

AVEVA™
Historian Glossary
formerly Wonderware



AVEVA™

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Welcome

This document provides a glossary for the AVEVA Historian Server documentation set.

AVEVA Historian Documentation Set

The AVEVA Historian documentation set includes the following guides:

- *AVEVA System Platform Installation Guide*
This guide provides information on installing the AVEVA Historian, including hardware and software requirements and migration instructions.
- *AVEVA Historian Concepts Guide*
This guide provides an overview of the entire AVEVA Historian system and describes each of the subsystems in detail.
- *AVEVA Historian Administration Guide*
This guide describes how to administer and maintain an installed AVEVA Historian, such as configuring data acquisition and storage, managing security, and monitoring the system.
- *AVEVA Historian Database Reference*
This guide provides documentation for all of the AVEVA Historian database entities, such as tables, views, and stored procedures.
- *AVEVA Historian Scenarios Guide*
This guide discusses how to use AVEVA Historian Server to address common customer scenarios.
- *AVEVA Historian Glossary*
This guide provides definitions for terms used throughout the documentation set.

In addition, the *Invensys License Manager Guide* (InvensysLicenseManagerGuide.pdf) describes the Invensys License Manager and how to use it to install, maintain, and delete licenses and license servers on local and remote computers.

The AVEVA Historian documentation is also provided as an online help file, which can be accessed from the System Management Console management tool.

Documentation Conventions

This documentation uses the following conventions:

Convention	Used for
Initial Capitals	Paths and file names.
Bold	Menus, commands, dialog box names, and dialog box options.
Monospace	Code samples and display text.

APPENDIX A

Glossary

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action

An event action is the action that is configured to take place when the event detector determines that the event occurred. Event actions are not required; there are times when you may want to simply store when events happened. *See also* detector, event tag.

action queue

An event system action queue is a space in the action thread where a particular type of action is assigned before execution. An event action can be to either a critical, delayed, or normal action queue. Each type has its own queue.

active image

The active image is an allocation of memory in which copies of values of acquired data are held to service client requests faster. The active image typically holds either the last 65 values for each data point or the number of values required to hold one minute of data, plus 10 percent. String tags configured with a length greater than 64 characters are not held in the active image.

aggregate functions

Aggregate functions are SQL functions that perform numerical calculations on a column in a set of data. Available aggregate functions include: SUM, AVG, MIN, MAX, and COUNT.

alarm

An alarm warns an operator about a process condition that could potentially cause a problem. Typically an alarm is set up to be triggered when a process value exceeds a defined limit. Alarms are detected by InTouch or AVEVA Application Server and recorded by AVEVA Historian's Alarm & Event History system.

alias

An alias is a name by which a networked server is known to clients on the network. A server can have multiple aliases.

alternate storage location

The alternate storage location is a directory on a computer that is used to store files that have been moved out of the circular storage location.

analog summary replication

Produces summary statistics for analog tags for a recorded interval.

annotation

An annotation is a user comment about a tag at a point in time.

application programming interface (API)

An application programming interface is a set of routines that an application can use to request lower-level services. APIs are available for use by application programmers when creating an application interface.

architecture

A system's architecture describes the structure of a computer system, including the hardware and software that link the computers on a network.

archiving

Archiving is the process of removing records from the system and saving them to files so they can be restored later if needed. Alarm and event history stored in a SQL Server database may be archived using the Purge/Archive utility. Process history stored in history blocks can be archived and restored using Windows Explorer.

argument

An argument is the actual value passed to a function parameter.

attribute

In a database, attributes represent characteristics or properties associated with an entity, such as a tag, and usually correspond to column headings in a table.

authentication

Authentication is the process by which the logon information for a user is validated. Authentication is typically performed by a server on the network domain by comparing the logon information to an authorized list.

back end

Back end is a term that refers to the server in a client/server architecture. Data retrieval, processing, and storage occur at the back end, or server. *See also* server.

bandwidth

Bandwidth relates to the amount of data that can be transferred across a computer network in a given amount of time. Bandwidth is usually expressed in bits per second (bps) or baud.

block

See history block.

browser

A browser is a graphical representation of hierarchical groups of data. A browser is used to display disk directories, folders, or files. For example, the System Management Console uses a browser to display servers, tags, and groups of tags in the system, private, and public namespaces. *See also* namespace.

buffer storage location

The buffer storage location is a directory on a computer that is used to store files temporarily, such as for retrieval from a data archive.

byte

A byte is a unit of information that consists of 8 bits. For data storage, a byte is equal to a single character, such as a number or a letter.

cache

Cache is special subsystem of memory in which frequently accessed data values are stored. A cache can be used as a buffer to hold data during transfers between a hard disk and random access memory (RAM). Cache memory is usually faster than RAM.

circular storage location

The circular storage location is a directory on the computer that stores historical data in files called history blocks.

client

A client is a computer that uses network services shared by the server computer. A client has full power and features for running applications, but is enhanced by the processing power of the server. The server provides data management, network administration, and security. Client computers are typically optimized for user interaction. *See also* server.

client/server

Client/server is a hardware and software architecture where the client (a user or program) makes requests (to the server) for resources or information. In this way, client/server computing enables two or more computers to share processing across a network.

