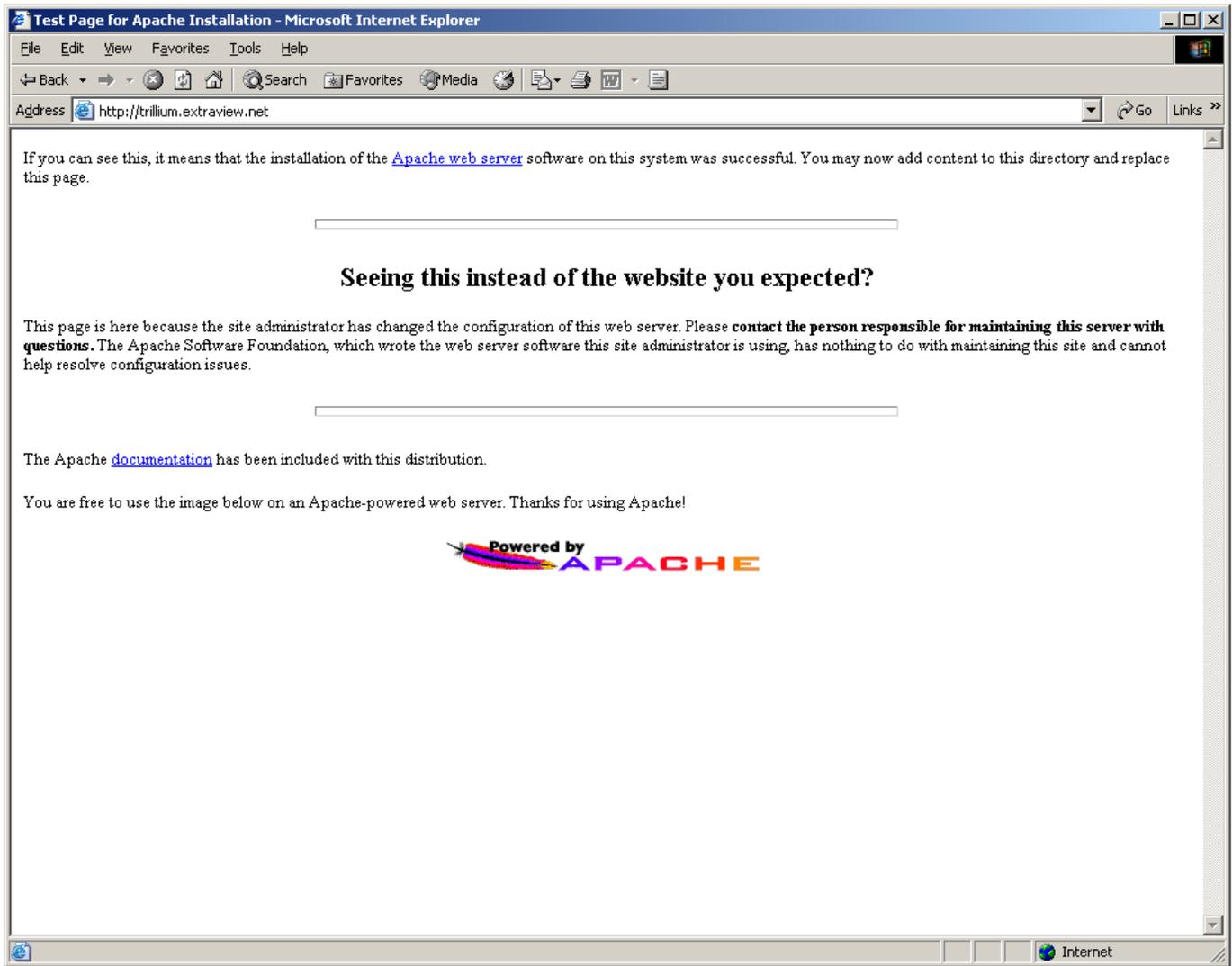
## Troubleshooting

The steps to ensure that your installation is operational and running without problems are:

- Check the Apache web server is running
- Check the Apache Tomcat application server is connected to the Apache web server, and is running
- Check that you can connect to the ExtraView servlet, and that this connects to your database
- Check that ExtraView is operational, and you can sign on

