

Release notes v5.8.1

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 **5.8**. Also, if your organization uses EasyMorph Server, please make sure that the Server is upgraded to the new version before Desktops.

A few words from the creators of EasyMorph

While this release has a minor version, it nevertheless packs quite a few significant improvements. The most notable ones include:

- New Server feature “Web automation” – now people outside of your organization can trigger Server workflows (and enter parameters) via the public web portal of EasyMorph Gateway. Your organization’s partners, suppliers, customers, and subcontractors can use “Web automation” to submit various data (and soon, files) to your organization, or trigger various automation scenarios (for instance, request and receive datasets or documents by email).
- Remote locations in Server’s “File Manager” – select a connector and browse files and folders, upload, download, delete and rename files stored in Google Drive, SharePoint, SFTP and other file services supported by EasyMorph, right from EasyMorph Server.
- Support for Server backup/restore as well as the “cold mirror” deployment configuration (it was missing in v5.8).

Even if you don’t use EasyMorph Server, you can still benefit from the new version:

- Merge profiler – the “Merge” action now has a profiler pane that provides detailed analysis of a merge, so that you can easily spot oddities and see if the merge went wrong.
- Data quality verification – with the help of two new actions, “Verify data in another table” and “Call with another table”, you can quickly build pipelines that perform various data quality checks and consolidate their results in a form convenient for further processing.
- Import from Microsoft Dataverse (experimental)

Breaking changes

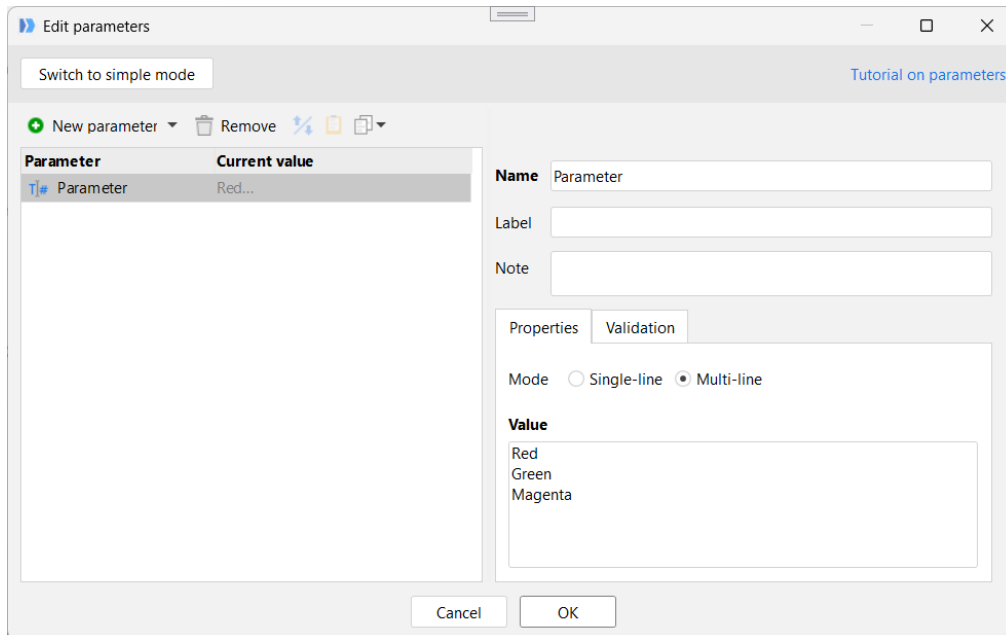
Export to Excel

The “Export to Excel” action exports numeric values as dates for columns that have date formatting applied. Previously, only date formatting was enforced while numeric formatting, such as percentage or rounding, was ignored. Now, the action also enforces numeric formatting in columns when exporting to spreadsheets.

What's new

Multi-line text parameters

The basic text parameter now has a multi-line mode. In this mode, multi-line text can be entered or pasted as parameter value. This option is only available in the advanced mode of the Parameter Editor.



Screenshot 1: Multi-line mode of the basic parameter type.

Multi-line text parameters are supported throughout EasyMorph – in Server and Launcher tasks, in Catalog assets, Web tasks, etc. Note that it's only a visual representation of the parameter value. In workflows, multi-line parameters are treated as usual.

The new mode should help entering and processing multi-line text values in EasyMorph workflows – messages, descriptions, lists, notes, etc.

New connectors

The “Microsoft Dataverse” connector provides integration with Microsoft Dataverse and is required for the “Import from Dataverse” action.

