Changes and Enhancements

This section is a detailed description of the changed features and other enhancements in Tamino 4.2. It is subdivided into the following groups of topics:

- Tamino Server
- Tamino Product Components
- Miscellaneous: Welcome to Tamino

Tamino Server

Tamino XML Server's core is composed of mechanisms for querying, browsing and maintaining your business data, as well as for configuring and administrating Tamino systems with minimal effort. In the following, you will find information about what has changed in the core part of the Tamino Server to improve overall system performance and stability.

Simultaneous Query for Replication Database

Tamino now supports simultaneous query for data while replicating. Simultaneous query for replication uses a locking approach that guarantees a consistent view of the replicated data. It is no longer necessary to shut down replication databases and re-start them in read-only mode. This new capability enables Tamino to run in load-balancing applications where data in replication databases is still accessible during the replication from a master database.

Changed Data Loader Client

The name of the Data Loader Client has been changed from `inoxmld` to `inoload`. Also, the Tamino Data Loader now provides a new command line syntax.

Improved Data Loading and Unloading

The improved mass loading and unloading functionality leads to a higher document throughput in applications where large amounts of data need to be loaded into Tamino. Tamino 4.2 delivers the following mass load functionality:

- loading and unloading of lists of files
- parallel access to the doctype(s) for which a mass load / unload is active
- mass loading / unloading support for non-XML data
- loading of data without a schema
- XML Schema support
- use of more than one CPU for unload on a multi-CPU machine

- define and unload schemas

Replication: Support for Tamino Data Loader

Replication does not longer break when data is loaded to the master database via the Tamino Data Loader.

Enhancing Tamino XQuery

Tamino XQuery has been enhanced with the following features:

- Accessing multiple collections using the function `collection`
- Eliminating duplicates using the function `distinct-values`
- Node sequence operators: `union`, `intersect`, `except`
- All constructor functions for atomic types
- SXS query functions
- Collation support
- Possibility to switch off result wrapping
- Enhanced built-in function set
- XQuery on non-XML
- Support for non-XML doctypes

With this subset of W3C XQuery, the most important data retrieval features are supported. These are data extraction, sorting, joining, grouping and construction of new XML instances. Also, most of the functionality of the W3C XQuery use cases is covered. For further information about XQuery changes from version 4.1 to 4.2, see *XQuery Changes in Tamino* in the *Migration Guide*.

Enhanced XML Schema

In TSD4 schema definitions, the provided subset of the XML Schema specification is now further enhanced with regard to better compliance with the current W3C XML Schema recommendation. The new XML Schema implementation supports the following:

- model groups
- attribute groups
- collections with schemaless instances, providing for storage of arbitrary documents in a normal user collection similar to ino:etc
- improved xsi:type handling in XML documents
- including other schemas with the same target namespace

- imported or included schemas may be modified.

The enhancements allow for better support of standard schemas by Tamino XML Server.

Changed Batch Commands

The ARGBATCH commands `add`/`delete`/`show administrator` have been enhanced by an additional parameter `productname`.

Changed X-Machine Commands

In previous Tamino versions it was possible to use the `_undefine` command to undefine implicitly created doctypes in the collection ino:etc. Now, the `_delete` command has to be used instead to delete the documents belonging to the doctype.

Flush Limits in Absolute Units

It is now possible to enter flush limits (server parameter) in MBytes instead of a percentage value.

Influence I/O Behaviour of Tamino

Two new server parameters have been introduced:

- Unbuffered: specifies which parts of Tamino databases are handled with unbuffered I/O
- Flush group size: specifies the number of I/Os issued in parallel in a buffer flush.

Network Drives usable by Tamino

It is now possible to allow remote file and directory browsing, as well as using remote directories for locations of database spaces and backups. However, before installing the new Tamino version, existing encrypted directories that contain data must be decrypted, otherwise they cannot be accessed by the new Tamino version.

Tamino Product Components

Tamino also offers additional product components that add value to the core through a broad range of easy-to-use tools, services and frameworks that simplify and accelerate storing, managing, publishing and exchanging electronic data. Please observe that all Tamino product components provide their own release notes.

- Tamino Schema Editor
- Tamino X-Plorer, including the Tamino XQuery tool
- Tamino API for .NET
- Tamino API for Java
- HTTP Client API for ActiveX

Tamino Schema Editor

XML Schema (XSD) to Tamino Schema (TSD) conversion: A set of new transformation commands will help you to transform an XML Schema into a Tamino Schema. For further release information, see the *Schema Editor Release Notes*

Tamino X-Plorer, including the Tamino XQuery tool

The list of enhancements of the Tamino X-Plorer and the XQuery tool includes:

- External Tools Preconfiguration

  When you install the Tamino X-Plorer, the paths to the predefined external tools that are found on your system are now automatically entered in the Customize dialog box.

- XQuery Tool: Explain View and Explain Response View

  A new command, Explain Query, is now provided which you can use to retrieve information about query execution for analysis and optimization. The explanation is shown in the Result pane and in the Response at the bottom of the XQuery window. Queries for which you have invoked the Explain Query command are also shown in the History pane.

- XQuery Tool: New Syntax Error Display

  When you execute an invalid query, the error message is now shown in the Result pane. It is no longer shown in a message box.

- XQuery Tool: Explain response view

- User-Dependent Configuration

  A separate properties file is now available for each user. The file *xplorer.properties* is no longer used. The file *user.properties* is used instead. The path to the *user.properties* file is defined with the parameter XPL_RELATIVE_USER_DIR in inoxplorer.cmd.

- improved message boxes

- graphical user interface adaptations to JDK 1.4

For further release information, see the *X-Plorer Release Notes*.

Tamino API for .NET

The Tamino API for .NET has the following enhancements:

- Measuring operation duration: If you need to tune your Tamino system, this new functionality can give you useful information that helps to locate time-consuming operations.

- Specifying Tamino timeout parameters: It is now possible to specify parameters for transaction timeout and non-activity timeout.

- Performance optimization: Tamino API for .NET now only reads a response document when it is strictly necessary. This is usually the case when the required information is not available in the HTTP header and must be read with a separate operation. Often this additional operation can be avoided.

For further release information, see the *Tamino API for .NET Release Notes*.

Tamino API for Java

The main enhancements of the Tamino API for Java are:

- Performance improvements, for example an optimized response interpretation that avoids unnecessary parsing of the complete response document.
- Support of the Tamino parameters `non activity timeout` and `maximum transaction duration`.
- Retrieval of a list of all available Tamino database URIs from the specified Tamino.
- Support of Tamino warning messages.
- The connection pool now supports fast switching to improve performance.

For further release information, see the *Tamino API for Java Release Notes*.

HTTP Client API for ActiveX

The HTTP Client API for Active X has the following enhancements:

- Measuring operation duration: If you need to tune your Tamino system, this new functionality can give you useful information that helps to locate any time-consuming operations.
- Specifying Tamino timeout parameters: It is now possible to specify parameters for transaction timeout and non-activity timeout.

For further release information, see the *HTTP Client API for ActiveX Release Notes*.

Miscellaneous: Welcome to Tamino

The introductory site of Tamino has been refurbished for first time evaluation users to get an overview and introduction to the most important Tamino features.