A Broadcom Company
technologies

White Paper

Automic® Workload Automation for Databases

Executive Summary

Challenge

Databases have always played an important role in application development, application support, and data center operations. Every database vendor offers proprietary tools for moving and administering data so that users can work effectively. These tools also make it possible to service the database and further process application and corporate data.

These tools might offer elementary scheduling functions that you can take advantage of to provide some automation of application processing or database administration tasks. Additional scripting is also used to allow automated execution from the operating system. Automating database processing in this manner can lead to additional development and maintenance efforts, as well as islands of automation.

Opportunity

CA Technologies, a Broadcom company, offers agents that can execute data definition language (DDL), data manipulation language (DML), stored procedures, and DBA functions directly, allowing for complete automation of database processing. With Automic® Workload Automation from CA, enterprise workload automation tasks can proceed in a uniform manner. A user-friendly graphical interface makes it easy to define tasks. Security and data evaluation, in addition to ease of use, are also important aspects to consider when using databases. The Automic Workload Automation agent for databases provides functional support in all of these areas, making security concerns, unwieldy tools, wrapper scripts, and confusing valuations things of the past.

Benefits

- Independence from database vendor–specific tools
- Uniform formatting of results simplifies evaluation
- User-friendly interface with direct database connection
- Encrypted passwords in login objects provide more security
- Reaction on events in the database
- Easy comparison of different values
- A centrally stored SQL source reduces the amount of SQL source spread in your environment
- Auditing of SQL source clearly shows changes
- Versioning of SQL source allows for easy fallback
- Execution referenced with the source version number, shows exactly what was executed
- Object orientation reduces the number of jobs
- Database processing is integrated as part of enterprise process flows
- Standardized IT housekeeping for your databases:
  - Define once, deploy everywhere.
  - Ensure every database is backed up.
  - Prove that the backup is done with a full audit trail.
  - Make sure no critical processes are running at the time of a database backup.

Overview

Automic Workload Automation for databases lets you execute SQL commands, including DDL, DML, stored procedures, and DBA functions, without having to call up an external command-line tool.

The Automic One Automation Platform's advanced security model simplifies your organization's database administration. In addition to common SQL statements such as SELECT or UPDATE, Automic Workload Automation can also run commands that are specific to your database, such as stored procedures in Oracle or Microsoft SQL Server. In fact, any SQL statement can now be run as a job in the Automic One Automation Platform.

Defining Jobs

Database transactions are created in a special job type called JOBSQL. SQL jobs can be created offline or online, whether connected to the database or not. The job creator selects the relevant database connection information when creating a JOBSQL and also selects the login object they have been given access to, which provides the necessary user name and password authentication.

If there is an active database connection, Automic Workload Automation offers an easy-to-use SQL creation tool. The entire database user schema is displayed, allowing for a point-and-click selection of the table name. Expanding the table definition allows for easy selection of the table columns to be displayed or manipulated. The SQL statements can be created by highlighting the column names and performing a drag-and-drop operation. This functionality ensures the appropriate names are used, eliminating typographical errors. Of course, statements can also be entered manually at any time, or by performing an easy cut-and-paste operation, even when there is no connection to the database.

Database Events

The Automic Event Engine is an extremely powerful event object that allows for the initiation of a job or process flow based on the value of a database query. The value returned from a query can be tested against a static value or another queried value in the same or different database. The databases do not need to be the same type to trigger the event. For example, an Oracle query can be tested against a Microsoft SQL Server query.

The Automic Event Engine allows you to test the data to ensure it is the most appropriate time to execute a job or process flow. By using the Automic Event Engine, you can ensure that a process is run when the database or application is ready.

Complex business rules can be implemented using the Automic Event Engine. Business data can be interrogated and acted upon. Dynamic process initiation based on data can help your organization to be more agile by reacting to current business conditions.

You can improve your service delivery by scheduling your automation processing in a more dynamic manner. This new type of job and process flow initiation offers a new option to meet your enterprise automation needs. You can improve your SLA performance by testing to ensure data is in an appropriate state. By testing data prior to executing a job or process flow, you can identify problems earlier. For example, if data was loaded using an ETL tool or database utility, you can test to see if there are rows in the table. If no rows exist, you can take the appropriate action.

Supported Databases

Automic Workload Automation supports the following databases:

- Microsoft SQL Server
- Oracle
- IBM Db2

- Informix
- MySQL
- PostgreSQL
- Ingres
- SAP
- Sybase
- SAP HANA

Agent-Database Communication

One instance of Automic Workload Automation can connect to several different databases by using the vendor's native drivers.

Automic Workload Automation creates a separate thread for every job, giving it the ability to execute jobs in parallel. As a result, a long-running database query will not affect the performance of other jobs, because new tasks can be received from the Automic One Automation Platform and executed at any time.

Job Output

The results of a transaction are made available in the form of a job report. To make evaluation easier, date and time stamps are provided in a uniform format for all databases.

Formatting is uniformly adjustable for all database types. A few of the options include:

- Remove line breaks
- Define column separation character
- Output format for ZERO
- Limit the number of hits
- Limit column width

These features make it possible to have uniform post-processing for all reports.

Behavior During Errors

Every database job is a transaction concluded with COMMIT. If an error occurs during processing of the job, or if the job is terminated, because an Insert is not possible, for example, all SQL statements are rolled back by default to the most recent COMMIT. This provides database transaction functionality. Of course, a COMMIT can also be defined within a job, which makes it possible to have individual transactions. Additionally, if an error occurs, all statements will be rolled back to the most recently concluded COMMIT.

Automic Workload Automation commands provide a way to react individually to a variety of events:

- SQL_ON_ERROR: Controls behavior during errors.
- SQL_ON_ROWCOUNT_ZERO: Controls behavior when there are no hits.

The job object offers a large number of options for individually configuring how SQL statements are executed.

For more information about CA Technologies, go to ca.com.