Changes in existing connectors

The “Amazon S3” connector has a new option – “Requester pays”. The option applies to all Amazon S3 commands that support it.

New actions



The **Import from Microsoft Dataverse** action allows importing data from Microsoft Dataverse. The action also allows configuring filters to retrieve only the necessary subset of data.



The **Verify data in another table** action performs multiple data quality checks and consolidates verdicts in one table:

- General verification (e.g. absence of duplicates or empty values)
- Verification of text values (e.g. word count, or prohibited characters)
- Verification of numbers (e.g. not integer or negative values)
- Verification of dates (e.g. dates in the future)
- Verification of cell content (e.g. not email)
- Verification of column names (e.g. prohibited column names)
- Custom verification rules and verdicts (using expressions)

Every verification check can have a custom verdict. Custom verdicts should help our users in non-English speaking countries. Multiple “Verify” actions can be chained one after another to create data validation pipelines that perform various checks on the same dataset.



The **Call with another table** action calls another module (or project), passes another table into the called module, and appends the result. The action is also intended for building data quality verification pipelines and can be used for custom re-usable data quality checks. Multiple “Call with another table” actions can be chained one after another and/or chained with the “Verify data in another table” action described above.

Changes in existing actions

The **Bulk export to database** action when exporting to SQL Server now allows specifying two additional options:

- Check constraints
- Table lock

The **Export to Excel** action now formats numbers in spreadsheets according to their number formatting in EasyMorph. For instance, percentages will now appear as percentages and rounded values will appear as rounded values. Note that this is a potentially breaking change.

The **Raise issue** action now allows inserting the unpivoted 1st row below the issue description. The change will simplify adding numbers, metrics, and calculated values to issue descriptions.

New functions

commonssubstring(text1, text2) – Returns the longest common text substring of two text values.
Examples:

```
commonssubstring("Bicycle DX-349 black", "vélo DX-349 noir")  
//returns " DX-349 " (notice the leading and trailing spaces)
```

countwords(text[, delimiters]) – Counts words in the specified text. Optionally, can have second text argument with delimiter characters. Examples:

```
countwords("Bicycle DX-349 black") //returns 3
```

```
countwords("Bicycle DX-349 black", " -.,") //returns 4
```

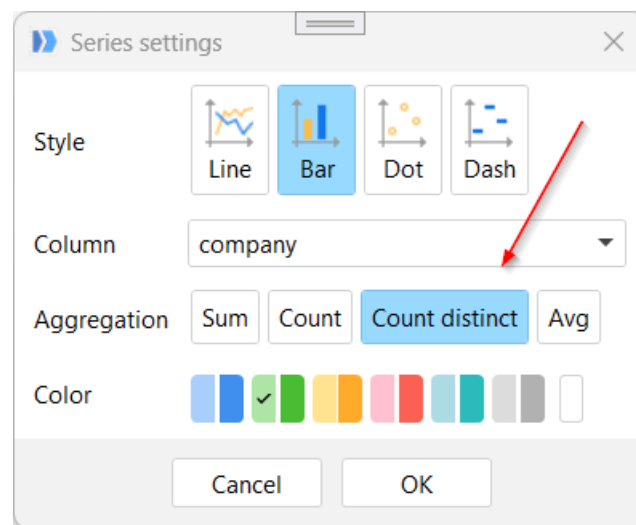
isurl(text) – Returns TRUE if the specified value looks like a URL. Note that the function doesn't check whether it's an existing web address. Examples:

```
isurl("http://easymorph.com") //returns TRUE
```

```
isurl("www.easymorph.com") //returns FALSE
```

Count distinct in charts

The chart aggregation modes now include "Count distinct". The new aggregation mode is supported throughout EasyMorph – in Desktop (Workflow Editor and Explorer), in Server (Explorer).



Screenshot 2: Count distinct aggregation in charts.

Miscellaneous

- The SSH connector now [supports more cryptographic algorithms](#)

What's new in Desktop

Merge profiler

The “Merge another table” action now has a pane for merge profiling. The profiler helps detect and investigate merge errors. Click the “Profile” button in the sidebar with action settings to display the pane.



Screenshot 3: Merge profiler.

The profiler provides detailed information on matching of difference row groups:

- Rows with matched unique keys
- Rows with matched duplicate keys
 - Rows with matched duplicate keys that caused duplicate rows in merge results (Cartesian product)
- Rows with keys that didn't match

Each group is represented with a clickable area on the merge diagram, and a row count in the table below the diagram.

When an area (or count) is clicked, the respective subset of rows is shown in the datagrid area below. The subset can be copied to a sandbox, if necessary, for further analysis.

