



Ensemble Release Notes

Version 2008.2
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About This Book

This book describes the contents of this release of Ensemble and provides important tips for getting started.

This book contains the following sections:

- [Getting Started](#)
- [Installing Ensemble](#)
- [Upgrading Ensemble](#)
- [New Features](#)
- [Enhancements](#)
- [Documentation](#)
- [Adapter Library](#)
- [Known Problems](#)
- [Release History](#)

There is also a detailed [Table of Contents](#).

1

Getting Started

Welcome and thank you for using Ensemble 2008.2!

InterSystems Ensemble shares many underlying core technologies with InterSystems Caché. This book refers you to books in both documentation sets. The Caché books are particularly important as you first set up the system. After initial configuration, the Ensemble books become your primary source of information.

1.1 First-Time Users

For an overview of product features, see the book *Introducing Ensemble*.

To prepare to work on an Ensemble project, see the book *Getting Started with Ensemble*. It outlines development tasks and identifies sources of information.

1.2 Installing Ensemble

This topic describes how to install Ensemble 2008.2.

To upgrade from previous releases of Ensemble, see the next section, “[Upgrading Ensemble](#).”

If you have any questions or encounter any problems while installing Ensemble, please contact the [InterSystems Worldwide Response Center](#) for support.

1.2.1 Supported Platforms

To double-check the list of supported platforms, browsers, Web servers, and other technologies for use with InterSystems products, see the *Supported Platforms* document provided with the Ensemble kit.

1.2.2 Installation Procedures

For installation instructions, see the *Caché Installation Guide* chapters for Windows, OpenVMS, UNIX, or Mac. The primary difference for Ensemble is that, where the Caché installation sequence offers a choice between 8-bit and Unicode, Ensemble automatically performs a Unicode installation.

There are additional considerations as described below:

- [Licenses](#)
- [Namespaces](#)
- [OpenVMS](#)
- [UNIX](#)
- [Failover clusters](#)

1.2.3 Licenses

You can enter an Ensemble 2008.2 license key during installation, or at any time after installation. Use the instructions in the “Managing Caché Licensing” chapter of the *Caché System Administration Guide*.

If you have questions or encounter any problems in this regard, please contact the [InterSystems Worldwide Response Center](#).

1.2.4 Namespaces

In InterSystems products, a **namespace** is a collection of data and programs in a virtual work space. InterSystems documentation provides a great deal of information about namespaces.

Important: The Ensemble installation procedure creates several namespaces for internal use by the Ensemble engine: %SYS, DOCBOOK, USER, SAMPLES, ENSLIB, ENSEMBLE, and ENSDEMO. All system-provided namespaces except ENSEMBLE and USER are overwritten upon reinstallation or upgrade. For this reason, InterSystems recommends that you always create new namespaces in which to work, rather than placing custom code in any of these system-provided namespaces, where it could be overwritten and lost.

This book frequently refers to something called an **Ensemble namespace** or an **Ensemble-enabled namespace**. This is a namespace that has the Ensemble classes loaded into it. Of the system-provided namespaces, only ENSLIB, ENSEMBLE, and ENSDEMO are Ensemble-enabled. Only ENSEMBLE is intended for your use; the other system-provided namespaces are reserved.

Once you have successfully installed Ensemble, any new namespace that you create is automatically Ensemble-enabled. You can create a new namespace by using the System Management Portal **[Home]** > **[Configuration]** > **[Namespaces]** > **[New Namespace]** page. For instructions, see the section “Configuring Data” in the “Configuring Caché” chapter of the *Caché System Administration Guide*.

1.2.5 OpenVMS Considerations

If you are running the Ensemble 2008.2 server on OpenVMS, extra steps are required. The following list provides an overview. InterSystems suggests that you use the instructions in the “Installing Caché on OpenVMS” chapter of the *Caché Installation Guide*. Pay special attention to the section “Post-Installation Tasks,” which guides you to the additional references listed below:

- When you install the Ensemble 2008.2 server on OpenVMS, you must install an Ensemble 2008.2 client (or a server, which includes the client) on a Windows system so that you can use browser-based interfaces such as the System Management Portal, Ensemble Management Portal, BPL Visual Editor, and DTL Visual Editor.

For instructions, see the section “Accessing the System Management Portal” in the “Using Caché on OpenVMS” chapter of the *Caché System Administration Guide*.

- There is no internal or private Web server installed with Ensemble 2008.2 on OpenVMS. Therefore, in order to use the System Management Portal and the Ensemble Management Portal, you must configure an external Web server.

For instructions, see the section “Install Caché on a Web Server” in the “Installing Caché on OpenVMS” chapter of the *Caché Installation Guide*.

- After completing the Caché procedure, for Ensemble 2008.2 on OpenVMS you must complete configuration of the external Web server with the following steps:

- Copy all files and subdirectories found in this Ensemble server directory:

```
[ installDir . CSP . ENSEMBLE ]
```

To the physical directory on the Web server that corresponds to this virtual directory:

```
/csp/ENSEMBLE
```

- Copy all files and subdirectories found in this Ensemble server directory:

```
[ installDir . CSP . ENSDEMO ]
```

To the physical directory on the Web server that corresponds to this virtual directory:

```
/csp/ENSDEMO
```

Detailed background information about CSP, remote servers, and physical and virtual directories is available in the “Using Caché Server Pages with a Remote Web Server” chapter of the *CSP Gateway Advanced Configuration Guide*.

