

Release notes v5.0

Important! Create a backup copy of your projects and connector repositories before updating to the new version. Projects saved in the new version can't be opened in versions earlier than 5.0.

Warning! This version automatically modifies repositories on opening. Version 5 introduces strong repository encryption and automatically encrypts the current repository on opening (a backup copy is created automatically). An encrypted repository can't be reverted and made usable again for earlier versions. So if you accidentally convert your project or repository to v5, **we won't revert it**.

A few words from the creators of EasyMorph

From the outside, version 5 looks very much the same as the previous version. However, it introduces many changes and new features under the hood, including a few industry's first that can't be found in any other no-code data automation tool. The most notable of them are:

- A Salesforce connector and actions for importing, exporting, and updating Salesforce objects
- The [Shared Memory](#), a lightweight centralized key-value store that greatly simplifies certain automation scenarios (an industry's first!)
- The ability to specify action properties using the [first value of a column](#) (an industry's first!)
- The "Excel command" action for running VBA macros and functions in Excel spreadsheets

Also, with this release, we're introducing [EasyMorph Gateway](#), a highly available cloud service that allows receiving webhooks and data from cloud applications and processing them securely on-premises with EasyMorph Server. Popular automation services such as Zapier or Power Automate can already work with EasyMorph Gateway, enabling receiving and processing data from thousands of cloud connectors.

The Server itself is advanced towards being more enterprise-ready with the new Server journal that provides a much better insight into user activity than logs. The new ability to run a task multiple times simultaneously makes the Server better suited for broad deployments with tens and hundreds of users, as well as automated integrations with external systems.

Finally, we're making EasyMorph a better tool for data analysis by introducing cross-tables that are conceptually similar to pivot tables in Excel (but simpler). Besides that, we're adding charts and cross-tables to the Analysis View. Together with associative filtering, the Analysis View becomes a powerful tool for exploratory data analysis. In future versions, the improved Analysis View will become an integral part of other EasyMorph applications and services, such as the Launcher, the upcoming [Data Catalog](#), and the already available [CSVviewer](#).

Breaking changes

Update actions not available in the free edition

Starting from version 5, the actions that update data in external systems are no longer available in the free edition. Instead, these actions are now only available in the paid Professional edition.

- Bulk export to database
- Update database rows
- Update/delete rows in Airtable

Besides that, the new actions "Update/delete records in Salesforce" and "Update/delete rows in SharePoint list" are also available only in the paid Professional edition. Furthermore, any new update/delete actions for new cloud applications will only be available in the paid edition(s) in all future releases.

There are no other changes to the limitations of the free edition.

No command-line mode in EasyMorph Desktop

The command-line mode is no longer available in EasyMorph Desktop. Instead, the Command-Line Worker (CLW), a new purpose-built command-line utility (described further in the document), should be used for executing EasyMorph projects from the command line.

The utility is licensed separately. However, all *existing* customers at the moment of releasing v5 (i.e., customers that had a valid EasyMorph Pro license on October 15th 2021) can obtain a license for CLW **free of charge** by sending a request to sales@easymorph.com.

Simultaneous scheduled Server task runs

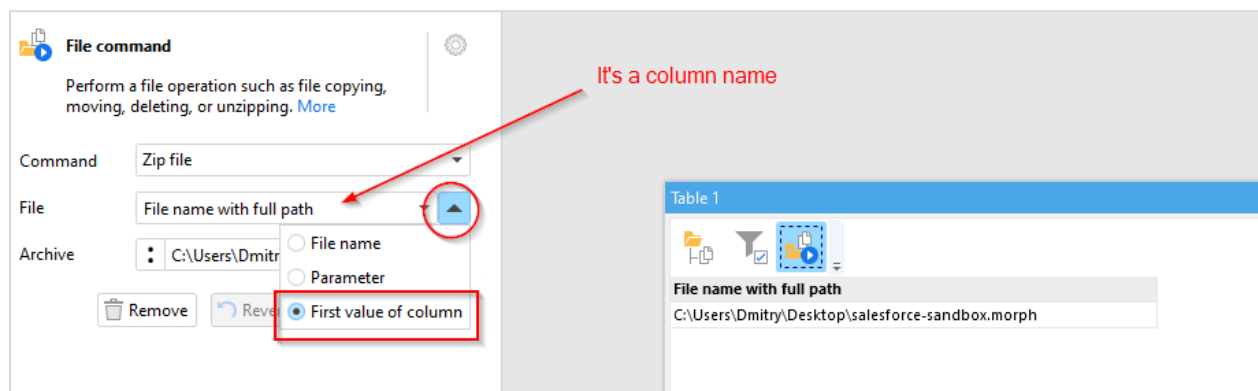
Previously, if a Server task is triggered on schedule (by the scheduler) at a moment when it's still running, it would be executed again immediately after it finishes its current run. In version 5, this behavior has been deprecated. If a Server task is scheduled and the max number of running instances of the task is reached, any attempt to trigger the task will fail, regardless of whether the attempt was made by a user, or the scheduler, or an API call.

