Tamino

Glossary

Version 10.7

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WEBMETHODS

This document applies to Tamino Version 10.7 and all subsequent releases.

Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

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Glossary

A

Access Control Element (ACE, in Tamino)	A security mechanism that regulates access to an object stored in a Tamino database. An access control list contains one or more access control elements (ACEs), which are stored in the doctype ino:acl in the collection ino:security.
Access Control List (ACL, in Tamino)	A security mechanism that regulates access to an object or a group of objects stored in a Tamino database. An access control list contains one or more access control elements (ACEs), which are stored in the doctype ino:acl in the collection ino:security.
ACE	See **Access Control Element**.
ACID Transactions	Transactions are called ACID transactions (concerning relational databases) if they fulfil the following requirements: ■ *A*tomicity: Either the *transaction* is fully completed or it is not executed at all. ■ *C*onsistency: The *transaction* always has to provide consistent results. ■ *I*solation: The *transaction* is independent of any other process that may be run in parallel. ■ *D*urability: Once the *transaction* is completed, the results remain as persistent data.
ACL	See **Access Control List**.
Active Replication	The master database propagates changes as soon as they occur. Contrast **passive replication**.
ActiveX	The client-side, Internet-enabled portion of Microsoft's component-object architecture COM.

Apache HTTP Server	A popular open source web server available for many operating systems. See also **Web Server**.
API	See **Application Programming Interface**.
Application Programming Interface (API)	A formally defined programming language interface between a program product and its user.
Asymmetric Replication	In asymmetric replication, there is one master server (on which all updates are performed), and one or more slave servers to which the updates are propagated. It is also called read-only replication. See also **Symmetric Replication**.
Asynchronous Replication	If a database is replicated asynchronously, updates are not propagated as part of the user transaction that does the update. As a consequence, the replication databases are not up-to-date, but reflect changes only after a certain delay. See also **Synchronous Replication**.
Attribute	A name-value pair associated with an XML element. Can appear only within start tags and empty element tags. Its value can be constrained by datatype information provided by a schema or DTD.
Authentication	The process by which the security system verifies that a client user is actually who it claims to be. Authentication is performed at the user point of entry, which avoids the need for multiple sign-ons to the different security systems.
Authorization	The process whereby a client's access rights to a specific service or resource are verified.
Authorization Level	The authorization level in an access control element specifies the type of access that is allowed to the object in question.
Axis	In XPath, a part of a location path specifying the relationship between the current node and a set of selected nodes.

B

Backup	A copy of a database, generally made at regular intervals (e.g. once a day). If data in the database should become corrupted, the data can be restored from the backup. If the data changed since the last backup, it is necessary to perform a recovery operation, which re-applies the changes that are stored in the **log spaces** to the data. See also **complete backup**, **incremental backup**, **partial backup**.
Backup Space	A part of a database backup. See also **Database Backup Location**.

Basic Authentication	A simple method of performing authentication. In the HTTP protocol, Basic Authentication refers to a mechanism of authenticating users by the use of a user-ID and a password.

C

CA	See **Certificate Authority**.
Callbacks	Interfaces of the Tamino Server that can be used in a Server Extension Function to access both the various databases administrated by the Tamino Server and system information available in the running Tamino Server.
Cascading Style Sheet (CSS)	A simple mechanism for adding formatting information (e.g. fonts, colors, spacing) to HTML and XML documents. A CSS, for example, can be attached to an HTML document to influence its layout when accessed via a browser. Cascading means that a single document may use two or more stylesheets that are then applied according to specified priorities (=cascade) to produce different output.
Certificate	A digitally signed data structure defined in the **X.509 standard** that binds the identity of a certificate holder to a **public key**.
Certificate Authority (CA)	A third party that registers users and certifies their identity by signing their public-key certificates.
Certificate Revocation List (CRL)	A list of revoked but unexpired certificates issued by a **Certificate Authority**.
Character Encoding	The systematic ordering and numbering of a set of characters (such as letters in an alphabet), by which each character is assigned a fixed position (its so-called code point) in the set. Common encodings are ASCII, ISO 8859-1 and Unicode encodings such as UCS-2, UCS-4, UTF-8 and UTF-16. See also the frequently asked questions and glossary section at *http://www.unicode.org/*.
Client	In general, a client program is a piece of software that issues a request and thus initiates communication. Traditionally, the basic form of such communication would be a PC client program accessing a remote database on the mainframe (acting as the server).
Code Page	A coded character set. This term is often used when referring to a coded character set used by a personal computer, for example, PC code page 437, the default coded character set used by DOS.
Code Point	The position (usually a numerical index) of a character within a table that contains all the characters of a character set.

Collation	The process of ordering units of textual information according to a well defined set of rules. These rules may be relatively simple, based solely on the order of component symbols; on the other hand, they may be arbitrarily complex, requiring grammatical or semantic interpretation. In Tamino, collations can be used to define a sorting sequence for multibyte character data.
Collection	In Tamino, a collection is the largest unit of information within a database. Each collection can contain multiple **doctypes**. It is a container for related information.
COM	See **Component Object Model**.
Command, X-Machine	One of the set of programming instructions that the X-Machine offers in its low-level API.
Commit	To complete a **transaction** and cause its effects to be stored in the database persistently. Contrast **roll back**.
Complete Backup	Also known as full backup. A **backup** that saves all data of the whole database. See also **partial backup**, **incremental backup**.
Complete Replication	The whole database is **replicated**, in contrast to a **partial replication**.
Component	A piece of software, program, dynamic link library, or shared library covering a single or multiple tasks, normally covering a whole functional aspect of a system.
Component Object Model (COM)	Microsoft's framework for developing and supporting program component objects. COM provides a set of interfaces allowing clients and servers to communicate within the same computer. See also **DCOM**.
Compound Index	A special kind of **index** for natively stored data. It is especially suited for accelerating queries containing combined value conditions that appear with a multiplicity of more than one. A compound index consists of two or more different components.
Concurrency	Efficient parallel execution of multiple **transactions**. As there may be interference between transactions, concurrency conflicts with isolation. Increasing concurrency decreases the **degree of isolation** and vice versa.
Concurrency Phenomenon	A situation leading to incorrect results of a **transaction** which occur when concurrent transactions access the same resources in a specific order. These include: **lost updates**, **dirty read/write**, **non-repeatable**