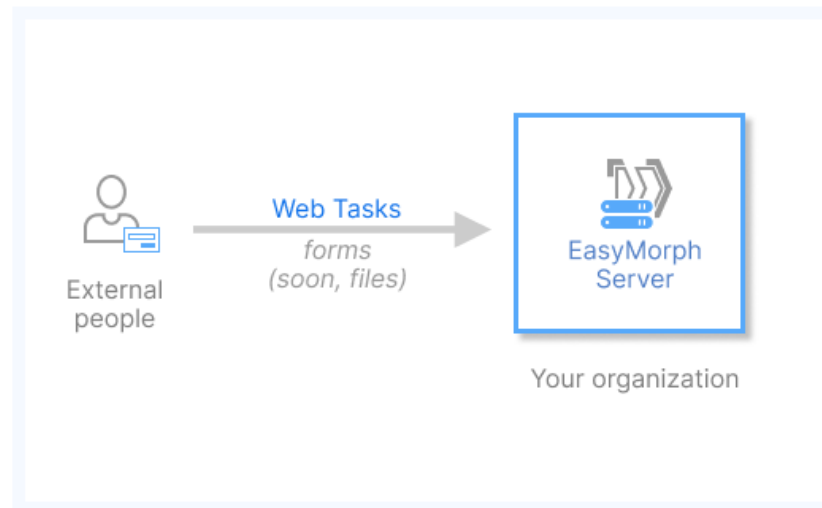
Miscellaneous

- The “Project” menu now has the “Add to favorites” button (changes to “Remove from favorites” for favorite projects).
- In the Analysis View, when adding a filter, the list of fields is now searchable.
- In the Analysis View, values can be copied right from filter boxes
- Server Link now supports Server user accounts introduced in v5.8.

What's new in EasyMorph Server

Web automation

Server spaces have got a new feature – “Web automation” that can be enabled in the space settings. The feature requires a configured connect to [EasyMorph Gateway](#) that provides a public portal in which authorized users (called “web users”) can trigger workflows right on EasyMorph Server and enter workflow parameters. Your organization’s partners, suppliers, customers, and subcontractors can use “Web automation” to submit various data (and soon, files) to your organization, or trigger various automation scenarios (e.g. request and receive documents or datasets by email, or initiate data upload when it’s ready).



When the feature is enabled in space settings, you can do the following:

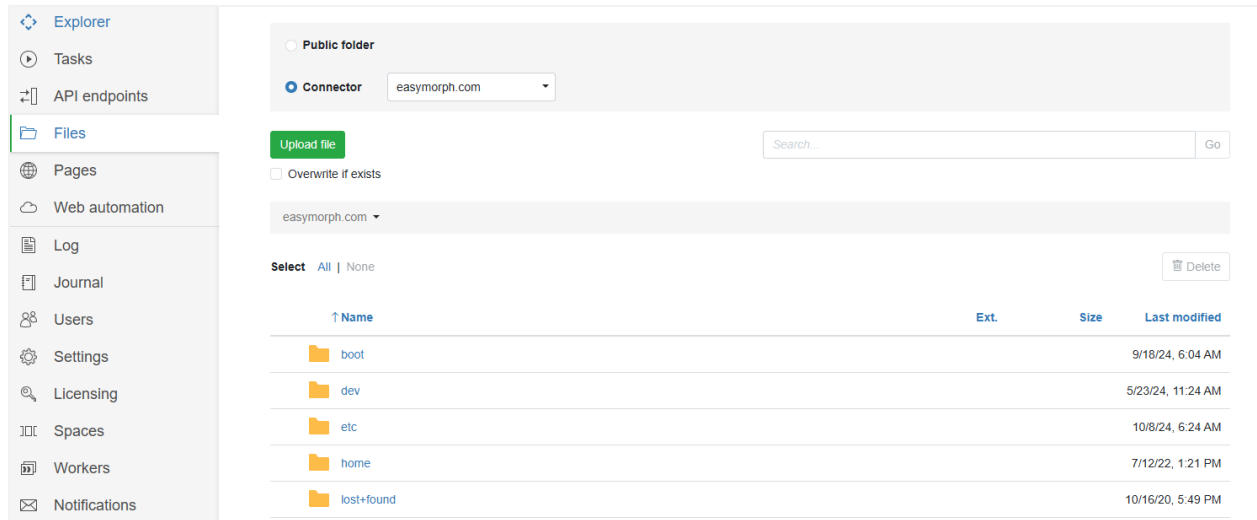
- Create and configure web spaces on the Gateway’s portal, choose authentication mode
- Customize web space appearance (add a logo, welcome text)
- Manage a list of web users that can access the web space
- Create and configure web tasks that can be triggered by web users from the portal

To try “Web automation”, request access to EasyMorph Gateway by sending an email to support@easymorph.com. The “Web automation” feature is free to use until December 31, 2024.