What's new

Using first column values

This new feature addresses a long-time problem that became especially apparent when the automation features of EasyMorph started being used increasingly more often – the lack of means to use column values as action properties. Previously, it required using the "Iterate" action with a single-row action which was very unobvious, especially for new users.

Starting from v5, this workaround is no longer necessary. Instead, many actions now accept a first column value for an action setting. Many settings that can be configured using a parameter now can also be configured using the first value of a column. For instance, in the screenshot below, the "Zip file" command takes the target file path from the 1st value in column "File name with full path".



Screenshot 1: Using first column value in action properties.

Notably, the "Call" action also supports first column values.

Shared memory

From a technical standpoint, the shared memory is centralized key-value storage physically located in the same repository where data connectors are stored. At this point, 4 operations can be done with the shared memory:

- Remember value by key
- Recall value by key
- Forget key with its value
- List keys and respective values

If you're not familiar with the concept of key-value storage, you can think of it as advanced calculator memory in which each memory cell has its own name (key). The operations with the Shared Memory are performed using the new "Shared memory" action described further in the document.

The Shared Memory can be convenient in many cases:

- Store temporary values - e.g., store the last loaded date when doing incremental loads.

- *Pass values between workflows and users* - Similarly to the shared connectors, the Shared Memory can be accessed from different Desktops. Once a value is remembered, it can be accessed by all Desktops and Server spaces that use the same repository
- *Environment configuration* - The Shared Memory can store configuration settings that are different in PROD and TEST environments.
- *Workflow variable* - While project parameters are constant and don't change during a workflow run, the Shared Memory values can be set, removed, and changed in a single workflow
- *Lightweight data store* - Sometimes, using a relational database to store and share just a few values looks like overkill. The Shared Memory can be more appropriate for such cases.

Features of the Shared Memory:

- Access restriction - the same access restrictions as for data connectors apply
- Concurrency - the shared memory supports simultaneous operations from different computers
- EasyMorph data types - values are remembered and recalled in precisely the same data types as in EasyMorph - number, text, boolean, empty value. Errors can't be remembered by design.
- Long text values - you can store large text objects, such as JSON, in the store
- Encryption - all stored data is encrypted

Stronger repository security

Version 5 tightens up security and introduces repository encryption. Starting from this version, EasyMorph repositories are automatically encrypted using an industry-standard 2048-bit algorithm. Note that repositories created in earlier editions are encrypted automatically and transparently for the user, so no manual action is required. A backup copy of the old repository is created automatically. It is recommended to move it to a secure location after your migration is successful, or remove altogether for better security.

The ability to provide a read password for a repository will be introduced in version 5.0.1.

Command-line Worker

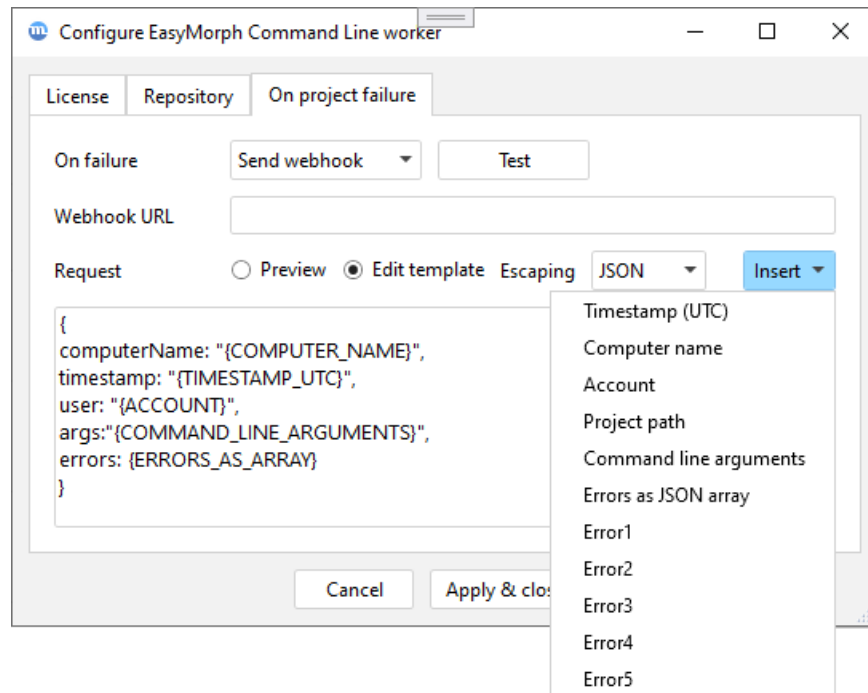
The Command-Line Worker is a new standalone utility for execution of EasyMorph projects from the command line. It should be used for integration with 3rd party applications through the command line (EasyMorph Desktop no longer has the command-line mode). Unlike the Desktop, CLW is installed for all users of a machine and is licensed per machine and not per user.