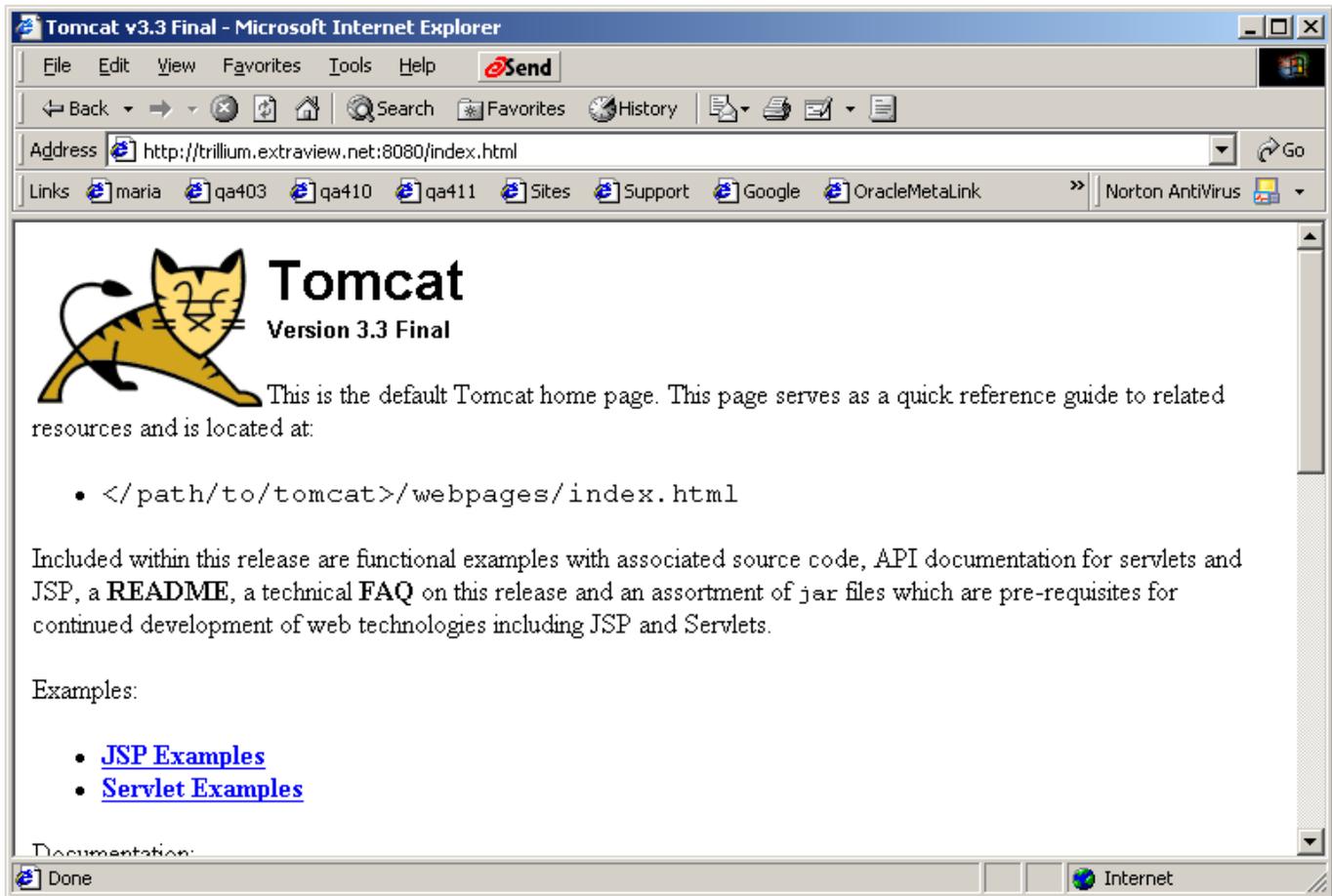
### Verify that the Apache web server is operational

Enter the URL of the server into a browser, for example `http://127.0.0.1`, and you should see the Apache test page.



