



# Ensemble Release Notes

Version 2008.1.1

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*Ensemble Release Notes*

Ensemble Version 2008.1.1 09 July 2008

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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](#)
- [Known Problems](#)
- [Release History](#)



# 1

## Getting Started

Welcome and thank you for using Ensemble 2008.1!

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 2008.1.

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 book *Ensemble Supported Platforms* 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 2008.1 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. Each of these namespaces is entirely overwritten upon reinstallation or upgrade of Ensemble: %SYS, DOCBOOK, USER, SAMPLES, ENSLIB, ENSEMBLE, and ENSDEMO. 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.

Ensemble documentation 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 the following are Ensemble-enabled: ENSLIB, ENSEMBLE, and ENSDEMO. 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 2008.1 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 2008.1 server on OpenVMS, you must install an Ensemble 2008.1 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 2008.1 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 2008.1 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 2008.1 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 2008.1 server on UNIX, you must install an Ensemble 2008.1 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 2008.1 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 2008.1 from prior released product versions. The following upgrade paths are supported:

- Ensemble 4.0 to Ensemble 2008.1
- Ensemble 4.0.1 to Ensemble 2008.1
- Ensemble 2007.1 to Ensemble 2008.1

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 2008.1 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 2008.1, 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)

To upgrade an existing Ensemble 4.0 or 4.0.1 installation to Ensemble 2008.1:

1. Stop all running productions.
2. Perform exports as described in the warning above.
3. Prepare for an upgrade to Ensemble 2008.1 as described in the “Upgrading Caché” chapter of the *Caché Installation Guide*.
4. Install Ensemble 2008.1 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

Upgrading from Ensemble 2007.1 to 2008.1 uses the procedure in the [previous topic](#) and has the same *warning*, but there are improvements that make the Ensemble 2007.1 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 2008.1 offers the following new features since Ensemble 2007.1:

- [MultiValue](#)
- [ASTM E 1394-97 Support](#)
- [Caché 2008.1 Features](#)

The next chapter, “[Enhancements](#),” describes changes in existing features since Ensemble 2007.1.

### 2.1 MultiValue

This version of Ensemble extends support for MultiValue applications. Existing applications from more than a dozen MultiValue environments may be moved to Ensemble and run with few or no changes. Ensemble provides integrated support for MutliValue features such as accounts, terminal types and spooling. In addition, MultiValue applications have unimpeded access to existing Ensemble and Caché facilities. These include:

- Web application development using Caché Server Pages and Zen
- Language bindings to Java, Perl, Python, C++, .NET, and ActiveX applications
- Web services and service-oriented architectures
- Common data storage with Caché applications
- Transaction processing
- Enhanced security
- The ability to run in distributed, high-availability and/or replicated systems

Existing MultiValue data is fully available to Ensemble applications. Ensemble classes support MVBasic as an implementation language for methods, in addition to Caché Basic and ObjectScript.

**Note:** You can use MVBasic as a method implementation language in Ensemble classes, but you cannot use MVBasic as a scripting language inside the boundaries of a BPL <process> or DTL <transform> code block.

The following books assist the transition to Ensemble and Caché for experienced MultiValue users:

- *Caché Concepts For MultiValue Developers*
- *Operational Differences between MultiValue and Caché*
- *Using the MultiValue Features of Caché*

## 2.2 ASTM E 1394–97 Support

Ensemble now supports routing and transformation of messages in ASTM E 1394–97 format.

ASTM E 1394 is an American Society for Testing and Materials (ASTM) standard published by ASTM International with the title *Standard Specification for Transferring Information Between Clinical Instruments and Computer Systems*. This specification is under the jurisdiction of ASTM Committee E31 on Healthcare Informatics and is the direct responsibility of Subcommittee E31.13 on Clinical Laboratory Systems. It was originally published as E 1394–91, and the current edition is E 1394–97 (withdrawn 2004). For more information, or to obtain a copy of the standard, see the ASTM web site <http://www.astm.org/> where ASTM E 1394–97 is listed under **Withdrawn Standards**.