- Automatic email notifications on failure
- Automatic webhook notifications on failure with customizable JSON/XML templates
- The "Fire & Forget" mode - start a project but don't wait until it finishes
- Application log

The webhook notification with JSON templates is an interesting feature because it makes it easy to send notifications directly to MS Teams or Slack.

Overall, Command-Line Worker provides more robust command-line execution and integration with external applications.

After installation, two executables are available - the worker itself and the GUI utility for configuration. Run the configuration utility first to configure a license and a repository.



Screenshot 2: Command-Line Worker configuration utility.

SQL Dialect for Amazon Athena

EasyMorph now supports visual queries, export, and other database operations with [Amazon Athena](#) via an ODBC driver. Make sure you're using a 64-bit ODBC driver for Amazon Athena with EasyMorph.

Connector for EasyMorph Gateway

The EasyMorph Gateway connector points to an endpoint of EasyMorph Gateway. The connection goes through the EasyMorph Server that is specified in the connector settings.

Connector for Salesforce

A connector for Salesforce is now available. It supports 2-factor authentication by Salesforce and a custom OAuth client (in case you don't want to use the standard one).

Changes in existing connectors

The "Web Location" connector in OAuth mode now automatically renews access tokens. This makes it suitable for use with web services and cloud applications with short-living OAuth tokens.

The native connector for the Postgres database now has an option for using SSL.

The "Power BI" connector now doesn't require re-authentication after 90 days.

The "SharePoint" connector now allows specifying a time zone for importing/exporting dates.

New actions



The **Import from Salesforce** action records from a Salesforce object and, optionally, it's child or parent objects.



The **Export to Salesforce** action inserts records into a Salesforce object.



The **Update/delete records in Salesforce** action allows updating or deleting records in Salesforce.



The **Incoming webhook requests** action retrieves web requests sent to a webhook endpoint of EasyMorph Gateway.



The **Shared memory** action performs operations with the Shared Memory: remember, recall, forget, and list values.



The **Export to SharePoint list** inserts new records in a SharePoint list.



The **Update/delete rows in SharePoint list** action deletes or updates rows in a SharePoint list.



The **Excel command** action executes several commands with Excel spreadsheets:

- Run VBA macro – run a Visual Basic macro and, optionally, capture its return value(s) back into EasyMorph (arrays are supported); not available in the free edition
- List sheet/ranges (this used to be the "Excel metadata" action that is now deprecated)
- Rename sheet
- Delete sheet
- Recalculate workbook

The action is experimental, meaning that it may still have unresolved issues (although no known issues so far) when running VBA macros. Use it with caution.

Changes in existing actions

The **Web request** and **Iterate web request** actions now have an option for including response headers in the resulting dataset. It removes the need to use an additional action to delete all columns except the response body.

The **Send email** action now supports multiple attachments.

The **Amazon command** action now has a command for listing folders.