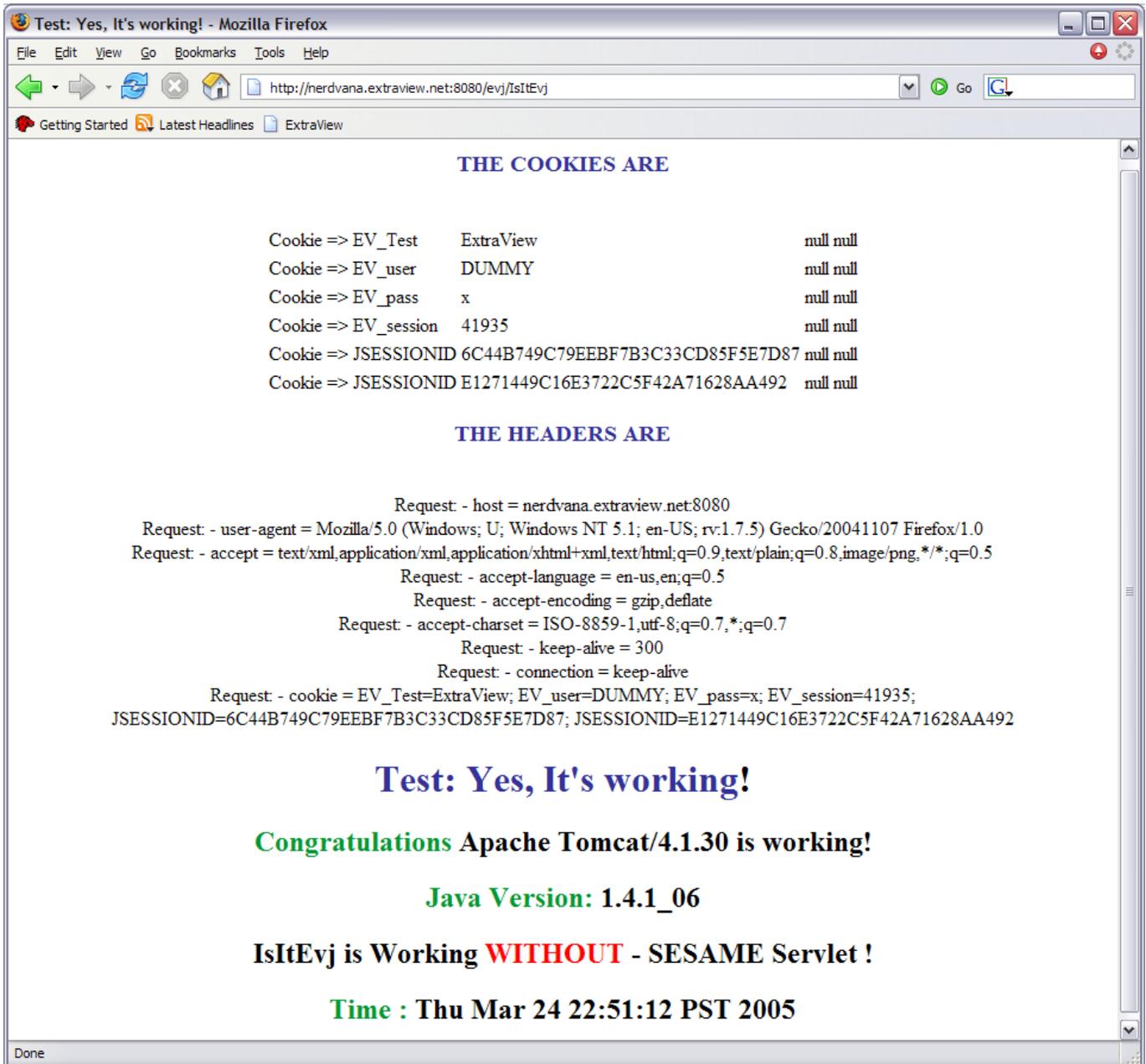
## Verify that the Apache Tomcat application server is running

By opening a browser on the local machine and typing in the URL of your machine:8080, for example <http://trillium.extraview.net:8080>, you should get the default Apache Tomcat screen.