Component Object Model (COM)

COM is a collection of services that allows software components to interoperate in a networked environment.

configuration tables

Configuration tables contain information that defines most of the configuration aspects of AVEVA Historian. For example, definitions for tags, I/O Servers, and users are stored in configuration tables. *See also* extension table.

console

See Microsoft Management Console.

context

Meaningful description of the event or grouping to which a group of limits, rates of change, or deviations can belong. Examples are "Normal Operation," "Cold Shutdown," "My Personal Concerns."

CSV

CSV is the abbreviation for the comma-separated values format. In a file formatting according to CSV, data values are separated by commas.

cyclic retrieval

Cyclic-based retrieval is the retrieval of stored data for the given time period based on a specified cyclic retrieval resolution, regardless of whether or not the value of the tag(s) has changed. *See also* delta retrieval, resolution.

cyclic storage

Cyclic storage is the storing of analog data based on a time interval. Cyclic storage writes a record to history at the specified interval, only if a data change occurred during this time interval. *See also* delta storage.

data

The coded representation of information for use in a computer. Data has attributes, such as type and length.

data acquisition

Data acquisition is the process by which tag values are captured from various sources, such as from I/O Servers.

data dictionary

A data dictionary is a group of tables that contain information about all of the objects in the database.

data integrity

Data integrity is the reliability and accuracy of data stored in the database.

data source

A data source is a database from which a client retrieves data.

data store

A data store is a file that contains data. A non-local data store is a data repository that exists outside of a Microsoft® SQL Server™ database.

data type

A data type specifies what type of information a table column can hold and how it is stored. There are two sources of data types: system-supplied data types and user-defined data types.

database

A database is a system repository of common types of data, sorted by unique identifiers and organized into tables. Databases are stored in files.

database name

The database name is used to identify a database. This name is used when establishing a connection from a client.

database object

See object.

database object owner

A database object owner is a user who creates a database object, such as a table, index, view, or rule. Database object owners have full permissions on any objects that they create, including the right to assign permissions for that object to other users.

database owner (dbo)

A database owner is a user who creates a database. Database owners have full access permissions for the database that they create, including the right to assign permissions for that database to other users. There can be only one dbo for a database. Database ownership can be transferred between users, and multiple login IDs can be aliased to the dbo.

database query

See query.

DDE tags

A DDE tag is a tag that reads or writes its values to or from another application by means of the Microsoft Dynamic Data Exchange protocol. See also Dynamic Data Exchange.

deadband

A deadband is the amount of increase or decrease that a value can experience before an event will occur in the system. See also time deadband, value deadband.

delta retrieval

Delta retrieval, or retrieval based on exception, is the retrieval of only the changed tag values for a tag(s) for the given time interval. That is, duplicate values are not returned. *See also* cyclic retrieval.

delta storage

Delta storage is the storing of data based on a change in a value. Delta storage writes a record to history only if the value has changed since the last time it was written to history. Delta storage is also called "storage by exception." *See also* cyclic storage.

detector

An event detector is a mechanism for determining when the set of event criteria within the system has been satisfied for history data. *See also* event tag, action.

deviation

The deviation is the percentage of change in a tag's value from a fixed value, called the target. Each analog tag can have two defined deviations: major and minor.

discrete

A discrete value is a variable which only has two states: '1' (True, On) or '0' (False, Off). *See also* message pair.

Distributed Component Object Model (DCOM)

DCOM is a protocol that enables software components to communicate directly over a network.

domain

A domain is a group of computers that share a tree or subtree of a network for security authentication.

dynamic configuration

Dynamic configuration is the process of modifying the configuration of tags and other objects in the AVEVA Historian database while the system is running.

Dynamic Data Exchange (DDE)

DDE is the passage of data between applications, accomplished without user involvement or monitoring. In the Windows operating system environment, DDE is achieved through a set of message types, recommended procedures (protocols) for processing these message types, and some newly defined data types. By following the protocols, applications that were written independently of each other can pass data between themselves without involvement on the part of the user. For example, InTouch® HMI software and Microsoft Excel. *See also* topic, item, I/O Server, SuiteLink.