	read/write, **phantom effect**. Concurrency phenomena reduce the **degree of isolation**.
Consistency check	See **Database Consistency Check**.
Content Viewer	Available with the **Tamino X-Plorer**. Displays the content of the object that is currently selected in the navigation tree. This may be, for example, **XML** code or an image in GIF format.
CRL	See **Certificate Revocation List**.
CSS	See **Cascading Style Sheet**.
Cursor	A cursor allows a **client** to treat a query result like a navigable object. If a query result contains many documents, a cursor can be used to position forwards and backwards within the query result without having to re-issue the query.

D

Database Backup Location	The default location for **backup spaces**. If a database is backed up without explicitly defining a location for the backup, the backup is written to the database backup location.
Database Consistency Check	An operation which checks the consistency of a database's data and indexes and makes any necessary repairs. If, for example, an index is inconsistent, the consistency check will rebuild it.
Database Location	A storage unit known to the operating system, such as a file system directory, a raw section or a tape drive.
Database Log	A log file of all database update operations. Database logs are required for **recovery** operations. See also: **Log Space**.
Database Space	The collective term for **data space**, **index space**, **journal space**, **log space**, **temporary working space**, **backup space**, utility recovery space.
Database Synchronization	When a database is being synchronized, no new update **transactions** are allowed until all open update transactions are finished. After that, all updated data is written to disk.
Data Map	Tamino's knowledge base. It contains the **schemas**, **collections**, **doctypes**, databases and **XML** documents of Tamino.

Data Space	Where the data of the **data store** is stored. A data space cannot span multiple **database locations**, but a database location may contain several data spaces.
Data Store	Tamino's data storage area for **XML** and non-XML objects.
DBCS	See **Double Byte Character Set**.
DCE	See **Distributed Computing Environment**.
DCOM	See **Distributed Common Object Model**.
Deadlock	A deadlock situation occurs when each of two or more concurrent **transactions** is waiting for a lock to be released that is being held by one of the other transactions.
Diffie-Hellman Key Agreement Algorithm	An algorithm that creates a shared secret random number that can then be used as a symmetric algorithm's session key.
Digital Signature	A cryptographic method that can be used to verify the origin of a document, the identity of the sender, the time and date a document was sent and/or signed, the identity of a computer or user, and more. A document's digital signature is based on both the document and the signer's private key.
Dirty Read	A **concurrency phenomenon** that may appear in some **isolation levels**. The dirty read phenomenon may occur when a **transaction** modifies data and another transaction reads the same data before the first transaction is **committed** or **rolled back**. In Tamino, this is only possible in **isolation level** `uncommittedDocument`.
Disaster Recovery	Disaster recovery stands for the **restoration** of a Tamino database when everything is lost except for a **backup** of the database and recovery files. This may be the case after a total loss of the computing environment, in which backup and recovery files are still available on an archive.
Distributed Common Object Model (DCOM)	A set of Microsoft concepts and program interfaces in which **client** program objects can request services from **server** program objects on other computers in a network. DCOM can also work on a network within an enterprise or on other networks besides the public Internet.
Distributed Computing Environment (DCE)	An industry-standard software technology for setting up and managing computing and data exchange in a system of distributed computers. DCE is typically used in a larger network of computing systems. DCE uses the **client**/**server** model.
DLL	See **Dynamic Link Library**.

Doctype	Represents a container for **XML** documents with the same **root element** within a **collection**.
Document Object Model (DOM)	A platform- and language-neutral interface that provides a standard model of how the various items in an **XML** object are put together, and a standard interface for accessing and manipulating these items and their interrelationships.
Document Type Definition (DTD)	A method of defining the structure to which a valid **XML** document must adhere. See also **XML Schema**.
DOM	See **Document Object Model**.
Domain	In the Tamino security context, a domain is a group of users that are all **authenticated** against the same authentication services (for example all users belonging to one Windows NT domain, or all users known to a certain UNIX machine).
Double Byte Character Set (DBCS)	These character sets are often encoded in such a way as to allow mixing double byte character encodings with single byte character encodings. Used, for example, for representing Chinese, Japanese, and Korean text, e.g., JIS X 0208-1990.
DTD	See **Document Type Definition**.
Dynamic Link Library (DLL)	A collection of small programs, any of which can be called when needed by a larger program that is running in the computer.

E

EDI	See **Electronic Data Interchange**.
Electronic Business	The conduct of business on the Internet, not only buying and selling but also servicing customers and collaborating with business partners. Using Electronic Business, companies can for example buy parts and supplies from each other, collaborate on sales promotion, and do joint research.
Electronic Data Interchange (EDI)	A standard format for exchanging business data.
Element	An **XML** document consists of elements, **attributes**, comments, and processing instructions. Each element has an opening tag which places the name of the element between a less-than and a greater-than sign, and a closing tag which is identical except for the forward slash that appears before the element name, e.g. <myElement>my-

	Content</myElement>. There is a short notation for empty elements: <MyEmptyElement/>.
Event (in Tamino)	A unit of information that is recorded in the **job log**.
Expanded QName	A tuple (URI, localName), which may also be derived from a string `prefix:localName` in conjunction with a namespace declaration like xmlns:prefix="URI" or a namespace context.
Extended Public Key Infrastructure (PKIX)	An industry standard endorsed by the IETF (***Internet Engineering Task Force***) for the application of a **public key infrastructure**.
Extended Transport System (XTS)	A network communication facility that can be used to send queries to a Tamino Server. For more information about its use and configuration, refer to the installation documentation.
Extensible Markup Language (XML)	A simpler and easier-to-use subset of **SGML** (an international documentation standard) that is designed for use with objects that are distributed over the World Wide Web.
Extensible Stylesheet Language (XSL)	A stylesheet language that describes how **XML** data is to be presented to the user.
External Backup	A **backup** that is written to a storage management system outside of the database server, possibly using advanced backup techniques such as **mirroring** or **snapshots**.