- Each time you create a new namespace on OpenVMS, the namespace is automatically Ensemble-enabled, but Ensemble user interfaces will not work properly in that namespace until you copy files and directories as described above for `ENSEMBLE` and `ENSDEMO`.

For each new namespace, copy from this Ensemble server directory:

```
[installDir.CSP.newNamespace]
```

To the physical directory on the Web server that corresponds to this virtual directory:

```
/csp/newNamespace
```

1.2.6 UNIX Considerations

If you are running the Ensemble 2008.2 server on UNIX, InterSystems suggests that you use the instructions in the “Installing Caché on UNIX and Linux” chapter of the *Caché Installation Guide*, paying special attention to the section “Post-Installation Tasks.”

When you install the Ensemble 2008.2 server on UNIX, you must install an Ensemble 2008.2 client (or a server, which includes the client) on a Windows system so that you can use browser-based interfaces such as the Ensemble Management Portal, BPL Visual Editor, and DTL Visual Editor. For instructions, see the section “Install Caché Client on Windows for Development” in the “Installing Caché on UNIX and Linux” chapter of the *Caché Installation Guide*.

1.2.7 Failover Clusters

The *Caché High Availability Guide* explains how to install Ensemble 2008.2 on multiple clustered machines to provide failover capabilities in case of problems on the primary server. Chapters include:

- Caché Cluster Management
- Cluster Journaling
- Caché Clusters on Tru64 UNIX
- Caché and Windows Clusters
- ECP Failover

1.3 Upgrading Ensemble

You can upgrade to Ensemble 2008.2 from prior released product versions. The following upgrade paths are supported:

- [Ensemble 4.0 to Ensemble 2008.2](#)
- [Ensemble 4.0.1 to Ensemble 2008.2](#)
- [Ensemble 2007.1 to Ensemble 2008.2](#)
- [Ensemble 2008.1 to Ensemble 2008.2](#)

If you have an Ensemble version prior to 4.0, or if you have been using a field test version of Ensemble and you want to upgrade it to the released Ensemble 2008.2 product, contact the [InterSystems Worldwide Response Center](#) for guidance.

1.3.1 Upgrading from Ensemble 4.0 or 4.0.1

WARNING! If you are upgrading from Ensemble 4.0 or 4.0.1 to Ensemble 2008.2, the following files will be deleted upon upgrading Ensemble. If you want to preserve such files, export them before proceeding with the upgrade. You may reimport them to any namespace after the upgrade is complete:

- Any HL7 custom schema definitions (*.HL7)
- Any user files in the ENSDEMO namespace
- Any user files in the packages normally reserved for Ensemble (CSPX, Demo, Ens, or EnsLib)

CAUTION: If users currently have any code in the user startup routine (^%ZSTART or the older ^ZSTU) relating to Ensemble productions, they must override the **OnStart** method in the production class, move these code statements into **OnStart**, and remove them from ^%ZSTART or ^ZSTU. See “[Ensemble Recovery and Auto-Start](#).”

To upgrade an existing Ensemble 4.0 or 4.0.1 installation to Ensemble 2008.2:

1. Stop all running productions.
2. Perform exports as described in the warning above.
3. Prepare for an upgrade to Ensemble 2008.2 as described in the “Upgrading Caché” chapter of the *Caché Installation Guide*.

4. Install Ensemble 2008.2 using the instructions in the appropriate platform-specific chapter of the *Caché Installation Guide*:
 - Installing Caché on Microsoft Windows
 - Installing Caché on OpenVMS
 - Installing Caché on UNIX and Linux
 - Installing Caché on Mac

Each chapter provides special instructions for upgrades.

5. Open a Terminal window in which to issue commands.
6. If you exported custom schemas or any other production components or classes from a previous Ensemble installation, you may now reimport them using Ensemble Studio. Be sure to import each item into the same namespace from which you exported it.
7. For each Ensemble-enabled namespace, run these commands from your Terminal session:

```
ZN "nextEnsembleNamespace"  
DO $system.OBJ.CompileAll()  
DO ##class(Ens.MessageHeader).%PurgeIndices()  
DO ##class(Ens.MessageHeader).%BuildIndices()  
DO ##class(EnsLib.HL7.Message).%PurgeIndices()  
DO ##class(EnsLib.HL7.Message).%BuildIndices()  
DO ##class(EnsLib.HL7.Message).%BuildIndices($LB("Extent"))
```

These commands are required for the ENSDEMO and ENSEMBLE namespaces, and for any user-defined namespaces. They are not required for the ENSLIB namespace.