Dynamic Link Library (DLL)

A DLL is a software library of functions stored in a file and loaded into memory at execution time in order to be accessed by other functions or modules.

edge detection

Edge detection is the determination of the edge for a particular set of data. The edge is the imaginary "line" where, in a result set, the satisfaction of criteria changed from true to false, or vice-versa. *See also* leading edge, trailing edge.

engineering unit

An engineering unit is the unit of measure for a tag. For example, RPMs, milliseconds, degrees.

Note: Engineering units are case-sensitive. That means that AVEVA Historian can differentiate between ml (milliliters) and ML (megaliters), for example.

event

An event is a historical occurrence of a defined activity in the system. The definition for an event is stored as an event tag. Events are detected by event detectors and may be responded to by an event action. See *also* detector, action, event tag.

event block

Event blocks are the basic partitioning unit that users interact with. An event block is stored in a folder and generally has a collection of snapshots.

event tag

An event tag is a name for an event definition in the system. For example, if you wanted to detect how many times in history the temperature of tank reached 100 degrees, you might define an event tag and name it "TankAt100." See *also* detector, action, event.

extension table

In the AVEVA Historian, an extension table is a table that provide a means for handling acquired plant data. Extension tables are not part of normal SQL Server functionality. A normal SQL Server table stores data directly to the database file. An extension table, however, is a logical table that is populated from the data files created by the historian storage system. Data in the extension tables can be manipulated by using normal Transact-SQL code, as well as the specialized time domain extensions provided by the historian. See *also* view, configuration table.

failover

Failover is the process of substituting a backup resource, such as an IDAS, for a resource that is no longer functioning.

field

See row.

foreign key (FK)

A foreign key is one or more columns whose values match the primary key (PK) of some other table. A single primary key may have a foreign key in more than one table. See *also* key, primary key.

front end

Front end is a term that refers to the client in a client/server architecture. Database access or data input occurs at the front end, or client. See *also* client.

frozen snapshot

Before being sent to disk, live snapshots can be frozen. After being frozen, events can no longer be added to the snapshot. This allows many optimizations to take place that allow efficient snapshot representation in both memory and disk. See *also* snapshot.

function

A function is a procedure in programming language. See *also* argument.

group

See user group.

HCAL

The Historian Client Access Layer (HCAL) is a client-side software layer that provides programmatic access to storage, retrieval, and system configuration functionality in the AVEVA Historian.

HCAP

The Historian Client Access Point (HCAP) is server-side software in the AVEVA Historian that accepts data from the Historian Client Access Layer (HCAL).

heterogeneous query

A heterogeneous query is a query that accesses data from multiple, dissimilar data sources.

history block

A history block is a group of data storage files that are written in a separate directory identified by a date stamp and a letter suffix. The AVEVA Historian stores acquired data to disk in blocks. History blocks are created when the historian starts, at a designated time interval, or when manually requested.

history block duration

The number of hours or days worth of data stored by a history block. Sometimes known as "hours per block".

history tables

In the AVEVA Historian, history tables present acquired plant data in a historical format, where there is one row for each stored tag value. *See also* "live" tables, "wide" tables.

Holding database

In an AVEVA Historian, the Holding database contains tables to temporarily store information imported from an InTouch data dictionary before it is transferred to the Runtime database. *See also* Runtime database.

Human-Machine Interface (HMI)

A human-machine interface is a software interface that allows plant floor operators to view, manipulate, and store plant data. An HMI can run on a PC or other industrial terminal.

Hypertext Transfer Protocol (HTTP)

HTTP is a protocol that enables the transfer of information over the Internet.

I/O

This is an abbreviation for Input/Output.

I/O Driver

See IDAS.

I/O Server

An I/O Server is an application that provides data to a client over a network by means of the DDE or SuiteLink protocol. *See also* Dynamic Data Exchange, SuiteLink.

IDAS

Industrial Server Data Acquisition Service (IDAS). This service accepts data values coming from SuiteLink and/or I/O servers, and forwards those values to AVEVA Historian.

IDENTITY column

An identity column contains a system-generated value that is used to uniquely identify each row in a table. If data is inserted into a table that has an identity column defined, the SQL Server will automatically generate a value. This value is based on the last assigned identity value, plus a pre-defined identity value increment.

index

An index is a set of pointers that provides faster access to data in rows of a table than a table scan. The concept of a table index is similar to an index at the back of a book; index entries make it much faster to find data than starting at the beginning of the book and scanning until you find the information you are looking for. Indexes can also enforce uniqueness on rows in the table. There are two types of indexes: clustered and nonclustered.

information system (IS) network

The information system (IS) network is the business local or wide area network of a distributed AVEVA Historian. Computer workstations running AVEVA Historian client applications are most often connected to this network. *See also* process network.

initial value

Initial values are special values that can be returned from queries that lie exactly on the query start time, even if there is not a data point that specifically matches the specified start time.

initialization

Initialization refers to starting the AVEVA Historian.

in-memory snapshot

The in-memory snapshot stores the events which fall in the current block snapshot range.

integer

An integer is any member of the set consisting of the positive and negative whole numbers and zero. Examples: -59, -3, 0.