F

Filter	Available with the **Tamino X-Plorer**. Reduces the number of instances that are shown in the navigation tree. For example, you can define a filter which shows only the instances with a specific last name.
FLWR Expressions	Stands for *for*, *let*, *where*, and *return*. The acronym FLWR refers to the fact that such an expression consists of one or more *for* and/or *let* clauses, an optional *where* clause, and a *return* clause. A *where* clause causes the *return* clause to be evaluated only when the *where* expression is true.
Form	See **HTML Form**.
Fragment	Available with the **Tamino X-Plorer**. A small part of an **XML** instance which is shown for a more specific query. For example, if your query expression is "/patient/name/surname", the query result only shows the fragment of the **XML** code which applies to the surname.

Full Recovery	The complete database is **recovered**. A full recovery is only possible after a **full restore**. Contrast **partial recovery**.
Full Restore	The complete database is restored. Contrast **partial restore**.

G

Globally Unique ID (GUID)	The world-wide unique ID of an object.
Granularity	Refers to the range of items in the database that will be affected by a lock. In Tamino, this can be the whole database, the **collection**, the **doctype** or the document.
Group of Instances	Available with the **Tamino X-Plorer**. A node in the navigation tree. For each **schema** containing a **doctype**, a **collection** contains one group of instances of that **doctype**.
Group of Schemas	Available with the **Tamino X-Plorer**. A node in the navigation tree. Each collection contains one group of schemas.
GUID	See **Globally Unique ID**.

H

High Availability	High availability is defined as the ability of a system to perform its function continuously (without interruption) for a significantly longer period of time than the reliability of its constituent components would suggest.
Hit	One member of the result set yielded by a successful query.
Hit Count	The number of documents that satisfy a given query.
HTML	See **Hypertext Markup Language**.
HTML Form	A section of an **HTML** page that uses the HTML statement FORM. This typically allows the user to input and receive data interactively to/from an associated application.
HTTP	See **Hypertext Transfer Protocol**.
HTTP method	One of a set of commands that can be used in an **HTTP** request, typically to send or receive data in a particular format.
HTTPS	See **Secure Hypertext Transfer Protocol**.
HTTP Server	see **Web Server**.

Hybrid Object	An object that consists of several nested objects, distributed over multiple heterogeneous databases.
Hypertext Markup Language (HTML)	The set of markup symbols or codes inserted in a file intended for display on a World Wide Web browser. The markup tells the Web browser how to display a Web page's text.
Hypertext Transfer Protocol (HTTP)	The set of rules for communication on the World Wide Web. Relative to the TCP/IP suite of protocols, which is the basis for information exchange on the Internet, HTTP is an application protocol.

I

I18N	See **Internationalization**.
IANA	Internet Assigned Numbers Authority. See ***http://www.iana.org/***.
IEEE	Institute of Electrical and Electronics Engineers, Inc. A large international organization of electrical and electronic engineers maintaining more than 800 standards. IEEE standard 754-1985 is the standard for binary floating-point arithmetic. It is relevant for the data types `xs:float` and `xs:double`.
IIS	See **Internet Information Server**.
Import	(Context: Namespaces) A construction mechanism for multi namespace schemas in **TSD** and **XML Schema** that has been defined by the **W3C**.
Incremental Backup	Only the data which has been changed since the previous **backup** is saved. Successful **recovery** is only possible if a previous **complete backup** is available, as well as all subsequent incremental backups. See also **partial backup**.
Index	A look-up table for data created internally within a database in order to accelerate database access for specific queries. Tamino supports indexing of XML data similar to the standard indexing functionality provided by other databases (text index and standard index), and also offers special support for indexing of non-XML data with the tool **Non-XML Indexer**. In addition, Tamino supports several special categories of indices that accelerate data access in very special situations, namely structure index, **reference index**, **multi-path index** and **compound index**.

Index Space	The location where a database's **index** is stored. An index space cannot span multiple **database locations**, but a database location may contain several index spaces.
ino:etc	A special **collection** in Tamino.
ino:security	A Tamino system **collection** that contains the **doctypes** ino:user, ino:group, ino:acl (ACL = access control list) and ino:domain. Access control is implemented by storing security definitions into ino:security.
Installation Document	A component of the installation package for a **server extension**. The installation document is an **XML** document that contains general information about the server extension, such as the name of the server extension, the required parameters, the **COM** ID and the URLs of the server extension's help files.
Instance Descriptor	Available with the **Tamino X-Plorer**. Defines the **attributes** of an instance that are to be shown in the navigation tree (for example, a last name, city and phone number) and the sorting sequence.
Instance Fetch Options	Available with the **Tamino X-Plorer**. Limits the number of instances that can be shown in the navigation tree at the same time.
Intention Lock	Special locks that Tamino uses internally for implementing hierarchical locking (multiple **granularity** locking) indicating the intention to issue further subsequent lock requests for items from a lower granularity than that of the locked item.
Interactive Interface	See **Tamino Interactive Interface**.
Internal Configuration	Tamino records configuration data, such as the location of database spaces, existence of backup etc., internally. Depending on the platform, this data is either stored in a dedicated file on the file system or is managed by the operating system.
Internationalization (I18N)	The process of making application software or a system independent of or transparent to natural language. If an application or a system can support any language, then it is fully internationalized; if it supports only a limited subset of languages, then it is partially internationalized. The goal of Unicode is to support full internationalization. See also **localization**.
Internationalized Resource Identifier (IRI)	Has the same purpose as a **URI**, but unlike a URI can contain characters from the Universal Character Set (ISO 10646).