8. If you previously generated proxy classes using the Java Gateway, Web Services, or one of the Caché language bindings, regenerate them now. To generate proxy classes, see the appropriate documentation, such as:
 - [Using the Java Gateway](#)
 - [Using SOAP and Web Services with Caché](#)
 - [Using Caché Activate](#)
 - [Using C++ with Caché](#)
 - [Using Java with Caché](#)
 - [Using the Caché Managed Provider for .NET](#)
 - Other books in the Caché Language Bindings set

1.3.2 Upgrading from Ensemble 2007.1 or 2008.1

Upgrading from Ensemble 2007.1 or 2008.1 to Ensemble 2008.2 uses the procedure in the [previous topic](#) and has the same warning, but there are improvements that make the Ensemble 2007.1 or 2008.1 upgrade easier than the upgrade from Ensemble 4.0 or 4.0.1. These are:

- The upgrade does not delete custom HL7 Schemas as for Ensemble 4.0 or 4.0.1.
- In step 7, you do not need to perform namespace upgrades or to rebuild indices. However, in each Ensemble-enabled namespace you will need to run this command at the Terminal prompt:

```
Do $system.OBJ.CompileAll()
```


2

New Features

Ensemble 2008.2 offers the following new features since Ensemble 2008.1:

- [Digital Signatures and WS-Security](#)
- [Ensemble Recovery and Auto-Start](#)
- [Caché 2008.2 Features](#)

The next chapter, “[Enhancements](#),” describes changes in existing features since Ensemble 2008.1.

2.1 Digital Signatures and WS-Security

Among the new features that Caché brings to Ensemble is WS-Security 1.1 to protect web services messages. WS-Security is unrelated to HTTP basic access authentication (HTTP Basic Auth), which Caché and Ensemble already support for web services. The WS-Security support is for UsernameToken Profile with clear text password, as described in the following document:

[oasis-200401-wss-username-token-profile-1.0.pdf](#)

Online at the Organization for the Advancement of Structured Information Standards (OASIS) site:

<http://docs.oasis-open.org/wss/2004/01/>

InterSystems recommends that you use SSL with this profile because the password is in clear text. Caché and Ensemble support for SSL is documented in the “Using SSL/TLS with Caché” chapter of the *Caché Security Administration Guide*. InterSystems also recommends using a SOAP/XML gateway for security purposes.

Support for WS-Security provides a variety of benefits, including the generation and verification of digital signatures for message content according to the X.509 standard. X.509 addresses public key

and privilege management infrastructure. For further details, see the “Using WS-Security Features” chapter of *Using SOAP and Web Services with Caché*.

2.2 Ensemble Recovery and Auto-Start

Caché and Ensemble users can add code to the user startup routine (^%ZSTART or the older ^ZSTU) to direct the activities that occur whenever the server instance starts up. For details, see the article “Using the Caché ^%ZSTART and ^%ZSTOP Routines.”

In the past, Ensemble users have added code to ^%ZSTART or ^ZSTU to start an Ensemble production and perform setup tasks for business hosts upon startup. InterSystems no longer recommends this convention for Ensemble. Instead, you should use the procedures described in this topic. If you were using ^%ZSTART or ^ZSTU with previous versions of Ensemble, this topic explains what you should change:

- To automatically start a production when the Ensemble server instance starts up, use the Ensemble Management Portal **[Ensemble] > [Maintenance]** page to enable the **Auto-Start Production** option. This allows you to specify a production that starts automatically at system startup, and stops automatically at system shutdown. After configuring the **Auto-Start Production** setting, edit ^%ZSTART or ^ZSTU to remove any method calls such as **RecoverProduction** or **StartProduction** that you previously used to start the production.
- If you currently have any code in ^%ZSTART or ^ZSTU that is dependent on Ensemble being already started when the code executes, you must override the **OnStart** method in the production class, move these code statements to **OnStart**, and remove them from ^%ZSTART or ^ZSTU.
- If you currently have any code in ^%ZSTART or ^ZSTU that is designed to act on specific business hosts upon production startup, you must override the **OnProductionStart** method in the corresponding business service, business process, or business operation class; move these code statements to **OnProductionStart**; and remove them from ^%ZSTART or ^ZSTU.

For details about how to control Ensemble production startup and shutdown, see the section “[Production Life Cycle](#)” in the “Production Concepts” chapter of *Developing Ensemble Productions*.

2.3 Caché 2008.2 Features

Ensemble 2008.2 runs on top of Caché 2008.2. This means that, in addition to changes in Ensemble between 2008.1 and 2008.2, the new Ensemble release includes a large number of changes in the underlying Caché technologies.

IF you are upgrading from...	THEN the underlying changes resemble...
Ensemble 3.0 to Ensemble 2008.2	Caché 5.0.5 to Caché 2008.2
Ensemble 3.1 to Ensemble 2008.2	Caché 5.0.16 to Caché 2008.2
Ensemble 4.0 to Ensemble 2008.2	Caché 5.2.1 to Caché 2008.2
Ensemble 4.0.1 to Ensemble 2008.2	Caché 5.2.3 to Caché 2008.2
Ensemble 2007.1 to Ensemble 2008.2	Caché 2007.1 to Caché 2008.2
Ensemble 2008.1 to Ensemble 2008.2	Caché 2008.1 to Caché 2008.2

To learn about the Ensemble changes relating to Caché, begin with the InterSystems online documentation set called *Getting Started with Caché*. The following books and chapters are particularly helpful when you are upgrading from previous Ensemble versions:

- *Caché Release Notes*
 - *New and Enhanced Features for Caché 2008.2*
 - *New and Enhanced Features for Caché 2008.1*
 - *New and Enhanced Features for Caché 2007.1*
 - *New and Enhanced Features for Caché 5.2*
 - *New and Enhanced Features for Caché 5.1*
- *Caché Upgrade Checklists*
 - *Caché 2008.2 Upgrade Checklist*
 - *Caché 2008.1 Upgrade Checklist*
 - *Caché 2007.1 Upgrade Checklist*
 - *Caché 5.2 Upgrade Checklist*
 - *Caché 5.1 Upgrade Checklist*

3

Enhancements

Ensemble 2008.2 offers enhancements to existing features as follows:

- [Licenses and Jobs](#)
- [BPL <xpath> Element](#)
- [Production-Wide Settings](#)
- [Support for Rule Notification](#)
- [Default Security Settings for Ensemble CSP Applications](#)
- [Revised Error Logging and Handling](#)
- [Refinements to ACK and NACK Message Handling](#)
- [HTTP Options on HL7 Wizard Pages](#)
- [Forced Shutdown Option](#)
- [Abort All on Queue Contents Page](#)
- [Ensemble Monitoring Using SNMP](#)
- [Archive Manager Improvements](#)
- [Lookup Table Improvements](#)
- [Sequence Manager Improvements](#)

3.1 Licenses and Jobs

In releases 4.0, 4.0.1, and 2008.1, each started job consumed one license unit. If an Ensemble production issued messages that background jobs were unable to start, the reason was generally an insufficient license capacity for the Ensemble installation. This problem has been fixed in Ensemble 2008.2. Jobs no longer consume license units.

3.2 BPL <xpath> Element

An XPath evaluation facility has been added to BPL. This allows a business process to evaluate XPath expressions on a target XML document without needing to write complex code. The following is a simple usage example:

```
<xpath name='xpath'  
  source="request.MetadataXML"  
  property="context.Result" context="/staff/doc"  
  expression="name[@last='Marston']"/>
```

The *source* attribute is an expression yielding a stream containing the XML on which the XPath expressions are to be performed. Typically the *source* attribute will name a context or request property.

There are three other mandatory attributes: *property* which names a property (typically a context property) in which to place the result of the evaluation, *context* which is the document context and *expression* which is the XPath expression.

Finally, there are two optional attributes, *prefixmappings* and *schemaspec*. *prefixmappings* specifies prefix mappings for the document as a comma-delimited list of prefix-to-namespace mappings. *schemaspec* optionally identifies a schema specification.

Each *prefixmappings* entry is defined as a prefix, a space, and then the URI to which that prefix maps. This is especially useful if the document defines a default namespace with the `xmlns="http://somenamespaceuri"` syntax, but does not supply an explicit prefix mapping. The following *prefixmappings* string would map the `myprefix` prefix to the `http://somenamespaceuri` URI. Note the space character in the string:

```
prefixmappings="myprefix http://somenamespaceuri"
```

When the `<xpath>` element executes, the *source* stream is processed into an XPath document and then the XPath expressions are evaluated in sequence. The BPL runtime engine automatically manages the lifetime of the documents and caches them to allowing processing to be as efficient as possible

Important: The BPL <xpath> element is intended to support XPath expressions which yield a scalar value, that is a single piece of text, number, date etc. It is *not* intended to deal with expressions that yield an XPath DOM. This means that if the expression does yield a DOM, the target property will *not* be updated. DOM programming is beyond the scope of BPL. If your business needs such processing, then the XPath should be performed in a code block or a call to a utility class.

3.3 Production-wide Settings

The configuration display on the Ensemble Management Portal **[Ensemble] > [Productions]** page offers a new column at lower right called **Additional Production Settings**. This column offers two new production configuration settings, **UpdateTimeout** and **ShutdownTimeout**.

In previous releases, the update timeout for a production was fixed at 10 seconds and the shutdown timeout was fixed at 120 seconds. Some productions need to be configured with timeouts longer than 10 seconds for certain configuration items. These productions need to be able to lengthen the update timeout in order to be able to successfully update the configuration for those items. This is the reason for the new settings, **UpdateTimeout** and **ShutdownTimeout**.

For details about the new column on the **[Ensemble] > [Productions]** page, see “[Production Settings](#)” in “The Configuration Page” chapter of *Managing Ensemble Productions*.

The current release adds the ability for a production to define its own configuration settings, as has always been possible for business hosts (business services, business processes, and business operations). To provide new production-wide configuration settings, simply modify your production class definition as follows:

1. Add a property for each configuration setting you wish to define.
2. Add a class parameter called **SETTINGS** to the production class.
3. Set the value of **SETTINGS** to be a comma-delimited list of the names of the properties you have just defined. For example:

```
Property foo As %String;  
Property bar As %String;  
Parameter SETTINGS = "foo,bar";
```

The result is that your production properties are now listed in the configuration display on the Ensemble Management Portal **[Ensemble] > [Productions]** page, at the top of the **Additional Production Settings** column. The values for these settings can be edited and saved on this page.

For further details, see “[Configuration Settings](#)” in the “Creating a New Production” chapter of *Developing Ensemble Productions*.