The successor standard, LIS02-A2, is titled *Specification for Transferring Information Between Clinical Instruments and Computer Systems; Approved Standard - Second Edition*. LIS02-A2 is available for purchase from the Clinical and Laboratory Standards Institute (CLSI) on their web site <http://www.clsi.org> under the selection **Shop Online Store**.

Ensemble support is specifically for ASTM E 1394–97. For details, see the *Ensemble ASTM Development Guide*.

## 2.3 Caché 2008.1 Features

Ensemble 2008.1 runs on top of Caché 2008.1. This means that, in addition to changes in Ensemble between 2007.1 and 2008.1, 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 2008.1	Caché 5.0.5 to Caché 2008.1
Ensemble 3.1 to Ensemble 2008.1	Caché 5.0.16 to Caché 2008.1
Ensemble 4.0 to Ensemble 2008.1	Caché 5.2.1 to Caché 2008.1
Ensemble 4.0.1 to Ensemble 2008.1	Caché 5.2.3 to Caché 2008.1
Ensemble 2007.1 to Ensemble 2008.1	Caché 2007.1 to Caché 2008.1

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 2008.1*
  - *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 2008.1 Upgrade Checklist*
  - *Caché 2007.1 Upgrade Checklist*
  - *Caché 5.2 Upgrade Checklist*
  - *Caché 5.1 Upgrade Checklist*



# 3

## Enhancements

Ensemble 2008.1 offers enhancements to existing features as follows:

- [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](#)

### 3.1 HL7 Segment Architecture Changes

It is now possible to specify DTL data transformations at the segment level. To support this enhanced functionality, the Ensemble virtual document architecture has been changed to make segments acces-

sible as full virtual document objects, rather than as children of a parent virtual document object. The primary benefit of this architectural change is that the DTL editor can be used to transform a segment object independently of any parent object that it may or may not belong to. This change is reflected in the Data Transformation Language by the addition of a new `<subtransform>` element.

## 3.2 DTL `<subtransform>` Element

The `<subtransform>` element invokes another data transformation. Making a call to `<subtransform>` allows the containing `<transform>` element to invoke other data transformations to complete segments of its work. This allows developers greater flexibility in maintaining a suite of reusable DTL transformation code.

Before the `<subtransform>` element was available, every DTL `<transform>` stood alone. In order to write multiple DTL transformations that contained an identical sequence of actions, it was necessary to copy and paste the corresponding sections of code from one class into another. Now, each of these DTL classes can replace repeated lines with a `<subtransform>` element that invokes another class to performs the desired sequence. The invoked class can be a DTL data transformation or a hand-coded subclass of `Ens.DataTransform`.

The source or target objects for a `<subtransform>` may be ordinary Ensemble objects, virtual document *message* objects, or virtual document *segment* objects representing an individual segment within a virtual document message. The `<subtransform>` is especially important for interface developers working with HL7 Version 2 or other Electronic Data Interchange (EDI) formats, where each message or document may contain many independent segments that need to be transformed. Having the `<subtransform>` available means you can to create a reusable library of segment transformations that you can call as needed, without duplicating code in the calling transformation.

For syntax details, see the `<subtransform>` section in the *Ensemble Data Transformation Language Reference*.

## 3.3 Publish and Subscribe Messaging

Ensemble supports publish and subscribe message routing. Publish and subscribe refers to a technique where a message is sent to one or more subscribers based on their interest in a specific topic; Ensemble infers the topic from the contents of the message.

To use PubSub, first you must set up a list of subscribers. A subscriber is an entity (a user or an external system) that needs to be notified when a specific topic is encountered. A subscriber has a name and target. Usually, the target is the configuration name of a business operation to which messages for this subscriber should be sent.