International Organization for Standardization (ISO)	An international federation of national standards organizations.
Internet Information Server (IIS)	A **web server** developed by Microsoft for the Windows operating systems.
Internet Server Application Programming Interface (ISAPI)	The **server API** for the **Internet Information Server**.
IRI	See **Internationalized Resource Identifier**.
ISAPI	See **Internet Server Application Programming Interface**.
ISO	See **International Organization for Standardization**.
ISO 639	A standard provided by the **ISO** for ISO language codes. Each code consists of two or three lowercase letters. The codes define specific languages in internationalized applications. In Tamino, they are used in collations. You can find a full list under **http://www.loc.gov/standards/iso639-2/iso639jac.html**.
ISO 3166	A standard provided by the **ISO** for ISO country codes. Each code consists of two or three uppercase letters. The codes define specific languages in **internationalized** applications. In Tamino, they are used in **collations**. You can find a full list at **http://www.iso.org/iso/country_codes.htm**.
ISO 8601	An international standard on date and time formats established by the **ISO**. See **http://www.iso.org/iso/support/faqs/faqs_widely_used_standards/widely_used_standards_other/iso8601**.
Isolation Level	A degree of **concurrency** and isolation that can be chosen as a standard for the locking behavior of **transactions**. It can be overridden partially by applying locking parameters.

J

JDOM	A representation of an **XML** document in Java. It provides an **API** for accessing and manipulating XML documents.
Job Log	All actions performed on the database are stored in the job log.
Journal Information	Information needed for backing out **transactions**, **rolling back** unsuccessful commands, and restarting a database after a database or

	system crash. In contrast to **log information**, journal information is temporary.
Journal Space	A place where a database's **journal information** may be stored. A journal space cannot span multiple **database locations**, but a database location may contain several journal spaces.

K

Kerberos	A secure method for authenticating a request for a service in a computer network. Kerberos was developed in the Athena Project at the Massachusetts Institute of Technology (MIT).

L

LAN	See **Local Area Network**.
LDAP	See **Lightweight Directory Access Protocol**.
Lexical QName	A string `prefix:localName` without a namespace context or declaration.
Lightweight Directory Access Protocol (LDAP)	A software protocol for locating organizations, individuals, and other resources such as files and devices in a network, whether on the Internet or on an intranet.
Local Area Network (LAN)	A network of interconnected workstations within a relatively small geographic area.
Locale	A structure holding regional characteristics of an environment such as date/time format, language used, character coding, etc.
Localization (L10N)	The process or result of modifying system or application software to support a particular language environment. Often this entails making coding decisions based on the particular language supported. Localization differs from internationalization, which attempts to remove all references to language from a system or application.
Location Path	Used in **XPath** for addressing one or more nodes of a given XML object tree. In **X-Query** a path starts from the root node and has one or more **location steps**.
Location Step	In **XPath**, a location step selects a set of nodes of a given XML object tree. It contains an **axis**, a node test and optional predicates (filter expressions).

Logical Schema

Defines rules according to which instances are validated (e.g. nesting of elements, occurrence indicators, data types). See also *Physical Schema*.

Log Information

Information required, together with the database **backup**, in order to **recover** a database (for example after data loss due to a media failure).

Log Space

A file that contains information about completed **transactions** for the current database session. The log space is used in the database **recovery** process to bring the database to its most recent state after a database **backup**. If there have been several database sessions since the most recent backup, each session will have at least one own log space.

Lost Update

A **concurrency** phenomenon. The lost update phenomenon occurs when two or more concurrent **transactions** read and update the same data. Lost updates represent a kind of write/write dependency. With the **isolation levels** provided by Tamino, lost update cannot occur.

M

Mapping

A process which accesses and integrates data that is not stored in native **XML** format, for example the contents of ADABAS or SQL databases, or that is stored in an external system such as a spreadsheet application, into a Tamino collection.

Master/Slave Replication

Updates are possible in master and replication databases; however, updates in the master database always succeed, whereas updates in replication databases may be rejected by the master at its own discretion. As a consequence, **transactions** running at the master retain the **ACID** property, transactions at the replication database do not. The consequences at the replication database can be cascading rollbacks or undetected wrong analysis, therefore not available for Tamino.

Media Type

Used in mail and **HTTP** to give information about the data provided and give instructions on how to treat the data or specify an application to use in conjunction with the data (also referred to as MIME Media Type). In Tamino, each document can be associated with a Media Type which can be returned when the document is retrieved.

Meta Schema

A **schema** containing the formal definition and description of a schema language. Also schema of schemas.

Migration	Transfer of a Tamino system from an older to a newer version of Tamino, from one machine to another, from one architecture to another or from one operating system to another.
MIME (Multipurpose Internet Mail Extensions)	A standard for identifying files of different types and formats by different applications. MIME introduces content-types, which are a descriptive and a platform-independent way to tell an application, such as a browser, what kind of file it is loading and what it should do with the file.
Mirroring	A copy of the database is generated on a separate volume.
Multi-Path Index	Offers the possibility to collect data from multiple paths into one single index. It is filled with the data of all nodes, matching the various **XPath** conditions. This increases the performance for queries with wildcards significantly, as only the sum of all interesting entries is searched and not all possible combinations as in a simple index.
Multiple Granularity Locking	A hierarchical locking technique applied in Tamino in order to achieve **concurrency** and reduce the risk of **deadlocks**. It is based on **intention locks** working on different **granularities**.