IP address

An IP address is a 32-bit address (Internet protocol address) that identifies a computer on a TCP/IP network. An IP address is normally written as four decimal numbers delimited by periods (.).

IPX/SPX

IPX/SPX is a transport protocol used in Novell networks.

item

In the DDE or SuiteLink protocol, a item is a data value placeholder. DDE protocol uses a three-part naming convention to locate information between applications. In order for an application (such as InTouch HMI software) to retrieve data, it must know the name of the application, the topic, and the item. An example of an item is the name of a cell in an Excel spreadsheet. Another example of an item is an InTouch tag. *See also* Dynamic Data Exchange, SuiteLink, topic.

join

A join is a class of SQL query that queries data from one or more columns from two or more tables.

key

A key is a column that is used to identify a row. A row's key must be unique within the table. *See also* primary key, foreign key.

latency

Latency is the period between when an event actually occurs in the system and when it is detected by an event detector. *See also*, replication latency.

leading edge

The leading edge is the query return of only rows that are the first to successfully meet the criteria (return true) after a row did not successfully meet the criteria (returned false). *See also*, edge detection, trailing edge.

limit

A limit is a user-definable maximum or minimum value for a range of values.

linked server

A linked server is a SQL Server or an OLE DB provider that has been associated with a SQL Server. *See also* OLE DB provider.

live

Live describes data that reflects the most current value of a tag.

live tables

In the AVEVA Historian, "live" tables present the current (latest) values of acquired plant data for analog, discrete, or string tags. Live tables include streamed data, but do not include non-streamed data. *See also* history tables, "wide" tables.

local

Local is used to describe the computer that a user is currently logged on to and is physically using. *See also* remote.

local area network (LAN)

A LAN is a group of computers connected by a communications network. A LAN encompasses a relatively limited network area.

log file

A log file is a file that contains a database's transaction log. *See also* transaction log.

logical operators

A logical operator is used to calculate or compare data. Examples of logical operators are AND, OR, and NOT. The logical operators AND, OR, and NOT can be used in WHERE clauses to specify search conditions. AND means that both conditions are met. OR means that either of the conditions are met. NOT means that all conditions are met except those to the right of this operator.

logical tables

See view, extension table.

logical view

See view.

login ID

See login identification.

login identification

The login identification, or login ID, is a unique name that a database user uses to log on to the server.

logon

Logging on is the process of supplying a user name and password to obtain access to network resources.

MDAS

The Manual Data Access Service (MDAS) is a client-side software module that provides programmatic access to storage, retrieval, and system configuration functionality in the AVEVA Historian.

memory tag

Memory tags are tag types that exist internally within an InTouch application. They can be used for creating system constants and simulations. They are also useful in creating calculated variables to be accessed by other Windows programs. There are four memory types: memory discrete, memory integer, memory real, and memory message.

message pair

A message pair includes the display strings associated with the TRUE (ON) or FALSE (OFF) states of a discrete value. See *also* discrete.

Microsoft Management Console (MMC)

Microsoft Management Console (MMC) is a container application that can host one or more third-party applications, called "snap-ins." The System Management Console is an MMC snap-in.

millisecond

One thousandth of a second, abbreviated ms or msec.

modification tracking

Modification tracking allows for the tracking of modifications to columns for certain tables in the database.

multi-protocol

The multi-protocol network library provides the capability for a server to listen for incoming network connections on named pipes, a TCP/IP port and an SPX socket. No ports or sockets need to be specified in the connection string, because a local RPC database is used to resolve the names over the supported protocols.

named pipe

Named pipes is an interprocess communication (IPC) mechanism used to transfer data between separate processes, usually on separate computers. In named pipes, a channel (pipe) is established by both processes for the transfer of data.

namespace

A namespace is a named set of objects. A namespace is simply a logical "area" that holds hierarchical groupings of objects. For example, servers, tags, or topics. There are three namespaces defined in the AVEVA Historian: the system namespace, the public namespace, and the private namespace. The hierarchical contents of a namespace are exposed in the browser of a client application. In the historian, the definition for what is included in a namespace is controlled by internal stored procedures. See *also* system namespace, public namespace, private namespace, browser, stored procedures.

network

A network is a communications infrastructure connecting a group of physically connected computers.

network address

A network address is a set of characters that uniquely identify a computer on a network.

network card

A network card is a physical extension card or device that provides a connection to a local area network (LAN) or wide area network (WAN).

node

A node is any computer or device that can be connected to an internet network. A node is also referred to as a host.

node identifier

A node identifier locates a computer on the network. For example, an IP address. Used in conjunction with a process identifier for establishing client/server connections. *See also* process identifier.