Remote locations in File Manager

Another space feature, “File Manager”, has got a significant upgrade. Now, users can browse, upload, and download files not only in local Server folders, but also in *remote* locations such as Google Drive, OneDrive, SharePoint, SFTP, or any other file storage service supported by EasyMorph.

To open a remote location, select the necessary connector from the list of supported connectors.



Screenshot 4: Browsing a remote location (in this case, SFTP) in File Manager.

Besides the basic file operations in remote locations, it's also possible to create and delete folders, rename files, and perform other operations that are already supported by respective action commands.

Note that recursive search is not available in remote locations.

Master key for Server vault

The Server vault that stores secrets such as authentication keys and credentials, is encrypted with a *master key*. In the new version, it's possible to export and import the master key. That enables creating backups as disk images with EasyMorph Server, and restoring them on another machine as long as the original master key (exported earlier) can be imported after restoring the image.

The ability to export/import the master key also enables the “cold mirror” deployment scenario, where two Servers (one active, one inactive) share the system folder via a network drive.

For more details about backing up and restoring Server configuration, read the “EasyMorph Server Administrator Guide” that comes with the Server installation.

Miscellaneous

- The Server sign-in page now has an option to keep the user logged in. A user signed in with this option checked will be logged out after 30 days of inactivity.
- Stability improvements for retrieval of computed assets in Explorer.
- The titles of board sections can now be hidden.
- Catalog assets of the “Remote folder” type can now be opened on Server.
- The option “Re-retrieve dataset when workflow finishes” is now supported in asset commands.

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A few words from the creators of EasyMorph

This is a major release with many significant additions and improvements, especially for EasyMorph Server. The most notable improvements include:

- A role-based user management system for EasyMorph Server.
- Work automation – an automated issue (or ticket) management system as part of Explorer.
- Integration with Zendesk
- Recommendation program in Desktop – recommend EasyMorph to someone and get paid!

The new issue/ticket management system is a particularly valuable addition for our customers. It enables a much broader range of automation scenarios than it was previously possible, starting from management of data quality incidents to automated alerts to business process automation (e.g. order processing, payment reconciliation), approval workflows, or any other scenario where automation requires a human to make a judgement and decision before continuing.



Screenshot 5: Section "Issues".

The new ability to delegate decision-making to a human also enables the use of AI in automations. Frequently, results of AI-generated suggestions must be reviewed, verified, and possibly corrected by a human before acting upon them. The new issue management system now allows doing that conveniently with EasyMorph.

With the addition of issue management and a role-based user system to Server, we're past the equator in our roadmap of making EasyMorph Server a multi-purpose enterprise hyper-automation platform. The next big feature is *task triggers*, planned for release in the next major version.

The release also implements a few feature requests posted by our users on the [Community forum](#), such as changing font size in tables, descriptions in Server Links, as well as case-insensitive search in filters in Analysis View.

Potentially breaking changes

EasyMorph Server

The new version of EasyMorph Server irreversibly migrates Server configuration files. After upgrading to the new version, it won't be possible to downgrade Server installation to a previous version.

While we thoroughly tested the new version, it introduces many deep changes in the way EasyMorph Server operates. We recommend making a temporary installation of the new version to understand better the new role-based security system. Note that you can always request a trial Server license key by sending a request to sales@easymorph.com for evaluating a new version on a test machine before updating your production installation.

The new user system of EasyMorph Server is backward-compatible. Therefore, installations of EasyMorph Desktop of previous versions are expected to work normally with the new version of EasyMorph Server after updating.

However, the new Server version imposes a few (temporary) limitations:

- Restoring EasyMorph Server configuration files from a backup on a *different* machine is currently not supported (although, it can be restored on the same machine).
- The "cold mirror" redundancy deployment scenario (i.e. two Servers share configuration files on a NAS) is currently not supported. Server configuration files are now encrypted and locked down to a machine and therefore can't be decrypted by another Server.
- Desktop users can't use in Server Link user accounts created in the new Server user management system yet. However, all existing configurations of Server Link in Desktops will keep working without changes before and after updating Desktops to the new version.