N

Namespace	See **XML Namespaces**.
Namespace Cleaning	The process of correction of incorrect namespace declarations or prefix usage in schemas and data belonging to the schemas (the latter case is called Instance Namespace Cleaning).
Namespace Context	A table that uniquely maps namespace prefixes to associated namespace URIs.
Native XML Database	A database that stores and manages XML documents directly without converting them to a non-XML format. These databases and their management tools are built expressly for handling XML objects.
NCName	A non-colonized name that does not contain a colon. It can be used as a local name within a definition of a **QName**.
Network File System (NFS)	A service that enables computers, possibly with different architectures and running different operating systems, to share file systems across a network. In conjunction with other Remote Procedure Call (RPC) services, it permits the user to access remote files and hierarchies transparently, as if they were local to the user's computer. To the user, all files accessed through NFS look just like local files. There is no apparent difference between reading and writing a file on a

	local disk and a file located on the disk of a computer in a different location.
NFS	See **Network File System**.
Node	An information item in a tree structure.
Non-repeatable Read	Non-repeatable read phenomena may occur when one **transaction** reads and modifies data and the same data is read by a concurrent transaction multiple times. Choose isolation level 'stable document' or 'serializable' in order to avoid the non-repeatable read phenomenon.
Non-XML Indexer	A special tool for indexing non-XML data within Tamino.

O

Object Analyzer	An X-Tension tool to check whether available files are suitable to be used as Tamino Server Extensions or to select some functions from a great number of functions, and then to create a package file ready for installation.
Object Composer	Used when information is to be retrieved from the Data Map. Using the storage and retrieval rules defined in the Data Map, the Object Composer constructs the information objects and returns them as XML documents.
Object ID	An internal sequence number applied by the X-Machine to an XML object when the object is first stored in the database.
Object Linking and Embedding (OLE)	Microsoft's framework for a compound document technology.
Object Management Group (OMG)	A group of vendors who created CORBA (Common Object Request Broker Architecture), which is a standard architecture for distributed objects in networks.
Object-Oriented Database Management System (OODBMS)	A database management system that supports the modelling and creation of data as objects. This includes support for classes of objects and the inheritance of class properties and methods by subclasses and their objects.
Object Processor	Used when storing data into Tamino. The schemas in Tamino's Data Map provide the Object Processor with the information required to store XML data in Tamino's XML store. Support of external data sources is provided by the X-Node.

Object Request Broker (ORB)	In CORBA, an ORB is the program that acts as a "broker" between a client request for a service from a distributed object or component and the completion of that request. A client program can request a service without having to understand where the server is in a distributed network or exactly what the interface to the server program looks like.
ODBC	See **Open Database Connectivity**.
Offline Backup	A backup that is performed when the server is down, or in stand-by mode.
OLAP	See **Online Analytical Processing**.
OLE	See **Object Linking and Embedding**.
OLE DB	A set of OLE interfaces that provide applications with uniform access to data stored in diverse information sources, regardless of their location or type.
OLTP	See **Online Transaction Processing**.
OMG	See **Object Management Group**.
Online Analytical Processing (OLAP)	Enables a user to extract and view data from different points of view.
Online Transaction Processing (OLTP)	Facilitates and manages **transaction**-oriented applications, typically for data entry and retrieval transactions.
OODBMS	See **Object-Oriented Database Management System**.
Open Database Connectivity (ODBC)	A standard application programming interface (API) for accessing a database. By using ODBC statements in a program, you can access files in a number of different databases.
ORB	See **Object Request Broker**.

P

Package Viewer	An X-Tension tool to view the content of a Server Extension package file.
Parallel Backup	A parallel backup writes in parallel to more than one backup device. This increases the speed of the backup process, if the backup device is much slower than the disks where the database is stored.

Parser

A program, usually part of a compiler, that receives input in the form of sequential source program instructions, interactive online commands, markup tags, or some other defined interface and breaks it up into parts that can then be managed by other programs. A parser may also check to see that all input has been provided that is necessary.

In the context of XML, a parser transforms an XML document into an internal representation (e.g. a tree structure suitable for DOM access, or a sequence of SAX events).

Partial Backup

Only a logical or physical subset of the database is saved. See also **complete backup**, **incremental backup**.

Partial Recovery

Only a logical subset of the database is recovered. A partial recovery is possible after a full or partial restore.

Partial Replication

Only parts of a database are replicated, in contrast to a **complete replication**.

Partial Restore

Only a logical subset of a database is restored. A partial restore is possible after a full or partial backup. Contrast **full restore**.

Passive Replication

Updates from a master database are propagated on request from the client running the replication database. Contrast **active replication**.

Peer Replication

When replicating, updates are possible in all copies of the database. They are merged. Conflicts may occur which have to be resolved either by a default strategy or by a custom strategy. The **ACID** property cannot be guaranteed for any **transaction**. Either cascading rollbacks or undetected wrong analysis can be the consequences at any copy of the database.

Performance

In Tamino, performance means the speed at which Tamino can index, store, and retrieve data.

Phantom Effect

The phantom phenomenon may occur when one **transaction** establishes a set of documents as the result of a query and other concurrent transactions insert or delete documents which would have been part of that set. Choose **isolation level** 'serializable' in order to avoid the phantom effect.

Physical Schema

Determines where **XML objects** are stored and how they are indexed. The physical schema does not influence the behaviour of applications. See also **Logical Schema**.

PKI	See **Public Key Infrastructure**.
PKIX	See **Extended Public Key Infrastructure**.
Polling	The process of periodically inquiring about the status of an object or condition. Contrast this with event driven or signal driven processing.
Port	Logical connection place; specifically in the Internet protocol suite TCP/IP the way a **client** program specifies a particular **server** program on a computer in a network. Higher-level applications that use TCP/IP such as the web protocol **HTTP** have ports with preassigned numbers. These are "well-known" ports that have been assigned by the **IANA**. Other application processes are given port numbers dynamically for each connection.
Prepared Query	A prepared query is a query that is stored as a compiled object and can be executed by reference many times.
Pseudo QName	(Context: Namespaces) Same as **Lexical QName**.
Public Key Infrastructure (PKI)	A PKI represents all requirements to process and handle digital signatures, certificates and encryption methods, using so-called public key cryptography. These mathematical algorithms define one key to encrypt data (usually called the public key) and a different key to decrypt data (usually called the private key).