3.4 Support for Rule Notification

This release adds support for user-defined rule notification. To provide notification for an Ensemble production, you must subclass `Ens.Rule.Notification` class and override the `%OnNotify` method in the subclass. The signature of this method is:

```
ClassMethod %OnNotify(pReason As %String,  
                    pRule As Ens.Rule.RuleDefinition)  
                    As %Status
```

Possible *pReason* values are:

- `BeforeSave`
- `AfterSave`
- `Delete`

At runtime, the Ensemble framework automatically finds your subclass of `Ens.Rule.Notification` and uses the code in `%OnNotify` to determine what to do upon firing a rule.

Normally when a rule is deleted, all the old versions of this rule are deleted, beginning with the oldest version. However, the user-defined rule notification feature only fires the `Delete` notification once. The notification is fired when the last existing version, which is the most recent version, is deleted. If rules are purged with a flag set to avoid deleting all old versions, the `Delete` notification is not fired.

3.5 Default Security Settings for Ensemble CSP Applications

For each Ensemble-enabled namespace there is a CSP application that needs to be properly configured to run the Ensemble Management Portal. Until Ensemble 2008.1, the security settings for these CSP applications allowed authentication by Password and by Kerberos. These settings worked for instances installed with Minimal, Normal or Locked Down security.

Due to changes in security in 2008.2, the current release adjusts the security settings for the Ensemble CSP applications. At installation time, the CSP applications in the namespaces `ENSEMBLE` and `ENSDEMO` acquire the following authentication settings, depending on the type of security that was selected at installation time.

Security Level	Type of Authentication
Minimal	Unauthenticated
Normal	Password
Locked Down	Password, Kerberos, and LDAP

During installation, Ensemble identifies the level of security that was selected by the user and saves this information for future use. Any time the user creates a new namespace, the built-in CSP applications in that namespace acquire the appropriate authentication settings for that security level.

3.6 Revised Error Logging and Handling

When a business operation has **Alert On Error** set to True, as soon as the business operation encounters any type of error condition it automatically triggers an alert. An alert writes a message to the Ensemble event log and can also send notification to a user via email or pager. Beginning with the current release, a business operation with **Alert On Error** set to True now also issues an alert whenever the business operation Suspends its current message.

This release enhances the Ensemble Management Portal **[Ensemble] > [Messages] > [Visual Trace]** page so that entries logged within the Ensemble event log are now also displayed among the messages in the trace.

The class `Ens.Util.Log`, which defines the Ensemble event log, now provides more detailed information in the online class reference documentation. This makes it easier for users to write applications that execute queries against the event log. However, for writing entries to the event log, InterSystems recommends that you do not invoke any of the methods in `Ens.Util.Log`. Instead, as in previous releases, InterSystems recommends that you use the macros such as `$$$LOGERROR` described in the “[Logging](#)” section of the “Creating a New Production” chapter in *Developing Ensemble Productions*.

3.7 Refinements to ACK and NACK Message Handling

This release adds support for handling batch ACK or NACK replies from multiple targets appropriately. The HL7 routing engine is now capable of gathering up the replies from a fanned-out set of target items before returning these replies as a batch.

Business operations that send out requests can now handle batch ACK messages as well. For the purposes of determining **ReplyCodeActions** behavior, the first child ACK found within the batch is used.

This release makes the HL7 routing engine construct and return ACK or NACK objects in the situation where the caller is requesting a response and the routing engine is not configured to forward back a response from any of its targets. Previously the routing engine would return a simple OK header if no **ResponseFrom** target was configured, even if validation failed. This release allows a caller use an **AckMode** value of `Application` to get a “Validation NACK” from the router if validation fails, without requiring the router to wait for a response from any target system.

3.8 HTTP Options on HL7 Wizard Pages

The Business Service Wizard and Business Operation Wizard now offer **HTTP** as an option for creating HL7 business services or HL7 business operations. HTTP was previously supported for HL7 message routing, but was not conveniently available from these wizards.

3.9 Forced Shutdown Option

In the Ensemble Management Portal, if a normal request to stop a production fails, the portal displays a message:

“Production could not stop, do you want to force a shut down?”

And offers a button:

Yes - Force to Shut Down

If you click this button, the production is forced to shut down.

3.10 Abort All on Queue Contents Page

On the Ensemble Management Portal **[Ensemble] > [Queues]** page, in the list of queues, the **Contents** link displays only if the number of messages waiting on that queue is greater than 0.

On the Ensemble Management Portal **[Ensemble] > [Queues] > [Contents]** page there is a new button at the top of the display: **Abort All**. If clicked, a confirmation dialog displays. If you confirm the operation, all queued messages shown on this page are deleted, and the display returns to the **[Ensemble] > [Queues]** page.

3.11 Ensemble Monitoring Using SNMP

Simple Network Management Protocol (SNMP) is a communication protocol that has gained widespread acceptance as a method of managing TCP/IP networks, including individual network devices, and computer devices in general. SNMP is both a standard message format and a standard set of definitions for managed objects. It also provides a standard structure for adding custom-managed objects. SNMP is important to Ensemble as a standard way to provide management and monitoring information to a wide variety of management tools.

The Caché implementation of SNMP signals an `Ensemble_LogEvent` each time an Ensemble business host posts an alert to the Ensemble Event Log. To set up SNMP monitoring for InterSystems products, see “Monitoring Caché Using SNMP” in the *Caché Monitoring Guide*.