NULL

NULL means that a column entry that has no assigned value. NULL is not equivalent to having a numeric value of zero or an empty string value. NULL is essentially the absence of a value. Unless a column is defined to allow NULLs, a value must be entered for the column.

object

An object is any of the components that constitute a database. Table, views, keys, defaults, triggers, indexes, stored procedures are all examples of database objects. Also called a database object.

Object Linking and Embedding for Databases (OLE DB)

Object Linking and Embedding for Databases (OLE DB) is an application programming interface (API) that allows COM-based client applications to access data that is not physically stored in the Microsoft SQL Server to which they are connecting.

object owner

See database object owner.

object permission

Object permissions determine which statements can be used on database objects. Object permissions are managed by the database object owner for that object. *See also* object, database object owner.

OLE DB provider

A "virtual" server that provides an interface to access data in an OLE DB data store.

OPC quality

The quality of a process value or an event. The quality can be rated as Good, Bad, Doubtful, or Initial Value.

parameter

A parameter is an informational element that has a value. Parameters define the values to be written to or returned from the database.

partial cycle

Any cycle that is shortened so the cycle's duration ends exactly at the query end time.

password

A password is a unique set of characters used to authenticate a user and log on to a server.

permanent storage location

The permanent storage location is a directory on a computer that is used to store critical data (for example, reactor trips) that must not be overwritten. This storage location is the target directory used by the xp_DiskCopy extended stored procedure.

permission

Permissions restrict the actions that a database user can perform on a database. For example, a user may have permission to SELECT on all database tables, but not to INSERT any data.

phantom cycle

A phantom cycle is the name given to the cycle that leads up to the query start time. It is used to calculate which initial value to return at the query start time for all retrieval modes.

poll rate

The poll rate is the rate at which data is read from an acquisition device.

port number

A port number is a number from 0 to about 32,768 that identifies a particular application on a particular computer.

primary key (PK)

A primary key is one or more columns that uniquely identify a row in a table. A primary key is used for joins with foreign keys in other tables. *See also* key, foreign key.

priority

The event priority determines how events will be executed if the system becomes overloaded and cannot process all of the events. Those events that have been assigned a "critical" priority will be executed before events of a "normal" priority.

private namespace

The private namespace is a user-defined set of plant components, such as plant areas, machine names, and tags associated with a particular machine or process. The private namespace works in the same way as the public namespace, except that the private namespace is not available to all users of the AVEVA Historian. The private namespace is defined by a user of the historian. The hierarchical contents of the private namespace can be exposed in a directory tree of an application, but will only be visible to the user who created it. *See also* namespace, system namespace, public namespace, browser.

process

A process is a task, or service, that is performed by a computer's central processing unit (CPU).

process identifier

A process identifier locates a software process on a computer. For example, a pipe name or socket number. Used in conjunction with a node identifier for establishing client/server connections. *See also* node identifier.

process network

A process network is the network to which plant floor control devices are physically attached. Devices on a process network include PLCs, DCSs, and HMI systems. *See also* information system network.

protocol

A protocol is the set of rules and standards to enable computers to connect and exchange data over a network.

public namespace

The public namespace is an administrator-defined set of plant components. Just as the system namespace includes information about an AVEVA Historian, the public namespace includes information about the plant on which the historian is running. The public namespace includes objects such as plant areas, machine names, and tags associated with a particular machine or process. The public namespace is defined by the historian administrator. The hierarchical contents of the public namespace can be exposed to all users in a directory tree of an application. *See also* namespace, system namespace, private namespace, browser.

purging

Purging is the process of permanently removing data from the system that is no longer required. *See also* archiving.

quality

Quality is an indicator of the accuracy, availability, and validity of acquired data. Data values stored by the AVEVA Historian have an associated quality value.

query

A query is a SQL script statement issued to the database by a client that searches for objects in a database table.

RAID

Redundant Array of Inexpensive Disks. RAID is a technology used to implement fault tolerance, or protection of data in the event of a hardware failure through the use of one or more physical disk drives. With fault tolerance, data is fully recovered with no downtime for the system.