Q

QName	See **Lexical QName** and **Expanded QName**.
Query Interpreter	The part of the **X-Machine** that analyzes and evaluates client queries.

R

RAID	RAID (redundant array of independent disks; originally redundant array of inexpensive disks) is a way of storing the same data in different places (thus, redundantly) on multiple hard disks. By placing data on multiple disks, I/O operations can overlap in a balanced way, improving performance. Storing data redundantly also increases fault tolerance.
Raw Section	A logical or physical volume (disk space) that is directly addressed by the database system without using the operating system's file system.

RDF	See **Resource Description Framework**.
Read-only Replication	See **Asymmetric Replication**.
Recovery	The process of re-applying database modifications from the **log spaces**, in order to bring a database back to its most recent valid state after a database loss. Recovery is used together with **Restore** if a database was lost; the restore operation restores the database to the state of the corresponding database **backup**, and the recovery operation re-applies changes that were made to the database since the backup was made.
Recovery Skipping	A feature of database recovery processing, whereby **transaction logs** can be excluded from the recovery procedure. These logs are marked as excluded logs for subsequent recovery processing.
Reference Index	A reference index is a special kind of **index** for natively stored data especially suited to accelerate queries containing combined value conditions on inner nodes (i.e. neither a root node nor a leaf node), appearing with a multiplicity of more than one. It is based on the idea that only a partial sub-tree of the document tree is indexed.
Replication	Users often need to maintain duplicates of a database on remote **servers**. A replication database is a "hot standby" system with up-to-date copies of all **transactions** available for applications to work with in case the primary system fails. Unlike a conventional **backup** that must be restored from tape or CD, the replication database is available to applications as soon as they can be pointed to it.
Request	A Tamino request is the invocation of the **Tamino Server**. A request may consist of one or more **X-Machine** commands.
Resource Description Framework (RDF)	An infrastructure that enables the encoding, exchange and reuse of structured metadata. It is a mechanism for associating properties with resources. RDF uses **XML** as a common syntax for the exchange and processing of metadata.
Response Document	A well-formed **XML** document returned by Tamino to the client in response to a client request such as a database query.
Restore	The process of re-creating the contents of a database by copying in the contents of a previous **backup**.
Roll back	To abort a **transaction** so that all commands in the transaction are annulled. Contrast **commit**.
Root Element	The outermost element of an **XML** document.

RSA	An asymmetric algorithm used primarily to create digital signatures, and more rarely for encryption. It is named after its creators: Rivest, Shamir and Adleman. It provides security by factorization intractability.

S

SAX	See **Simple API for XML**.
Scalability	The ability to maintain high **performance** levels despite a significant increase in database size and/or workload.
Schema	A Tamino schema complies with the **W3C XML Schema** standard with Tamino-specific information defined in annotations. Within a schema, we distinguish between a **physical schema** and a **logical schema**. The physical schema describes how **XML** documents are physically stored and indexed; changes to the physical schema do not influence the semantics and syntax of Tamino operations. The logical schema consists of rules describing the relationship between and properties of elements and attributes in valid XML documents. Changes to the logical schema (content model, data type, occurrence restrictions, collations, etc.) may impact the semantics of Tamino operations.
Schema Editor	A graphical editor in Tamino that facilitates writing a **Tamino schema**.
Schema Language	The language used to describe a **schema**.
Schema of Schemas	See **Meta Schema**.
Search Expression	A collection of predicates linked by Boolean operators.
Secure Hypertext Transfer Protocol (HTTPS)	A secure modification of **HTTP** that encrypts and decrypts user page requests as well as the pages that are returned by the web server.
Secure Socket Layer Protocol (SSL)	A security protocol that prevents eavesdropping, tampering, or message forgery and provides server-side, and optionally client-side, authentication.
Server	In general, a computer program that provides services to other computer programs in the same or other computers. The computer

	in which a server program runs is also frequently referred to as a server (though it may contain a number of server and **client** programs). In the client/server programming model, a server is a program that awaits and fulfills requests from **client** programs in the same or other computers. A given application in a computer may function as a client with requests for services from other programs and also as a server of requests from other programs. A **Web server** is the computer program (housed in a computer) that serves requested **HTML** pages or files. A Web client is the requesting program associated with the user. The Web browser in your computer is a client that requests HTML files from Web servers.
Server Extension	A Tamino Server Extension is a user-defined function of the **Tamino server**. A typical user-defined function is one that handles data in some specific way that could not be anticipated by standard Tamino functions. A Server Extension is installed in the Tamino Server using the **Tamino Manager**. Once installed, Tamino Server Extensions are not distinguishable to the end user from Tamino's standard functions.
Server Session	The time between starting and stopping the **Tamino server**. Also, a **backup** establishes a new session
Session	A virtual connection between a **client** program and the **Tamino Server**. It allows multiple commands issued in different requests within the same session to be executed within a single **transaction**. In Tamino, a session is established by a `connect` command and terminated by a `disconnect` command (or an equivalent action in an **API**).
Session ID	A unique identifier for a session.
Session Key	An identifier that identifies the current **X-Machine** command as part of an active **transaction**.
Session Statements	Statements to handle database sessions, e.g. `_connect`, `_disconnect`.
SGML	See **Standard Generalized Markup Language**.
Shadow Document	An **XML** document created from a document containing non-XML data by the user-supplied **shadow function** for efficient non-XML indexing purposes.
Shadow Function	A function that acts as a converter between a non-XML document and its **shadow document**. It must be implemented by the user as a **Tamino Server Extension** depending on his needs.