3.12 Archive Manager Improvements

The Ensemble Management Portal **[Ensemble] > [Maintenance] > [Archive Manager]** page has been revised as follows:

- If all required archive settings are not supplied, or if a previous archive operation is still in progress, the **Run Archive** button is disabled.
- The archive operation runs in the background and displays progress statistics while it is running. The numbers in the display are updated continuously as follows:

```
Total messages processed XX - YY% finished
Total messages archived n
Total message headers deleted n
Total message bodies deleted n
```

Where *XX*, *YY*, and *n* indicate actual numbers.

- When you open the **[Ensemble] > [Maintenance] > [Archive Manager]** page, you might see information about the last or current archive. For example:

```
Archive history:
Archive start time 2008-06-04 16:52:55
Archive stop time 2008-06-04 16:52:55
Total messages processed 3002 - 100% finished
Total messages archived 0
Total message headers deleted 0
Total message bodies deleted 0
Archive status idle
```

- When you open the **[Ensemble] > [Maintenance] > [Archive Manager]** page, if no archive operation has ever been run on a namespace, the page displays the message “No history found.”

- Suppose someone else is running an archive when you opened the page, or suppose that, during the archive operation, you navigated to other pages and then return to the **[Ensemble] > [Maintenance] > [Archive Manager]** page. You will see the following display, with count and percentage continuing to change until the result reaches 100%, status becomes idle, and a final stop time appears:

```
Archive start time: 2008-05-14 18:19:02
Archive stop time:
Total messages processed 100 - 10% finished
Total messages archived 3
Total message headers deleted 1
Total message bodies deleted 1
Archive status running
```

- If errors occur during the archive operation, you will see the following display:

```
Total number of errors XX [show error log]
```

Where *XX* is a number and **[show error log]** is a link that toggles with **[hide error log]**. You can click this link to show or hide the error log. The maximum number of errors displayed in the table is 1000.

Each time you run an archive operation, the previous archive error log is deleted.

3.13 Lookup Table Improvements

The Ensemble Management Portal **[Ensemble] > [Maintenance] > [Lookup Settings]** page has been revised. It now provides an **Add New Table** button. When you click this button, the page refreshes with the cursor in the **Lookup Table** field and hint text below each of the three fields for entering a key: **Lookup Table**, **Key**, and **Value**. If you click the **Insert** button while the required fields **Lookup Table** and **Key** are empty, the hint text changes color to indicate an error.

The label on the **Delete All** button is now **Delete Table**. The meaning of the button is the same; the user clicks this button to delete all of the entries in one table. The button name was changed to **Delete Table** to avoid confusion that **Delete All** might mean to delete all tables.

Should you require more direct manipulation of lookup tables than is provided by the **[Ensemble] > [Maintenance] > [Lookup Settings]** page, this release provides a class that exposes lookup tables to access via objects or SQL. Additionally, it provides class methods to clear tables, export data as XML, and import data from XML. The class is `Ens.Util.LookupTable`.

3.14 Sequence Manager Improvements

Ensemble 2008.1 introduced the HL7 Sequence Manager. This release provides a class that exposes the runtime data of the Sequence Manager to programmatic access via objects or SQL. The class is `EnsLib.HL7.SM.RuntimeData`.

For details, see the section “[Accessing HL7 Sequence Data Programmatically](#)” in the “Elements of a Routing Production” chapter of the *Ensemble HL7 Version 2 Development Guide*.

4

Documentation

Ensemble 2008.2 provides documentation in HTML format and in Adobe Page Description Format (PDF). The [HTML files](#) can be served up any time Ensemble is running. The [PDF files](#) can be viewed or printed as you choose. In either format, the contents are identical.

4.1 Documentation Changes

Ensemble 2008.2 introduces the following new books:

- *Ensemble 2008.2 Release Notes* (this book)


Ensemble 2008.2 offers significant updates to the following books:

- *Getting Started with Ensemble*
- *Developing Ensemble Productions*
- *Managing Ensemble Productions*
- *Ensemble HL7 Version 2 Development Guide*
- *Ensemble Business Process Language Reference*

4.2 Online Documentation

When the local Ensemble server is online, it serves documentation in HTML format via a Web browser. The online documentation system gives access to information about core InterSystems technologies and the InterSystems products Ensemble and Caché.

You can access the online documentation in any of the following ways:

- Find the  Ensemble cube in the Windows system tray. Click on it to display the Ensemble cube menu. If Ensemble is stopped, start it. Then choose **Documentation** from the menu.
- Entering the following URL into a browser page on the local Ensemble system, where 57772 is the port number for which your Ensemble server is configured:

```
http://localhost:57772/csp/docbook/DocBook.csp
```

- When running Ensemble Studio, choose the **Help** menu **On-line Documentation** option.

4.3 Printed Documentation

InterSystems strongly recommends that if you want printed documentation, you *do not* print HTML pages from the browser, but instead take advantage of the pre-formatted PDF files, whose content is identical to the HTML.

4.3.1 Ensemble Documentation

The PDF files for Ensemble books are found in a subdirectory under the directory where you installed Ensemble, usually C:\InterSystems\Ensemble\Docs\Ensemble*.pdf or similar.