These limitations will be removed in v5.8.1. If any of the above is relevant for you, **please wait until v5.8.1 is released.**

Besides that, the new version of EasyMorph Server works differently in several cases:

- Administrators must create a user account by logging in using Server Monitor and make themselves a Server administrator in the user settings.
- The common administrator password is deprecated. Administrators must add a password to their individual user accounts and use that password for logging in.

- Administrators no longer can't access all spaces with full permissions by default. Instead, administrators, as any other user, must be explicitly permitted to access space by adding their user accounts to the ACL (access control list) of the space settings.
- The Creator role in Catalog is no longer defined by a dynamic license assigned to user. Instead, an equivalent Creator role is created automatically during Server upgrade to v5.8. It also means, that the number of Creators is no longer limited by the number of Professional licenses.

Column format detection

We have improved the way how format detection works in EasyMorph and how column formats are preserved in project files. This can potentially change workflow behaviour if your workflow logic depends on column formatting – for instance, your workflow exports text files with formatting preserved.

All previously formatted columns will remain formatted in the new version. However, some columns that didn't have formatting may now get it in the following actions:

- Import dataset
- Import from Apache Parquet file
- Import from QVD (EasyMorph now auto-detects dates in dual values).

What's new

New connectors

The **Zendesk** connector allows using the new Zendesk actions described below for integration with Zendesk.

Changes in existing connectors

The **Jira** connector (and actions) can now be used with the on-premises version of Jira (Data Center edition). Use the new "Jira Server" authentication mode for that.

New actions



The **Import from Power BI** action allows importing data from Power BI semantic models (aka datasets). The action also allows executing a custom DAX query to import data from Power BI.



The **Import from Zendesk** action retrieves tickets from Zendesk and list Zendesk users.



The **Zendesk command** action allows creating, deleting, and updating tickets in Zendesk, e.g. changing ticket's state.



The **Raise issue** action creates a new issue in an Explorer board in EasyMorph Server with the following attachments:

- Server file
- Server folder
- Web link
- Server task (with pre-assigned parameters)
- Catalog asset (with pre-assigned parameters for dynamically computed assets)

The action has a deduplication mechanism that helps avoid accidental creation of multiple identical issues (issues can't be deleted, only archived).

Changes in existing actions

The **Export dataset** and **Import dataset** actions now support adding and reading *custom properties* in datasets. You can use custom properties to add useful metadata, such as time period or region, to datasets. Such metadata can be quickly read without reading the whole dataset. Note that custom properties are not encrypted, so don't use them for sensitive data.

Also, both actions now write and read EasyMorph-specific *file metadata* such as the name of the project that created the .dset file, the workflow run ID, and the Windows account of the process that created the file. The file metadata is written automatically and allows establishing reliable backtracking required by regulatory compliance in some industries.

The **Create list** action now has a two-column mode in which it creates two columns at once. The action is frequently used for creating various lookup tables and mappings. Previously, that required two sequential actions which wasn't convenient. Now it can be done more conveniently and with one action.

The "List sheets" in the **Excel command** action now has an option to add a column with the sheet's position in the workbook.

The **Export to Excel** action now allows using a parameter to specify the target table or range name.

The **Export to Apache Parquet** action now has a mode to export all columns without explicitly specifying them.

The **Keep/remove columns** action has got an option for failing (or not failing) if the column(s) to remove already doesn't exist.

The **Import from Qlik** action no longer has a limit of 2GB per column vocabulary. It also now reads QVD files significantly faster.

The **Rule** action now doesn't evaluate expressions that shouldn't be evaluated because the condition is or is not true. For instance, it can now be used with the [columnexists\(\)](#) function to perform calculations with columns that are not guaranteed to exist. See [example](#).

Two commands of the **SharePoint command** action now produce additional columns:

The "List files" command produces two more columns:

- Created by
- Modified by

The "List folders" command produces four more columns:

- Created by
- Modified by
- Date created
- Date modified

Uploading/downloading folders

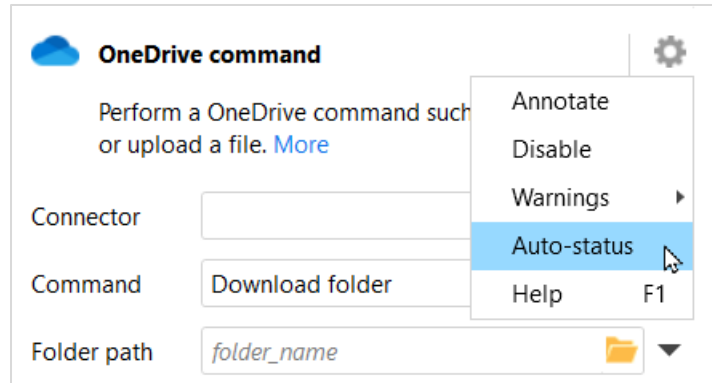
All actions (except "Amazon command") that work with cloud file services have got commands for uploading and downloading recursively entire *folders* with all the subfolders and files in them. The actions include:

- Google Drive command
- OneDrive command
- Dropbox command
- SharePoint command
- Azure Blob Storage command

Auto-status in actions

Workflow actions now have an option to automatically produce a status with the standard auto-generated description of the action. The effect is equivalent to using the "Status" action, although in this case, the "Status" action isn't required. The option allows simple addition of indication of the current status of the workflow that is displayed in Launcher and Server tasks, as well as all computed Catalog assets.

Auto-status can be enabled in the common action settings (behind the cogwheel button) that are available for all actions:



Screenshot 6: The "Auto-status" option in common action settings.

Miscellaneous

- The data transformation engine of EasyMorph has got a few core-level performance improvements. Now workflows run 5-10% faster, on average.
- The actions that import or parse delimited text or fixed-width text now don't have the limit of 32K characters per text value.
- The actions "Import JSON" and "Parse JSON" now work correctly with JSON property names that contain dots.

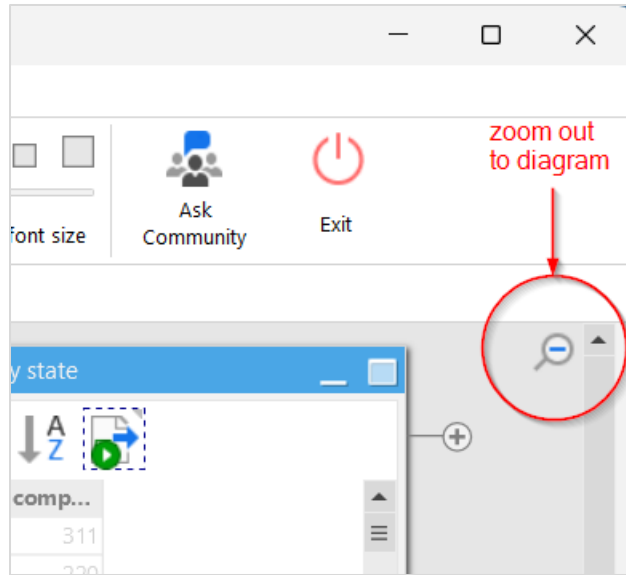
What's new in Desktop

New Start screen

Based on feedback from people who just started working with EasyMorph Desktop, we've redesigned the Start screen to give it a new, simpler look that is less intimidating and emphasizes our learning resources. We've also added an indicator of difficulty for examples that come pre-installed with EasyMorph.

Diagram usability improvements

We've made switching to the Diagram View more natural, by zooming out the workspace. The "Diagram" tab has been removed. Instead, you can "zoom out" to the Diagram View by pressing the respective "zoom out" button in the upper-right corner of the workspace.

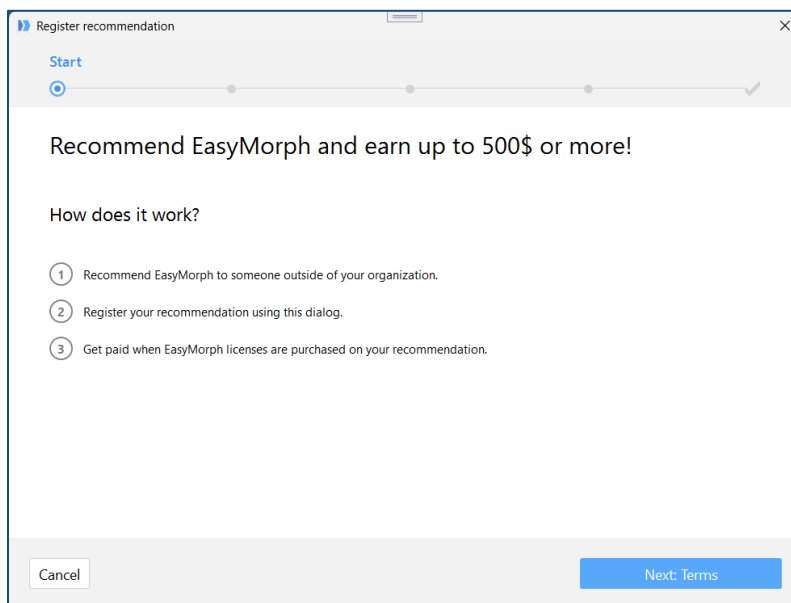


Screenshot 7: The "zoom out" button opens Diagram View.