Once you have subscribers, you can create subscriptions. A subscription associated a topic or set of topics with a subscriber. A topic is simply a string of the form A.B.C.D, where A, B, C, and D are subtopic strings delimited by the . (period) character. A topic can contain any number of subtopics; each of these subtopics can be up to 50 characters long. You can specify a range of topics by using \* (the asterisk) as a wildcard character. The following are all valid topic strings:

```
books
```

```
books.fiction
```

```
books.fiction.latin
```

```
books.*
```

```
*.fiction.*
```

There is no predetermined definition of topics; it is up to the application developer to decide which set of topics the application will use.

To use PubSub with Ensemble, you must set up a production that includes the PubSub business operation. When a message arrives, a business process determines the topic based on the contents of the message and calls the PubSub operation with this topic string. The PubSub operation uses a very fast search algorithm to find and return a list of all subscribers that are interested in the given topic. The business process then dispatches the message to the subscribers in this list.

For further details, see “Publish and Subscribe” in the “Message Routing” chapter of *Developing Ensemble Productions*.

## 3.4 HL7 Sequence Manager

An HL7 sequence manager is a business process that accepts incoming HL7 messages from multiple sources, then forwards the messages to a target configuration item in the order specified by the MSH:13 SequenceNumbers field in the messages. The sequence manager has the ability to detect duplicate messages and timing gaps between messages. It also determine when the gaps between sequential messages are sufficiently large to indicate a problem. Its level of sensitivity can be adjusted using configuration settings.

For further details, see the “HL7 Sequence Manager” section in the “Elements of a Routing Production” chapter of the *Ensemble HL7 Version 2 Development Guide*.

## 3.5 Ensemble Archive Manager

The new Archive Manager allows you to periodically save older messages to a separate archive for long term storage. You can do this programmatically, or you can use the new Archive Manager page in the Ensemble Management Portal.

For details, see “The Archive Manager Page” in “The Maintenance Page” chapter of *Managing Ensemble Productions*.

## 3.6 Ensemble Lookup Settings

The Lookup utility function is provided so that you can easily perform a table lookup from a business rule or DTL data transformation. For details, see the “Utility Functions” section in the “Creating a New Production” chapter of *Developing Ensemble Productions*.

The Lookup function works only after you have populated the `^Ens.LookupTable` global with appropriate data. You can do this programmatically, or you can use the new Lookup Settings page in the Ensemble Management Portal.

For details, see “The Lookup Settings Page” in “The Maintenance Page” chapter of *Managing Ensemble Productions*.

## 3.7 Ensemble System Monitor

The Ensemble Management Portal offers a new System Monitor page for Ensemble. The previous Monitor page is now called the Host Monitor page. The System Monitor page displays the following information in a condensed, one page format:

- Status of inputs (business services)
- Status of outputs (business operations)
- Status of queues (and sizes)
- List of recent errors logged in the Event Log

Any errors related to connections appear at the top of the list.

The System Monitor page can be extended to show information from user-defined business metric classes. These are the same business metric classes that support Ensemble dashboards.

For details, see “The System Monitor Page” chapter in the book *Managing Ensemble Productions*.

## 3.8 HL7 Version 2 Message Routing

In previous releases, documentation for the **ReplyCodeActions** setting stated that for R (Reject) type NACKs, an HL7 business operation would take the S action by default (Suspend the current message and continue with the next), whereas for E (Error) type NACKs the business operation would take the RF action (Retry and if so configured eventually fail the current message with an error and then continue with the next). In both cases the code would actually take the S action. In closer conformance with the documented HL7 standard, in the current release it is R NACKs that by default take the RF action, while E NACKs by default take the S action.

The current release restricts indexing of HL7 response messages in the SearchTable configured for an HL7 business operation. Indexing occurs only on responses of type other than ACK, unless developers subclass the HL7 business operation and override its class parameter `IndexACKs` to a non-zero value.