## Verify that Tomcat can find ExtraView

Now, append /evj/IsItEvj to the URL, for example `http://localhost:8080/evj/IsItEvj` and look for the following screen. You should see a screen that is equivalent, but with your installation details.



## Verify that the Apache web server connects to the Apache Tomcat application server

Now, type in the plain URL of your server, for example <http://trillium.extraview.net>. This will start ExtraView.

# LOGO

## ExtraView User Sign On

User ID

Password

[Change Password](#)  
[New User Registration](#)

## Resources

ExtraView™

### ◆ Online Documentation

Complete online, searchable documentation. Click [here](#).

### ◆ Email a Question

Need assistance? Click [here](#) to send a question.

### ◆ Training

From free webinars to custom courses for your company. Click [here](#).

### ◆ ExtraView Features

See details about the different versions of ExtraView. Click [here](#).

### ◆ Solutions

ExtraView can be configured for every tracking purpose. See details [here](#).

### ◆ Direct Support

For customers who have purchased support only. Click [here](#).

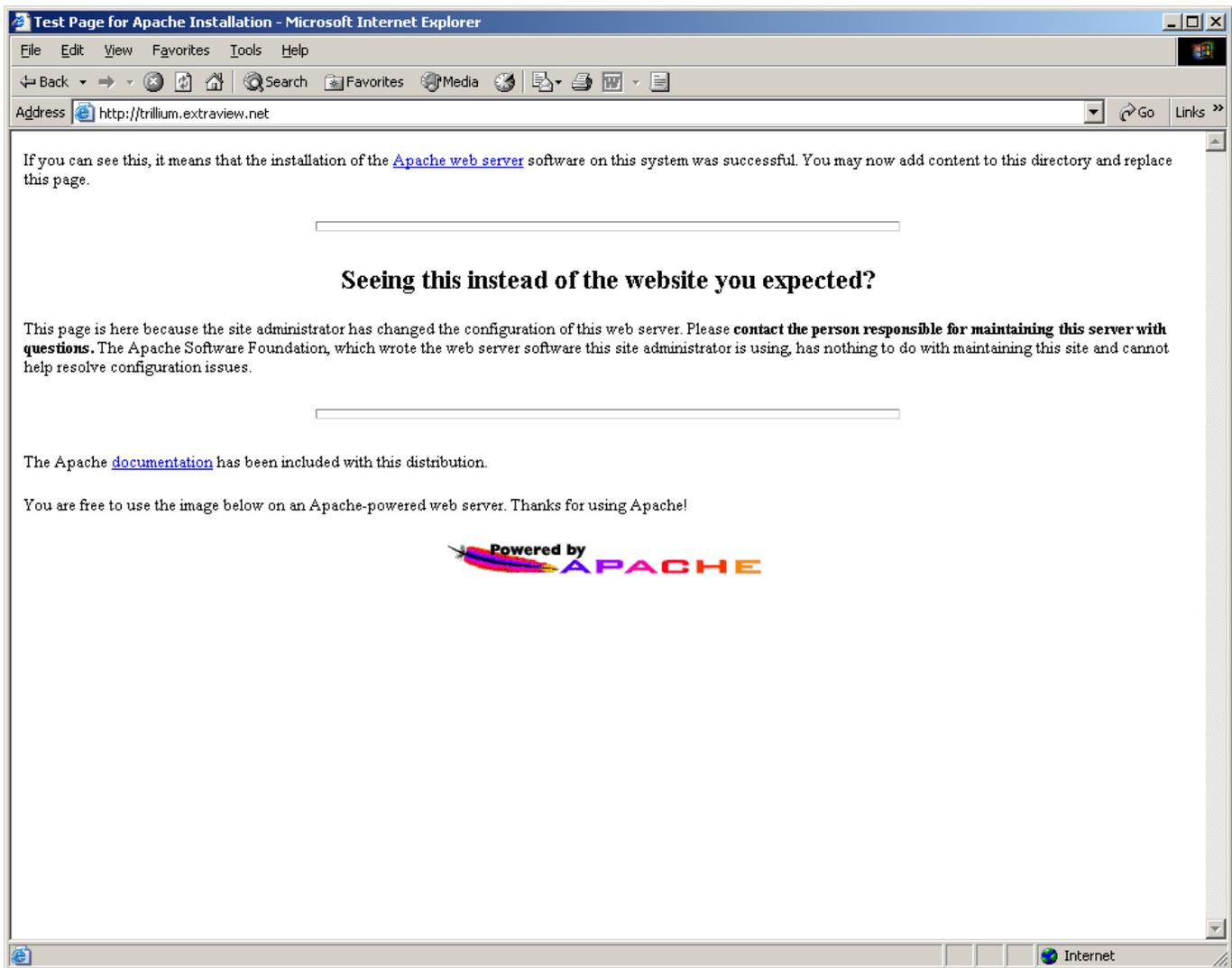
### ◆ Professional Services

Need assistance configuring your solution? Click [here](#) for help.

**ExtraView**  
Your Process. Your Workflow.

Copyright © [ExtraView Corporation](#), 1999 - 2011. All rights reserved.  
Licensed to: BEST DATA TESTING - EVID: 1000  
Environment - extraview\_gc - Version best\_data - Release 7.0 on WS\_A  
Report problems and request enhancements at the [ExtraView support site](#).

If you see the following screen, you will know that you have not configured the Apache configuration file httpd.conf properly.