Random Access Memory (RAM)

Random Access Memory is a type of memory that temporarily stores data while the computer on which it resides is running. When the computer is shut down, all data in RAM is erased. RAM can be written to or read from by the computer or other devices.

rate of change

Rate of change is the rate that a tag value changes during a defined period of time, usually expressed as a percentage.

raw value

A raw value is the value of a data item when it was acquired. Calculations and conversions may be performed on raw data before it is used by the AVEVA Historian.

real

A real number is a floating point number represented by digits with a fixed base, such as the decimal system. A real number can be made up of either a finite or infinite set of digits.

real-time

Real-time operations occur at the same rate as a physical process. In a real-time environment, a computer must respond to situations as they occur. These situations can include a switch tripping or a furnace tapping.

record

See row.

redundant historian

A "partner" AVEVA Historian that can be used as a hot backup if the primary historian is not available.

referential integrity (RI)

Referential integrity is a mechanism that ensures that all foreign keys have an associated primary key in related tables. Referential integrity constraints prevent having foreign keys pointing to non-existent primary keys and enforces the relationship between tables. See *also* primary key, foreign key.

registry

The Windows registry is a database that contains all configuration information for a computer. The registry is organized hierarchically, and is comprised of hives, keys, sub-keys, and registry values.

reinitialization

Reinitialization is the restarting of one or more processes in the AVEVA Historian. When you make edits to the Runtime database, a restart may be required in order for the changes to take effect.

relational database

A relational database is a database structure that organizes data according to the relationships between the data. In a relational database, relationships between data items are expressed by means of tables. For example, queries can be performed that search a single table, plus any related tables.

remote

Remote is used to describe a computer that is accessible from physically separated computers on a network. See *also* local.

remote table

A remote table is a data presentation table for a non-local data store accessed through OLE DB. See *also* data store, Object Linking and Embedding for Databases, extension table.

replication delay

The replication delay applies only to queued replication. This delay identifies how frequently "old" data, which includes inserts, updates, and store-and-forward data, is sent from the tier-1 historian to the tier-2 historian.

replication group

A replication group abstracts a summary tag from a replication schedule, to make application maintenance easier. You can assign multiple summary tags to a single replication group, and assign multiple replication groups to a single schedule.

replication latency

The replication latency is the time it takes for a value to be made available for retrieval from the tier-2 historian from the moment it was stored or calculated on the tier-1 historian.

replication schedule

A replication schedule defines the specific times, in minutes or hours, for replication summary periods. For an interval-based replication schedule, cycle boundaries are calculated starting at midnight, tier-1 server local time, and continue in fixed time increments. For a custom replication schedule, replication cycles are forced to occur at user-defined fixed times of the day in tier-1 server local time.

replication server

A replication server is the historian to which data is configured to be replicated. Also called a "tier-2" historian.

replication tag

A replication tag is a tag defined for a destination historian (tier-2) for which data from a source historian (tier-1) is copied or summarized.

resolution

Resolution is the sampling interval, in milliseconds, to retrieve data from any of the history tables of the AVEVA Historian. The resolution time domain extension is a feature provided by the historian and is not supported by normal SQL Server functionality. The number of rows returned is dependent upon the time period for the query and the resolution (number of rows = time period / resolution). Resolution only applies to cyclic retrieval.

restoring

Restoring the process of adding records back to the database from archived files.

result

A result is the characteristics, or object attributes, of any object located by a database query.

row

In a table, a row is a set of related columns of information that describe a specific database entity. For example, for the entity "person," the row could contain column information for height, weight, hair color, or age.

row count

A row count determines the number of rows to be retrieved from any of the history tables of the AVEVA Historian. The row count time domain extension is a feature provided by the historian which, for cyclic retrieval, differs from normal SQL Server row count behavior. The application of the time domain row count extension depends whether you are using cyclic or delta retrieval, and whether you are querying a "wide" table.

rowset

Conceptually, a rowset is a set of rows in which each row contains columns of data.

rule

A database rule is an object that is bound to a table column or to a user-defined data type. Rules determine what types of data can be entered in a column. For example, a rule can specify that the number for a unit of hours must be between 0 and 23. Only one rule can be applied to a column.

run time

Run time is the time during which data is fetched by the control unit and actual processing is performed in the arithmetic-logic unit. Also, the time during which a program is executing.

runtime database

In AVEVA Historian, the Runtime database contains tables that store all configuration, historical, and current process data. See *also* Holding database.

scaling

Scaling is the process of increasing or reducing the value of a variable (or a group of variables) by a given ratio.

script

A script is a collection of SQL statements used to perform actions on a database, such as change data or add new database objects. Scripts can be saved as stored procedures or files.

server

A server is a computer that shares resources, such as processing power and administration functions, for other computers on a network. Computers that use server resources are called clients. A server computer is typically responsible for data management, network administration, and security. A server computer also makes available to clients the processing power that was traditionally offered only by mainframes and minicomputers. The AVEVA Historian performs all of these functions, plus provides for data storage and management. *See also* client.

server name

The server name is the name of the server under which the AVEVA Historian is running. The server name must be a valid SQL identifier.

service

A service is a process that performs a specific function within the computer system.

simple replication

Simple replication is a type of transformation that retains the data's original resolution. Analog, discrete, and string tags configured for simple replication replicate all values stored in the tier-1 historian to the tier-2 historian.