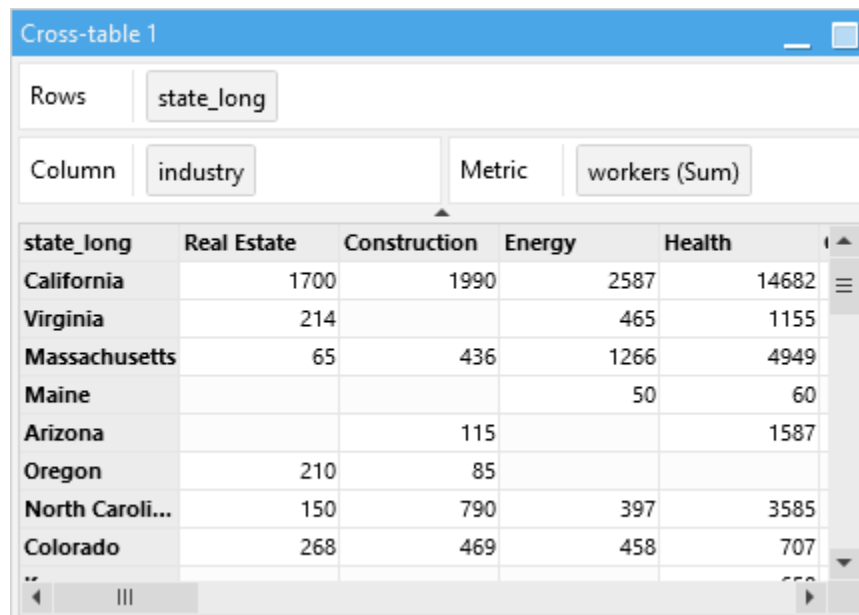
Miscellaneous

- Functions `round()`, `roundxl()` now support negative rounding (the second argument can be less than 0).

What's new in Desktop

Cross-tables

In addition to tables and charts, a new type of workflow object is now available –cross-tables. The cross-table in EasyMorph is conceptually similar to the pivot table in Excel, albeit simpler. Like charts in EasyMorph, cross-tables are derived from regular tables and can be used for data analysis and profiling.



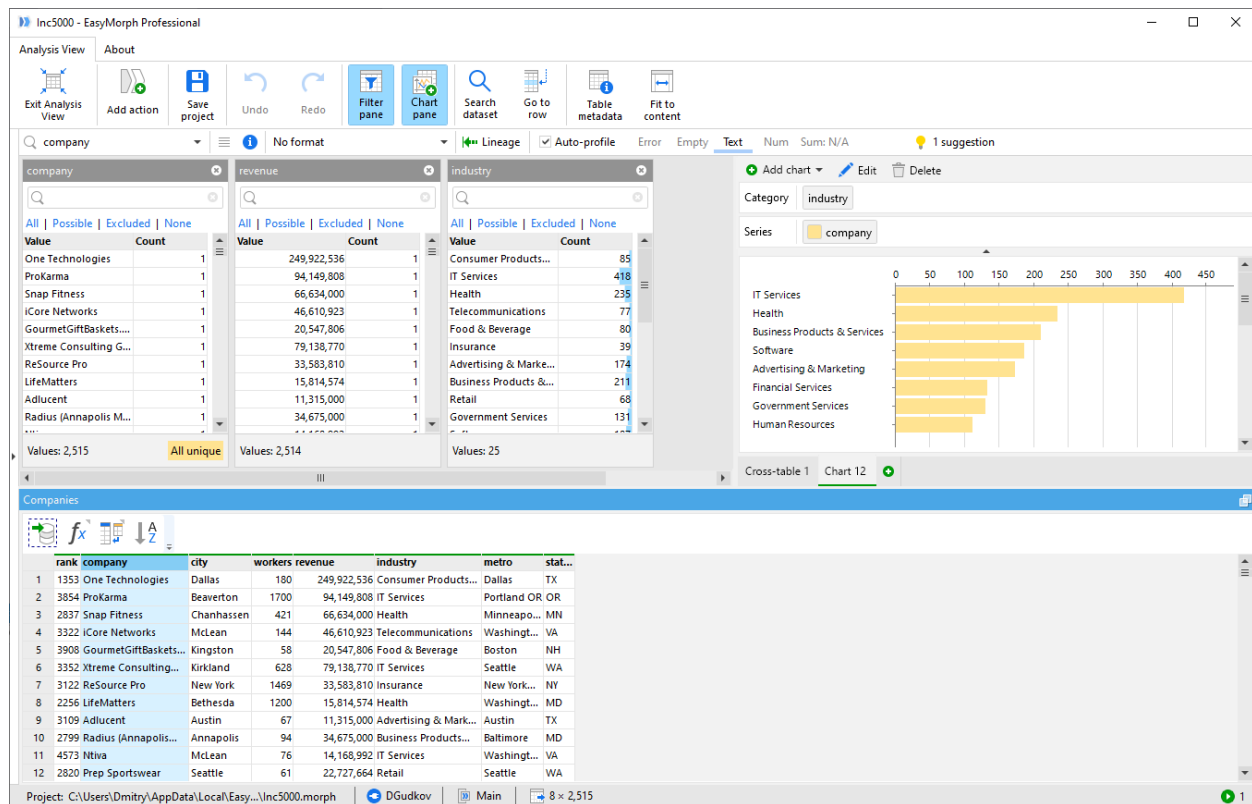
| state_long | Real Estate | Construction | Energy | Health |
|-----------------|-------------|--------------|--------|--------|
| California | 1700 | 1990 | 2587 | 14682 |
| Virginia | 214 | | 465 | 1155 |
| Massachusetts | 65 | 436 | 1266 | 4949 |
| Maine | | | 50 | 60 |
| Arizona | | 115 | | 1587 |
| Oregon | 210 | 85 | | |
| North Caroli... | 150 | 790 | 397 | 3585 |
| Colorado | 268 | 469 | 458 | 707 |

Screenshot 3: A cross-table.