4.3.2 Other InterSystems Documentation

Other InterSystems documents that appear in the Ensemble online documentation set are also available in PDF format. If you discover there is an InterSystems document that you want, and that does not appear in your Ensemble kit, contact the [InterSystems Worldwide Response Center](#).

5

Adapter Library

Ensemble 2008.2 provides the following built-in adapters:

Email

Receives email messages via POP3 and sends email messages via the Simple Mail Transfer Protocol (SMTP).

File

Reads and writes files on the local network. Able to open, create, delete, modify, and move files. File content can be characters or binary data.

FTP

Receives and sends files between local and remote systems via the File Transfer Protocol (FTP). File content can be characters or binary data.

HTTP

Provides an HTTP listener for custom port listening, XML listening, or raw HTML handling. Supports the standard HTTP operations Post, Get, and Put. Allows the use of proxy servers.

iWay

The iWay XTE server is the gateway to more than 250 different adapters that connect Ensemble with diverse enterprise application and database systems and data formats. Ensemble provides three adapters for use with the iWay XTE server:

- The iWay adapter sends application service requests to external systems via an iWay XTE server that is listening on a TCP port. The iWay adapter handles inbound service requests from external systems by acting as a TCP listener for an XTE server.

- The iWay.DSN adapter sends database service (DSN) requests to external systems via an iWay XTE server that is listening on a TCP port.
- The iWay.IBO adapter sends iWay Business Object (IBO) invocation requests to an iWay XTE server that is listening on a TCP port.

LDAP

The outbound LDAP adapter can send requests to an LDAP server and receive responses.

MQSeries

Receives and sends messages in IBM WebSphere MQ (MQ Series) format. Message content can be a specific data type or a binary data stream. The adapter can simply send the message, or send it and then pull the corresponding response from the message queue.

MSMQ

Receives and sends messages in Microsoft Message Queue (MSMQ) format. Message content can be a specific data type or a binary data stream.

Pipe

Able to execute a shell command and communicate with it via pipes. Capable of handling character data or a binary data stream.

SAP

Sends requests to the iWay adapter for SAP and returns responses.

Siebel

A subclass of the HTTP adapter that sends requests to a Siebel server and returns responses.

SOAP

Listens for SOAP requests on a local TCP port or via a standard Web Server. Dispatches outbound requests by acting as a SOAP client to an external SOAP server.

SQL

Executes SQL statements against a remote database via an ODBC-defined Data Source Name (DSN).

TCP

Manages an incoming or outgoing TCP connection. Allows simultaneous handling of multiple connections. Supports character and binary data streams, and counted data blocks.

Telnet

Directly initiates and manages a Telnet connection. Uses a lower level interface than the iWay Telnet adapter.

TN3270

Initiates a Telnet connection via the iWay 3270/5250 Telnet adapter. Also known as a “screen-scraping” adapter for interactions with character-based terminals.

6

Known Problems

Important: For an updated list of known problems in this release, contact the [InterSystems Worldwide Response Center](#).

Upgrades

To avoid problems during an upgrade to Ensemble 2008.2 from a previous Ensemble version, carefully follow the instructions in these sections of the chapter “Getting Started” :

- [Installing Ensemble](#)
- [Upgrading Ensemble](#)

Business Rule Export and Import

InterSystems has identified a known problem with the Xerces parser version used in the current and past releases for Ensemble. The symptom related to Ensemble business rules is that Ensemble wrongly reports errors when importing a previously exported production from an XML file. The symptom occurs only when the XML file contains definitions of general business rules that define “assign” actions in addition to simply returning a result.

There are two techniques for working around this problem. One makes import simple and places the burden on the person exporting the production. The other makes export simple and places the burden on the person importing the production. You only need one of these techniques; they are equally effective:

- Use this approach to make the import task easy:
 - Find each general business rule that defines “assign” actions in addition to returning a result.
 - Export each of these rules to a separate file. Make sure you are exporting one rule per file.
 - Export everything else in the production, including other rules, to a different file.
 - Import (and compile) each of the exported files individually.

- Use this approach to make the export task easy:
 - Export everything to one file.
 - Upon Import, do not use Studio. Instead, start Terminal, change to the namespace where you need to import, and enter one of the following commands (either will work):

```
do $system.OBJ.Load("C:\MyDir\MyFile.xml", "-i")
```

```
do $system.OBJ.Load("C:\MyDir\MyFile.xml", "/checkschema=0")
```

DTL Validation Errors

In Ensemble 2008.1 and later, including this release, DTL validation is more strict than in the past. As a result, if a DTL code block contains an <assign> element with `value= ''` and any of the following action values:

```
action='append'
```

```
action='insert'
```

```
action='set'
```

The code will fail to compile, because a non-empty value is mandatory in these cases. Upon upgrade from a previous version to Ensemble 2008.1 and later, errors will appear when user classes are recompiled. The error message is:

```
ERROR <Ens>ErrDTLNodeValidation: 'value' must NOT be empty string for  
action 'Assign'
```

Any DTL users who have <assign> elements with `value= ''` must change this text to:

```
value= ' "" '
```

This convention adds a pair of double quotes to indicate the null string.