Small Computer Systems Interface (SCSI)

SCSI is a standard for a high-speed interface for connections between computers and peripheral devices, such as a hard drive.

snapshot

A snapshot is a collection of tag data values at a single point in time. When an event is detected in history data, the values of tags at the time of the event can be captured and stored. Snapshot data is useful in determining the state of a production environment at the time of a defined occurrence in history.

socket

A socket is a bi-directional channel, or "pipe," through which computers on a network can exchange information. The socket number identifies the channel and is made up of the IP address plus the port number. For example, 204.192.78.125,25. *See also* IP address.

sort order

A sort order is a set of definitions that specify how the SQL Server will organize and present data as a result of database queries. The sort order determines how the SQL Server will handle the collation of characters for both data storage and data retrieval operations involving the GROUP BY, ORDER BY, and DISTINCT statements. The SQL Server also uses the underlying sort order to resolve queries involving the WHERE and DISTINCT statements.

SQL

See Structured Query Language.

stand-alone installation

A stand-alone architecture consists of a single, non-networked computer that functions as the primary operator interface. This computer is connected to the industrial process by a direct connection, such as a serial cable.

state summary replication

State summary replication summarizes the states of a tag value. Can be applied to analog, discrete, and string tags.

statement

An expression of instruction in a computer language.

storage by exception

See delta storage.

storage location

The storage location is the directory in which historical data files are stored.

storage path

The storage path is the path to the directory in which historical data files are stored.

storage rate

The storage rate is the time interval at which values for tags are periodically stored.

store-and-forward

Store-and-forward is a data caching process used by software applications (such as a remote IDAS) that automatically send data to a target computer on the network. If the remote application cannot communicate with the target computer, data will be cached locally until the connection is restored, at which time the cached data will be forwarded.

stored procedure

A stored procedure is a pre-compiled group of SQL statements. Stored procedures allow a group of sequentially performed actions to be executed using a single SQL statement. A stored procedure is usually called by another program to be executed; it is not automatically executed in response to an event. Stored procedures can be used as shortcuts for frequently used collections of SQL statements or to provide additional functionality. Users of the AVEVA Historian can use any of the system stored procedures provided by Microsoft SQL Server, plus the system stored procedures supplied with the historian. System stored procedures that are provided with the historian begin with "aa" or "we". User-defined stored procedures are also supported.

string

A string value is a text expression treated as a single data item. A string does not require a special format or syntax.

Structured Query Language (SQL)

SQL is a language used in relational database systems for defining, searching for, and manipulating data.

SuiteLink

SuiteLink is a network protocol designed specifically for high speed industrial applications. SuiteLink features Value Time Quality (VTQ) and places a timestamp and quality indicator on all data values delivered to VTQ-aware clients. SuiteLink uses a TCP/IP-based protocol.

summary

A summary (such as MIN, MAX, SUM, AVG) of a tag that is scheduled by the user and performed automatically according.

summary calculation queue

The summary calculation queue stores a record if a tier-1 historian is unable to perform a scheduled replication summary calculation for any reason.

summary data

Summary data is data that is the result of an internal calculation performed by the AVEVA Historian (maximum, average, sum). Summary data preserves a high-level view of data and allows for reduced storage space requirements for data kept for long amounts of time. For example, the average of five tags.

summary replication

Summary replication is a type of replication that provides low resolution summaries of high resolution data. During summary replication, statistics for a tag value are calculated at the tier-1 historian and then sent to the tier-2 historian.

summary tag

A summary tag contains the calculated data values, on a tier-2 historian, of information from a source tag on a tier-1 historian. Summary tag types are analog summary tags and state summary tags.

system administrator (sa)

The system administrator is the person responsible for administering and maintaining a SQL server database. Administration and maintenance functions include changing the database, administering database security, performing data and database backups.

system namespace

The system namespace is a system-defined set of AVEVA Historian system components. The system namespace contains defined objects that make up a historian system, such as I/O Servers, or nodes. The historian populates the system namespace based on the current configuration for the plant, which is stored in the system configuration tables in the database. The hierarchical contents of the system namespace can be exposed to all users in a directory tree of an application. *See also* namespace, public namespace, private namespace, browser, stored procedures.

system parameter

A system parameter is a numeric or string value used for system configuration. System parameters are stored in the SystemParameter table in the AVEVA Historian database. For example, the version of the system or the version of the database is stored as a system parameter.

system tags

A system tag is a pre-defined system variable. InTouch system tags have a \$ prefix. For example, \$DateTime. AVEVA Historian system tags have a SYS prefix. For example, SysTimeSec.

table

A table is a group of related data entities and their characteristics. *See also* row.

tag

A tag is defined as an elemental variable of type analog, discrete, string, or complex that is stored in the AVEVA Historian database. In real terms, a tag typically refers to an instrument or device in your plant. It may also refer to system variables, such as the system time (SysTimeSec).

tagname

A tagname is the name assigned to an elemental variable in the AVEVA Historian database (a tag).

