Ovation™ Database Server

Features

- Houses the Ovation master database, which populates a distributed database contained on all Ovation network-attached drops
- Utilizes an Oracle® database management system for the master relational database
- Stores system configuration, control algorithm information and process point information
- Uses system editing functions to track changes such as those provided by Ovation Developer Studio engineering tools such as the Ovation control builder

Introduction

The Ovation™ database server is a secure, reliable and scalable server platform that supports complex Ovation control system database processes. The Ovation database server uses an Oracle relational database management system to integrate and organize massive amounts of raw data. This data is saved in tables where it can be extracted for use in Ovation control system applications.

The master system database, stored within the database server, contains configuration data (defined by the Developer Studio engineering tools), Ovation applications, user interface information, and process points. The master database is used to populate the distributed databases that resides on all Ovation drops connected to the Ovation network.

Database server table rows represent records (collections of information about separate items) and the columns represent fields (particular attributes of a record). When conducting searches, the Ovation relational database matches information from a field in one table with information in a corresponding field of another table to produce a third table or view that combines requested data from both tables.

Ovation Database Types

The master database within the Ovation database server creates and populates various distributed databases. Distributed databases contain a subset of information that is locally stored on each network-attached drop to allow for independent operation. The distributed databases are continually updated when point information changes.

Modifications to the master database are performed using system editing functions such as those provided by the Ovation Developer Studio and the Ovation control builder. As changes are made and/or loaded to Ovation drops, the Ovation database server performs a multicast broadcast of applicable data for each change in sequence.

The server also periodically broadcasts (via multicast) the plant mode point information, primary/partner drop information, drop mismatch information and the current sequence number. Drops use the current sequence number to determine if an update request is needed.

EMERSON.

Database Creation

The creation of the Ovation database is a product of a combined effort between customer design engineers and Emerson project engineers.

Typically, the following process used to create an Ovation database is:

- The customer determines the names and types of I/O points that are needed for the system. This information is based on the quantity and types of devices that need to be monitored in the control system.

- The customer and/or Emerson enters the defined points into a database tool (such as the Ovation database initial definition tool (DBID), Microsoft® Access or Excel) along with the fields required for each point.

- Emerson determines what Ovation I/O modules are needed to handle the proposed points.

- Emerson determines how I/O modules should be mounted in the system cabinets so that the total of all the points can be partitioned accordingly.

- Point information from the customer is entered into the database tool and then imported into the master database.

- Point-by-point changes can be done using the Ovation point building tool. Mass changes can be done by taking data out of the master database and inserting it into the database tool for editing. After the edits are completed, the file can be imported into the master database again.

Relationship with the Engineer Functions

Having all the pertinent system information in one database provides the flexibility and processing speed needed to ensure that Ovation performs its functions quickly and efficiently. The Ovation database has a relationship with other Ovation functions as follows:

Ovation Developer Studio

The Developer Studio serves as a "window" into the Ovation database server. As a fully integrated advanced software program, the Developer Studio creates and maintains Ovation drop types, control strategies, process graphics, point records and system-wide configurations including security features.

Ovation engineering tools within the Developer Studio program are used define initial control system attributes and edit those attributes as system requirements change.

Ovation Control Builder

Algorithm and control builder default points are created, deleted and modified with the Ovation control builder. When Ovation logic is changed via the control builder, those modifications are communicated to the Ovation database server for subsequent database updates. The control builder's load function delivers the updated data to the distributed databases within each Ovation controller drop(s).

EMERSON.