HL7 Schema Errors

The HL7 schema definitions loaded into Ensemble were generated directly from the respective standards (HL7 2.1, 2.2, 2.3, 2.3.1, 2.4, and 2.5). They faithfully replicate any errors, omissions, or discrepancies that exist in these standards as published by the Health Level Seven organization. There are a few known exceptions, as follows:

- In the HL7 2.3.1 standard, the data structure XCN is the “extended composite ID number and name for persons.” The standard leaves XCN field 3 undefined by mistake. The Ensemble schema definition for HL7 2.3.1 corrects this so that XCN field 3 is correctly identified as “given name.”
- The Ensemble schema definition for HL7 version 2.5 lacks the following items:
 - GTS “General Timing Specification” data structure, a member of the RPT “Repeat Pattern” data structure.

- DTM “Time” data structure, a member of the TS “Time stamp” data structure.
- ED segment structure, a member of the SUR_P09 “Summary product experience report” message structure.

7

Release History

The Ensemble product was developed to meet the need for a comprehensive, high-performance enterprise application and data integration platform with tightly integrated development, management, and supervisory tools.

A brief history of Ensemble releases is outlined below. If you are viewing this document online, you can display a description of a feature by clicking on its name in the list.

7.1 Ensemble 1.0

Ensemble 1.0 was released to InterSystems customers in 2002.

This release introduced the following features:

- Application Integration
- Data Integration
- Data Abstraction
- Persistence Engine
- Storage Engine
- SQL Gateway
- Studio

7.2 Ensemble 2.0

Ensemble 2.0 was released to InterSystems customers in August 2003.

This release enhanced existing features and introduced the following new features:

- Universal Services Architecture
- Business Hosts
- Messaging Engine
- Adapter Library
- Business Process Language
- Data Transformation Language
- Management Portal
- Message Visual Trace
- Code Generation Wizards
- BPL Visual Editor
- DTL Visual Editor
- Event Log
- Monitoring Service
- Testing Service
- Documentation
- Sample Code

7.3 Ensemble 2.1

Ensemble 2.1 was released to InterSystems customers in November 2003.

This release enhanced the following existing features:

- Business Process Language
- BPL Visual Editor
- Management Portal

- Adapter Library

7.4 Ensemble 3.0

Ensemble 3.0, November 2004, was the first public release of Ensemble.

Ensemble 3.0 introduced the following new features:

- Business Activity Monitoring
- Workflow Management
- Business Rules
- Java Gateway

Ensemble 3.0 enhanced the following existing features:

- Business Hosts
- Business Process Language
- BPL Visual Editor
- Management Portal

7.5 Ensemble 3.1

Ensemble 3.1 was released in April 2006.

Ensemble 3.1 introduced the following new features:

- HL7 Support

Ensemble 3.1 offered the following major enhancements:

- Message Contents
- How Data is Purged
- Business Process Context
- Business Process Actor Pools
- Business Hosts

- Ensemble Management Portal
- Configuration Page
- Dashboards
- Business Rules
- Java Gateway
- DTL Visual Editor
- DTL Syntax
- BPL Visual Editor
- BPL Syntax
- Adapters
- Workflow

7.6 Ensemble 4.0

Ensemble 4.0 was released in June 2006.

Ensemble 4.0 introduced the following new features:

- Underlying Caché 5.2 Technologies

Ensemble 4.0 offered enhancements to the following features:

- Namespaces
- Default Login
- Command Line
- Management Portals
- BPL Syntax
- BPL Visual Editor
- BPL Components
- Utility Functions
- DTL Visual Editor
- Adapters

7.7 Ensemble 2007.1

Ensemble 2007.1 was released in October 2007.

Ensemble 2007.1 introduced the following new features:

- Underlying Caché 2007.1 Technologies
- BPL Exception and Compensation Handling
- X12 Support
- Adapter SSL/TLS Support

Ensemble 2007.1 offered enhancements to the following features:

- BPL and XSLT
- BPL Syntax Additions
- BPL Connect Elements
- DTL Syntax Additions
- DTL Visual Editor
- Studio Assist in BPL and DTL
- Utility Functions
- Time Stamp Specifiers
- Link to System Management Portal
- Alerts in the Configuration Diagram
- Message Filter and Search
- Message Browser Indices
- Message Resend
- HL7 Routing Productions
- HL7 Routing Rules
- HL7 Search Tables
- HL7 Batch Support
- HL7 Virtual Properties in Routing Rules
- HL7 Content in Error Messages

- HL7 Pages Removed
- Maintenance Purge Page
- Trace Messages in the Event Log

7.8 Ensemble 2008.1

Ensemble 2008.1 was released in July 2008.

Ensemble 2008.1 introduced the following new features:

- MultiValue
- ASTM E 1394–97 Support
- Caché 2008.1 Features

Ensemble 2008.1 offered enhancements to the following features:

- HL7 Segment Architecture Changes
- DTL <subtransform> Element
- Publish and Subscribe Messaging
- HL7 Sequence Manager
- Ensemble Archive Manager
- Ensemble Lookup Settings
- Ensemble System Monitor
- HL7 Version 2 Message Routing
- X12 Message Routing
- Ensemble Monitoring Using WMI
- Ensemble Diagnostic Report
- Ensemble Management Portal Style
- Time Stamp Specifiers