TCP/IP

Transmission Control Protocol/Internet Protocol (TCP/IP) is a group of networking protocols that allow communications across dissimilar networks. TCP/IP can route packet information across different hardware architectures and operating systems.

thread

A system thread is an object that independently performs an particular function within a process.

tier-1 historian

A tier-1 historian is an individual historian that sends replicated data to a destination historian, called a tier-2 historian.

tier-2 historian

A tier-2 historian is a historian that accepts replicated data from one or more tier-1 historians.

time deadband

A time deadband is the minimum time, in milliseconds, between stored values for a single tag. Any value changes that occur within the time deadband are not stored. The time deadband applies to delta storage only. A time deadband of 0 indicates that the system will store the value of the tag each time it changes. A time deadband also be applied at retrieval, in which case any value changes within the deadband will be ignored.

time interval

In the event system, the time interval is the rate at which configured event detectors check to see if an event has occurred in history. The time interval is also known as the scan rate.

time synchronization

Time synchronization is a mechanism by which the AVEVA Historian sends out a message to the I/O Servers to synchronize the I/O Server timestamps of data to the historian time.

topic

In the DDE or SuiteLink protocol, a topic is an application-specific subgroup of data elements. These protocols use a three-part naming convention to locate information in applications. In order for an application (such as InTouch HMI software) to retrieve data, it must know the name of the application, the topic, and the item. An example of a topic is the name of an Excel spreadsheet. *See also* Dynamic Data Exchange, SuiteLink.

trailing edge

The trailing edge is the query return of only rows that are the first to fail the criteria (return false) after a row successfully met criteria (returned true). *See also*, leading edge, edge detection.

transaction

A transaction is a collection of one or more command scripts that read and/or write to the relational database. A transaction is a request to the AVEVA Historian to find, enter, change, or return information about an object the relational database. All transactions are processed at runtime and are performed as a single unit of work. If a single script fails at any point in the transaction, the entire transaction will be rolled back and the original state of the database before the transaction started will be restored. *See also* transaction log.

transaction log

A transaction log is a record of all database changes. *See also* transaction, log file.

Universal Naming Convention (UNC)

The universal naming convention is a standard for pointing to a file on a network. A UNC path consists of the following format: \\servername\sharename\path\filename

Universal Time Coordinate (UTC)

Universal Time Coordinate (UTC) is an absolute time designation used throughout the world.

update

An update is the alteration of data in a database, such as adding, deleting, or changing data.

user group

A user group is a group of database users that have permissions to perform certain actions on the database. User groups are implemented as part of database security. Any database user that is added to a user group inherits the permissions associated with that group.

user name

A user name identifies a database user for security purposes. A user name is assigned a login ID to allow a particular user access to the database.

user-defined data type

A user-defined data type is the definition of a type of data and is created by a user. User-defined data types exist in addition to predefined system data types. The type of data that can be stored in a column of a database table is determined by the data type defined for that column. Defaults and rules only apply to user-defined data types, not system data types.

value deadband

A value deadband is the percentage of the difference between the minimum and maximum engineering units for the tag. Any data values that change less than the specified deadband are not stored. The value deadband applies to delta storage only. A value of 0 indicates that a value deadband will not be applied. A value deadband can also be applied for retrieval.

view

A view is a logical way of looking at data from one or more tables in the database. A view is a "virtual" table; that is, it does not actually exist in the database. A view contains pointers to the actual tables in the database. Views can be used to include a subset of information stored in one or more tables, while leaving out other information. This is especially useful if some of the columns in a table contain sensitive information. Queries are performed on a view as if the view were a normal physical table. Views are part of normal SQL Server functionality. In the AVEVA Historian, however, data can be accessed using extension tables, which differ from normal views. See also extension table.

wide area network (WAN)

A WAN is a group of geographically separated computers connected by a communications network.

wide tables

In the AVEVA Historian, "wide" tables present the values of one or more tags over time. Each row contains the date/time stamp for the data and values for one or more tags specified in the query. See also "live" tables, history tables.

wildcard character

A wildcard character is a keyboard character that is used to represent one or more characters. When searching a SQL Server database, use the underscore (_), the percent sign (%), and brackets ([]), with the LIKE keyword to match patterns in the database. For example, to search for all tags in the system that started with "says", search for "sys%".