Signed Applet	A Java applet that is guaranteed by its author to work as specified. A signed applet contains its author's name and information about the validity of the current version. If you as an end-user want to download the signed applet in a web browser session, the browser displays information about the author of the applet and asks you for confirmation before permitting the applet to run on or be loaded onto your machine.
Simple API for XML (SAX)	An **API** that allows a programmer to interpret an **XML** file.
Skipping	See **Recovery Skipping**.
Smart Card	A plastic card with a microprocessor that can store information and perform certain calculations and cryptographic functions.
Snapshot	You can perform an **external backup** based on snapshots. A snapshot is a logical, not a physical copy of the database. When a data block is updated after a snapshot has been created, the block is *not* updated, but copied to a new place. While the snapshot still references the old block, the original file references the updated block at the new place. Since generating a snapshot does not perform a physical copy of the data, it is very fast.
SSL	See **Secure Socket Layer Protocol**.
Standard Generalized Markup Language (SGML)	A metalanguage for specifying document markup languages or tag sets. **HTML** is an example of an SGML-based language.
Standard QName	(Context: **Namespaces**) The same as **Expanded QName**.
Style sheet	A term extended from print publishing to online media. A style sheet is a definition of a document's appearance. Typically, a style sheet is specified at the beginning of an electronic document, either by embedding it or linking to it. This style sheet applies to the entire document. Specific elements of the overall style sheet can be overridden as necessary by special coding that applies to a given section of the document.
Subtree	Also called “branch”. Part of a doctype structure or of an XML document, namely a subordinate **node** that has various other nodes or **terminal nodes**.
Symmetric Replication	In symmetric replication, updates made to any of the replication databases are propagated to all other replication databases. This usually leads to conflicts caused by simultaneous updates of the same data on multiple replication databases. Such conflicts can only be resolved by application logic. See also **Asymmetric Replication**.

Synchronous Replication	The propagation of updates when replicating databases is part of the user **transaction**. All replication databases always reflect the latest data; however, user transactions are delayed due to the update propagation, which can seriously affect performance, in particular in the presence of network delays. See also **Asynchronous Replication**.

T

Tamino Data Loader	A utility in Tamino that automates the process of loading large amounts of data into a Tamino database. It also includes an unloading function, which produces a file that is suitable for a subsequent load operation.
Tamino Interactive Interface	A browser-based interface for sending requests to the **Tamino Server**. It can be used to define and undefine Tamino **collections** and **schemas** as well as to load, retrieve or delete **XML objects** or parts of them.
Tamino Load Format	One of the permitted data formats required when loading data from a single input data file into Tamino using the **Tamino Data Loader** utility. Tamino load format consists of a series of **XML** documents, all of which have the same **top-level element** name. The file can begin with an XML declaration.
Tamino Schema Definition (TSD)	Tamino's schema language, which is based on **XML Schema** (**W3C Recommendation**) with various extensions.
Tamino Server	The central piece of Tamino's software. It is the software component that processes all administration and client requests for a Tamino database.
Tamino X-Plorer	Displays the content of one or more Tamino databases in a navigation tree. It allows designers, builders and developers of XML database applications to explore and manipulate the contents of a Tamino database.
Tamino X-Tension	The component of Tamino that provides tools for the development, implementation, administration and execution of Tamino **Server Extensions**.
TargetNamespace	(Context: **Namespaces**) A kind of default namespace in which all **elements** that do not have an explicit prefix reside.
Temporary Working Space	A **database space** that stores intermediate results.

Terminal Node	The “lowest” part of a tree representing a doctype. As such, it contains real data, in contrast to **subtrees**, which are intermediate nodes (also called branches). A terminal node is hence a leaf of a tree.
Tokenization	The process of segmenting a sequence of characters into a set of symbols that are defined by a grammar. The symbols can be words of a natural language or syntax constructs of a programming language. Tamino's full-text retrieval system offers a special tokenizers for Japanese.
Transaction	The smallest unit of work, as defined by the user, that must be performed in its entirety to ensure that the information contained in the database is logically consistent. A transaction may comprise one or more Tamino commands that together perform the database operations required to complete a logical unit of work.
Transaction Log	Stores changes that have been made to database data during the current user session. The changes are stored in chronological order. The transaction log is required for the **recovery** operation, so that data changes that occurred since the most recent database **backup** can be re-applied if data has become corrupted. If there have been several user sessions since the most recent backup, each session has its own transaction log, so it is necessary to apply all of the transaction logs in the correct order to recover corrupt data.
Transliteration	In Tamino this is the mapping of a given character sequence into another character sequence according to a translation table. It is used in text retrieval operations and query expressions with wildcard characters.
Trigger	Provides a predefined way of database processing (see **Trigger Function**) which is executed exclusively if special conditions (see **Trigger Event**) occur.
Trigger Event	An event initiating the processing of a database trigger in Tamino.
Trigger Function	A predefined database action to be processed if a **trigger event** occurs.
TSD	See **Tamino Schema Definition (TSD)**.

U

UCS	See **Universal Multiple-Octet Coded Character Set**

UCS-2	A 2-byte mapping onto a table of internally agreed character sets, including all the world's commonly used alphabets. The two bytes allow 65536 characters to be mapped. See also **Character Encoding**.
UCS-4	The 4-byte extension of **UCS-2**. The first 65536 characters are identical to UCS-2. See also **Character Encoding**
UCS Transformation Format (UTF)	A set of mapping algorithms that allow fixed length addressing mechanisms such as **UCS-2** and **UCS-4** to be represented as a variable length set of bytes. See also **Character Encoding**.
Unicode Transformation Format (UTF)	Same as **UCS Transformation Format**
Uniform Resource Identifier (URI)	A character string that identifies the name and address of a web object and the protocol used to access it. See also: **URL**.
Unique Key	A field or combination of fields of a database that is required to have unique values, meaning that each value (combination) appears only once within all instances of this field. Like many other databases, Tamino offers a mechanism to ensure this automatically.
Uniqueness Constraint	A built-in mechanism in a database system to ensure and verify that a condition for a database field, or a combination of fields in the case of a composed key, to contain unique values is always fulfilled, i.e. for each record/instance the value of the field (combination) must be different from all other records' or instances' values. The database guarantees the validity of this constraint by suppressing updates with already-present values for this field (combination), which is characterized as the unique key. In Tamino, uniqueness constraints are specified at the doctype level. If an attempt is made to violate a uniqueness constraint, an error message is issued indicating the constraint that would have been violated.
Universal Multiple-Octet Coded Character Set (UCS)	A character encoding standard defined by ISO 10646, using a fixed 4-byte mapping for each character. This allows a set of approximately 2 billion ($2*10^9$) characters to be defined. See also **character encoding**.
Universal Resource Locator (URL)	The address of a file or other resource that can be accessed on the Internet.
URI	See **Uniform Resource Identifier**.
URL	See **Universal Resource Locator**.
UTF	See **UCS Transformation Format**