To switch back, click the "zoom in" button in a table group in the Diagram View.

Recommendations program

The users of the paid Professional edition can now recommend EasyMorph get paid when EasyMorph is purchased on their recommendation (terms and conditions apply). Recommendations can be registered automatically right from EasyMorph Desktop from the Start screen.

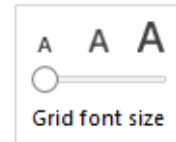


Screenshot 8: The recommendation registration wizard.

The recommendation program is currently not available for the users of the free edition.

Data grid font size

It's now possible to change font size in the data grid with a slider on the toolbar. This can be handy when, for instance, you do screen-sharing and the image quality isn't great.



The font size setting also applies to Analysis View.

Miscellaneous

- File Manager now can upload/download entire folders for locations in Google Drive, OneDrive, SharePoint, Azure Blob Storage, Dropbox.
- The new, faster delimited text parser that is used in actions such as "Import delimited text" is now used by default (previously, you had to opt-in to use it). It's still possible to switch to the old (slower) parser in the application settings. The old parser will be entirely deprecated in a future version.
- Search in filters in the Analysis View is now case-insensitive (it was a frequent feature request).
- It's now possible to add a description to a Server Link. Also, switching between Servers made simpler.
- Explorer boards are no longer accessible in the Desktop. Instead, board links open boards in a web-browser (Server).
- Actions that display a list of cell values now always show them in sorted order. Previously, cell values only appeared sorted when their total number didn't exceed 100,000.
- When editing a calculated parameter in the Expression Editor, its name is now shown above the expression instead the generic label "Expression".
- The "Import dataset" action now sets column formatting as it was written in the .dset file.
- Column format detection algorithm has been improved.

What's new in Server

Issues

The issue system is a new cornerstone automation mechanism in EasyMorph. In combination with Explorer boards and Catalog assets, introduced earlier, issues enable business automations not possible in EasyMorph previously. For instance:

- Detect and collaborate on data quality issues
- Generate alerts about business metrics and system health that can be converted into tasks assigned to designated users
- Receive and collaborate on support tickets from internal and external customers
- Reconcile incoming payments with insufficient details

- Build processing pipelines for customer orders placed online or for job applications
- Detect, alert about, and collaborate on suspicious transactions
- Plan and coordinate team work on workflows
- Provide analytical remarks and context for important KPIs

What is an issue? There are multiple ways how one can think of issues. For instance, you can think of them as of an advanced to-do list where each to-do item can be assigned to a person and have a deadline. Or, issues can be viewed as something akin to email messages, where each message has a subject, a text, and various attachments, and can be forwarded from one inbox to another inbox.

Issues can be of different types (e.g. "alert", "request") and can be in different states (e.g., "received", "in progress", "delayed"). Issue types and states are configured in the space settings.

Issues are available as a new section type in Explorer boards. For now, one board can have only one section with a list of issues.



Screenshot 9: Section "Issues".

Issues can be created in two ways: manually and programmatically. To create an issue manually, add a section "Issues" to a board, and press the "New issue" button.

Alternatively, you can create issues programmatically in a workflow, using the new "Raise issue" action.

Issue *attachments* is arguably the most interesting feature of the issue system. The attachments can be of different types:

- Files and folders in the public folder of the current space
- Web links
- Server tasks with pre-configured parameters
- Catalog assets

The latter, Catalog assets, assumes any asset type, including dynamically computed assets such as computed datasets and computed web links, pre-filtered Tableau and Power BI reports, or workflows. When creating an issue (especially, programmatically), you can attach a computed dataset to the issue, and pre-configure parameters of the asset. An attachment can be opened with a single button click right from the list of issues. For instance, when an issue warns about a data quality problem in a database table, it can have an attachment that in one click immediately opens in Explorer the subset of table rows in question.

Or, if an issue is created for an incoming payment that need to be matched with an invoice (i.e. reconciled), with one click you can open an attached computed dataset that contains all the open invoices with the matching invoice amount.

In a similar fashion, you can attach *workflows* to issues, for instance to approve or reject requests, push data (as pre-configured workflow parameters) into a web API, or continue processing orders in another system.