## Backup & Recovery

An ExtraView database can be backed up or recovered using standard database backup/recovery procedures.

There are no customized or proprietary procedures involved.

For a more complete discussion on Oracle, consult the Oracle documentation, or view the Oracle DBA Handbook, Oracle Press, Osborne/McGraw Hill.

For Microsoft SQL Server, consult the MSSQL Books Online.

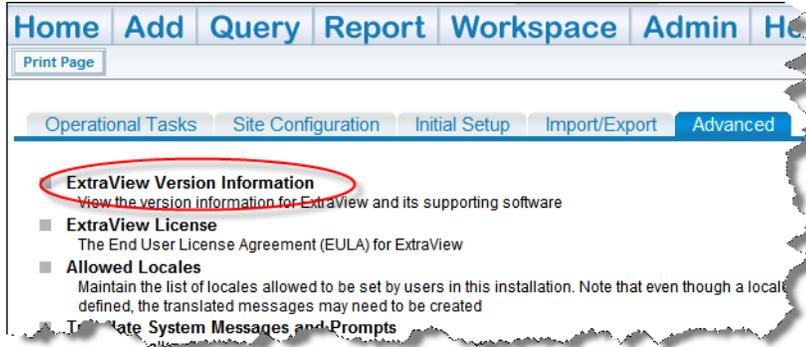
For MySQL, consult the Sun web site, or anyone of a number of excellent books published.

## Verifying the ExtraView License

### Verifying your ExtraView Application License Information

In order to verify the license information for your application, you should log in to the application using a

username and password of a user who has the Administrator role. On the **Advanced** tab, select **ExtraView Version Information**



Scroll down to the bottom of this page, and locate the value for LICENSE\_EXPIRATION\_DATE - if this date has passed, or if you are close to this date, please contact ExtraView Support to get a new license key before starting your Upgrade.

The screenshot shows a table with the following data:

EV_ID	1000
LICENSEE	BEST DATA TESTING
LICENSE_METHOD	USER
NUM_LICENSE_USERS	20
NUM_CONCURRENT_USERS	
LIMITED_USER_ROLE	GUEST
LICENSE_CREATION_DATE	
LICENSE_EFFECTIVE_DATE	2011-10-06 14:19:00.000 -0700
<b>LICENSE_EXPIRATION_DATE</b>	<b>2012-10-05 14:20:00.000 -0700</b>
LICENSE_INSTALL_EXPIRATION_DAT	2011-10-11 14:20:00.000 -0700
ALLOW_GUEST_EMAIL	YES
COUNT_LIMITED_USER_ROLE_LIC	NO
EVAPI_EXPIRE_TIME_HOURS	.5
LICENSE_UPGRADE_VERSION	7.0
LIMITED_USER_UPDATABLE_FIELDS	
MODE	EXTRAVIEW_GC
ALLOW_LIMITED_USER_ROLE_EDIT	NO
Mode ID	WS_A

books:

[ExtraView 7.0](#)