Charts and cross-tables in Analysis View

The newly introduced cross-tables together with charts are now available in the Analysis View. It is possible to add multiple charts/cross-tables to the Analysis View of a particular table. They respond to changes in filter boxes and update automatically when switching between actions.

The addition greatly improves the data analysis capabilities of EasyMorph. Now you can explore and view data from different angles simultaneously, understand trends, and spot outliers and anomalies. The Analysis View is a capable analytical tool built into EasyMorph.



Screenshot 4: Charts and cross-tables in the Analysis View.

Updated PDF reporting

The PDF reporting in EasyMorph has been improved. Now, pages of a PDF report are no longer hardlinked to workflow groups (tabs), and report tables are not hardlinked to workflow tables. Instead, a PDF report can now have as many pages as necessary, and any report page can have tables and charts from any workflow group (tabs).

Also, PDF reporting support cross-tables introduced in this release.

Miscellaneous

- It's now possible to copy an entire table row with the new "Copy row" command in the cell context menu
- The column "Auto-profile" checkbox has been moved from the column bar to the application preferences.

What's new in Server

Repository locking deprecated

The repository locking has been deprecated. All repositories are now always encrypted.

Parallel task runs

Previously, if a Server task was running it wasn't possible to trigger it one more time until it finishes. This restriction was inconvenient in cases when multiple users needed to run a task simultaneously. Also, the restriction complicated integration with external systems that triggered tasks remotely via URL or the "ems-cmd" utility.

In version 5 the limitation has been removed. Now, a task can be triggered multiple times even if it's already running.

The degree of parallelism is managed in the task settings, by option "Simultaneous runs" (set to 1 by default). When the option is set to 1, parallel task runs are disabled and task behaves as in previous versions. When the option is set to a number greater to 1 or "Unlimited", parallel task runs are enabled.

Server journal

The Server journal records various task and user events and makes it easy to find and filter various events such as task failures or file downloads. Technically, the journal is a database table. By default, the journal uses a built-in SQLite database. However, for extra security, in the Enterprise edition the journal can use an ODBC connector to a MS SQL Server or PostgreSQL database.

The journal database table format is open and can be used for querying and reporting using EasyMorph or 3rd party tools. Use the journal to analyze task error rates, user activity, task popularity, etc.

The Server log now contains only system-related events. All other events are moved to the journal.

Finished workflows [Refresh](#)

Filter By date | By project | By Initiator | Success | Failure | Canceled | Has warnings

Applied filter: Project is C:\EasyMorph Server\Public folders\DGudkov\imitate-medium-load.morph 

15/09/2021

| Time | Space | Project | Initiated by | Elapsed | Notifications | Result |
|-------|---------|---------------------|--|---------|---------------|--|
| 13:32 | DGudkov | imitate-medium-load | <Administrator> (Task) | 26s | 1 error(s) | Failed  |

14/09/2021

| Time | Space | Project | Initiated by | Elapsed | Notifications | Result |
|-------|---------|---------------------|--|---------|---------------|--|
| 14:19 | DGudkov | imitate-medium-load | <Administrator> (Task) | 29s | | Success  |
| 14:09 | DGudkov | imitate-medium-load | <Administrator> (Task) | 2s | | Canceled  |

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Screenshot 5: Server journal (finished workflows).

Task journal replaces task logs

Task logs are discontinued and replaced with the task journal. It represents a subset of journal records that is related to the task.

Accounts (agents) renamed to workers

EasyMorph spaces can run under different windows accounts in separate processes that used to be called "agents". The terminology was confusing as it wasn't clear what an account is.

In the new version, accounts (agents) are renamed to workers. Also, any number of workers can use the same Windows account. Previously, only 1 worker could use 1 Windows account.

Miscellaneous

- The minimum task scheduling interval has been reduced to 1 minute.

Previous release notes

Link: [Release notes for v4.7.2.](#)