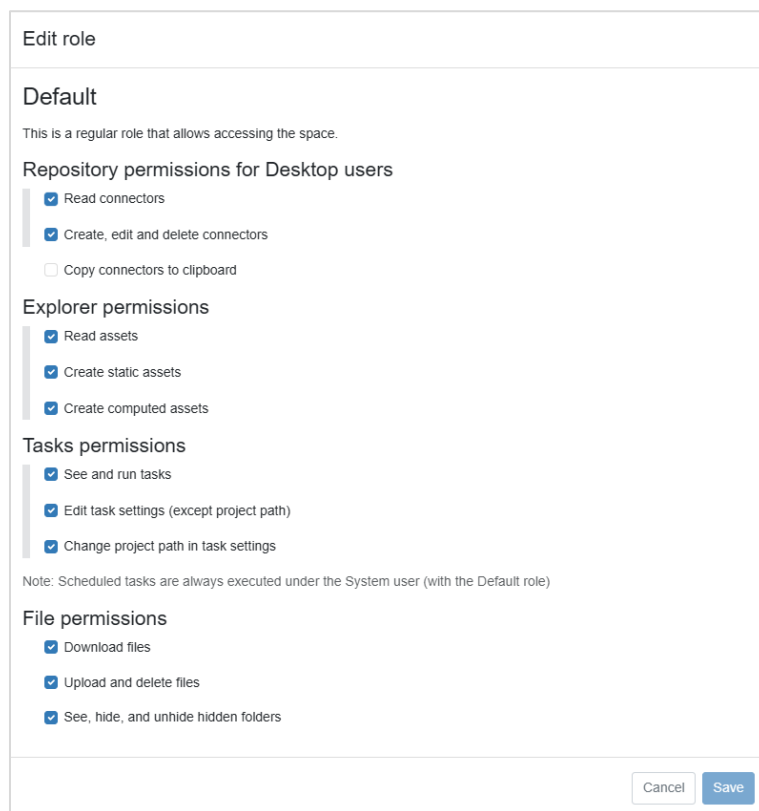
Finally, issues that have been processed or are no longer necessary can be *archived*. Note that issues are created permanently and can't be deleted, only archived.

New role-based user management system

Previously, EasyMorph Server didn't have the concept of a *user*. Users could be authorized either by a shared password, or using a Windows identity verified via Active Directory.

In this version, the Server receives a fully-featured role-based user management system, where *user accounts* can be created right in EasyMorph Server and used for authentication and authorization.

Access permissions are managed via *user roles*. Each role has a configurable set of permissions (see below).



The screenshot shows a dialog box titled "Edit role" for a "Default" role. The role is described as a regular role that allows accessing the space. It lists permissions for Desktop users, Explorer, Tasks, and File operations. All permissions are checked.

Edit role

Default
This is a regular role that allows accessing the space.

Repository permissions for Desktop users

- Read connectors
- Create, edit and delete connectors
- Copy connectors to clipboard

Explorer permissions

- Read assets
- Create static assets
- Create computed assets

Tasks permissions

- See and run tasks
- Edit task settings (except project path)
- Change project path in task settings

Note: Scheduled tasks are always executed under the System user (with the Default role)

File permissions

- Download files
- Upload and delete files
- See, hide, and unhide hidden folders

Buttons: Cancel, Save

Screenshot 10: Permissions of a user role.

A user can have multiple roles. In this case, their effective permissions are combined.

User roles can be of two types: regular roles, and extension roles. The extension roles are supplementary. They don't provide access to space, but can extend effective permissions when applied in a combination with a regular role.

Also, in previous version a Server space could have only one authentication mechanism – either a shared password, or Active Directory, or require no authentication at all. In the new version, any space can have any combination of user authentication mechanisms supported by the Server and enabled by the Server license.

The user accounts can also be linked to *external identities* from multiple identity providers such as Active Directory (support for a few more identity providers, such as Microsoft and Google, will be added later). Having an external identity linked to a Server user allows the user to log into the Server using an external account in Active Directory (currently) or Microsoft or Google (in the future).

To understand better the new role-based user account system of EasyMorph Server, see the EasyMorph Server Administrator Guide that comes with the Server installer.

New Catalog asset: Power BI report

The Explorer has got a new asset type: **Power BI report**. You can hyperlink to Power BI from dataset assets in Explorer or directly from issues. When linking a Power BI report asset, the value of the clicked dataset cell in EasyMorph becomes a filter in Power BI.

Miscellaneous

- The EasyMorph Server Administrator Guide has been rewritten to accommodate the recent additions to the Server
- The login page has a new look
- Search in filters in the Analysis View is now case-insensitive

Previous release notes

Link: [Release notes for v5.7.3](#)