UTF-8	A variable-length encoding of **UCS-2** that allows a character to be represented by a string of one to four bytes. In general, the characters appearing most frequently in other major international character sets are assigned UTF-8 encodings that require the fewest bytes (for example, each character in the ASCII character set requires one byte in UTF-8). See also **Character Encoding**.
UTF-16	A character encoding that uses a 2-byte representation equivalent to **UCS-2** for Unicode characters up to U+FFFF (the Unicode character represented by the hexadecimal value "FFFF") and a 4-byte representation for characters from U+10000 upwards. See also **Character Encoding**.

W

W3C	See **World Wide Web Consortium**.
W3C Recommendation	The final, approved form of a new standard resulting from the **W3C** review procedure, effectively releasing the standard for general use by the IT community. See *http://www.w3.org/* for a description of the W3C review process.
Web Application	A collection of servlets, HTML pages, classes, and other resources that make up a complete application on a **web server**. The web application can be bundled and run on multiple containers from multiple vendors.
Web Interface Definition Language (WIDL)	An **XML** based language to describe the interfaces of a web site for automated web access from programs.
Web Server	A program that uses the **client**/**server** model and the World Wide Web's **Hypertext Transfer Protocol** to serve the files that form web pages to web users (whose computers contain HTTP clients that forward their requests). Every computer on the Internet that contains a web site must have a web server program. Web servers often come as part of a larger package of Internet- and intranet-related programs for serving e-mail, downloading requests for File Transfer Protocol files, and building and publishing Web pages. Also a synonym for HTTP server.
Well-formed	A well-formed **XML** document consists of a prologue and **elements**; each element has a start tag and an end tag, or is an empty element without content; elements are hierarchically ordered; attributes may occur within a start-tag; exactly one enclosing **root element** exists for the document.

WIDL	See **Web Interface Definition Language**.
World Wide Web Consortium (W3C)	An industry consortium that promotes standards for the evolution of the World Wide Web (WWW) and interoperability between WWW products by producing specifications and reference software. Although W3C is funded by industrial members, it is vendor-neutral, and its products are freely available. See *http://www.w3.org/*.
Wrapper, XML	The starting and ending tags of an **XML element**, placed at the beginning and end of data that is not necessarily in the form of a **well-formed XML** document, so that the resulting object can be considered to be a well-formed XML object.

X

X.509	A standard for the binary representation of a certificate.
X-Machine	The engine that drives Tamino. Its basic function is to store **XML** and non-XML objects in and retrieve them from their respective data sources. It does this based on the **schemas** defined by the administrator in the **Data Map**. See also **Command, X-Machine**.
XML	See **Extensible Markup Language**.
XML Element	See **Element**.
XML Namespaces	Namespaces are created to ensure uniqueness among **XML elements**. They are not mandatory in **XML**. When two XML documents containing identical elements from different sources are merged, those elements collide. Namespaces help to avoid element collision by scoping each tag. See also the W3C Recommendation **Namespaces in XML**.
XML Object	A collection of data that is structured according to the rules for **well-formed XML** documents.
XML Parser	An **XML object** to be stored by the **X-Machine** is described by its **schema** stored in Tamino's **Data Map**. The X-Machine's internal XML parser checks the syntactical correctness of the schema and ensures that incoming XML objects are well-formed.
XML Query Interpreter	Resolves Tamino query requests and interacts with the **Object Composer** to retrieve **XML objects** according to the **schema** stored in the **Data Map**.

XML Schema	A standard for the description of the structure of **XML** documents, developed and maintained by the **W3C**. **Tamino schema definition** is based on **XML Schema**.
XML Signature	A method of associating a key with referenced data (octets). XML Signature can be applied to any digital content (data object), including **XML**. An enveloped or enveloping signature is over data within the same XML document as the signature; a detached signature is over data external to the signature element.
XML Store	The part of a Tamino database where **XML** data is stored natively.
X-Node	Tamino's component for integration with external data storage systems. It allows applications to access data regardless of database type or location. The data can reside in heterogeneous databases, be stored in file systems or be provided by a message system.
XPath	A language for addressing parts of an **XML** document. It is the result of an effort of the **W3C** to provide a common syntax and semantics for functionality shared between **XSL Transformations** (XSLT) and the **XPointer Framework**. XPath also provides basic facilities for manipulating strings, numbers and booleans.
X-Plorer	See **Tamino X-Plorer**
X-Port	The X-Port module links Tamino to the **web server**.
XQuery	Also known as XML Query. A powerful and convenient language for processing **XML** data. It is a **W3C** "recommendation", i.e. a specification. Tamino supports XQuery syntax, in parallel to its proprietary query language **X-Query** (with a dash). The Tamino implementation of XQuery is called Tamino XQuery 4.
X-Query	In Tamino, this is a proprietary query language for accessing any **XML** objects. It uses the standard **XPath** addressing mechanism with additional database query features. Do not confuse with the **W3C** standard **XQuery** (without a dash), which is also supported by Tamino.
XSL	See **Extensible Stylesheet Language**.
XSLT	See **XSL Transformations**.
XSL Transformations (XSLT)	A language for transforming **XML** documents into other XML documents.
X-Tension	See **Tamino X-Tension**

X-Tension Builder	**X-Tension** tool for developing **Server Extensions** in Java or C.
XTS	See **Extended Transport System**.