The current release modifies HL7 business operations to add support for handling replies that consist of batches of ACK messages. The behavior is the same as if the first ACK in the batch was the actual reply message.

For more information about HL7, see the *Ensemble HL7 Version 2 Development Guide*.

## 3.9 X12 Message Routing

The current release changes the settings for X12 business services as follows:

- Removed `ISA-determined` as an option for the **ReplyMode** setting.
- Removed the settings **QuitOnError** and **RemoteFacilityApplication**.
- Renamed the **LocalFacilityApplication** setting to **LocalApplicationID**.
- Added the new settings **BatchErrorAction**, **BatchReplyType**, **DefCharEncoding**, and **Validation**.

The current release changes the order of separators in X12 business operations, and in the X12 document class `Separators` property. The new order facilitates handling of documents that do not use all the expected separators. The old order was:

ComponentSeparator, RepeatSeparator, DataElementSeparator

The new order is:

DataElementSeparator, ComponentSeparator, RepeatSeparator

For more information about X12, see the *Ensemble X12 Development Guide*.

## 3.10 Ensemble Monitoring Using WMI

Windows Management Instrumentation (WMI) is a feature of the Windows operating system that provides a standardized way of collecting management information. It allows users and programmers to access management information from the operating system and other applications in a variety of ways, including scripts, programming languages, and management tools and applications. WMI is the Microsoft implementation of the Web-Based Enterprise Management (WBEM) standard from the Distributed Management Task Force (DMTF).

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


## 3.11 Ensemble Diagnostic Report

InterSystems provides a mechanism to run a diagnostic report on your Ensemble instance and send the results to the [InterSystems Worldwide Response Center \(WRC\)](#) to help diagnose system problems. The diagnostic report is provided by the Caché instance underlying your Ensemble installation. Its precursor utility was commonly called “Buttons,” but this terminology has changed.

For details and instructions for sending a diagnostic report to the WRC, see “Using the Caché Diagnostic Report” in the *Caché Monitoring Guide*.

## 3.12 Ensemble Management Portal Style

The overall style of the Ensemble Management Portal now matches the Caché System Management Portal. To view the new style, you can start the Ensemble Management Portal 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. Choose **System Management Portal** from the menu. Then in the System Administration column choose **Ensemble Management Portal**.
- 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/ensdemo/UtilEnsHome.csp`

- When running Ensemble Studio and working in an Ensemble-enabled namespace, choose the **Utilities** menu **Ensemble Management** option.

## 3.13 Time Stamp Specifiers

In previous releases, time stamp specifiers (such as %f or %c) could be used when configuring an Ensemble production to exchange files with an external application. However, the full range of specifiers was not documented and there were discrepancies between those listed and those actually supported. These problems have been corrected. For details, see the “Time Stamps in Filenames” section in the “Creating a New Production” chapter of *Developing Ensemble Productions*.



# 4

## Documentation

Ensemble 2008.1 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 2008.1 introduces the following new books:

- *Ensemble 2008.1 Release Notes* (this book)
- *Ensemble Error Reference*
- *Ensemble ASTM Development Guide*
- *Using IBM WebSphere MQ Adapters with Ensemble*
- *Using Email Adapters with Ensemble*


Ensemble 2008.1 offers significant updates to the following books:

- *Ensemble Virtual Documents*
- *Ensemble X12 Development Guide*
- *Ensemble HL7 Version 2 Development Guide*
- *Ensemble Business Process Language Reference*
- *Ensemble Data Transformation Language Reference*
- *Developing Ensemble Productions*

## 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 2008.1 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.

### **HL7**

Receives and sends messages in the HL7 data format, which is often used to hold patient data for medical systems.

### **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 2008.1 from a previous Ensemble version, carefully follow the instructions in these sections of the chapter “Getting Started”:

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

### DTL Validation Errors

DTL validation is now more strict. 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, 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

## Release History

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