

Release notes v4.4

Important! Create a backup copy of your projects and connector repositories before updating to the new version. Projects saved in version 4.4 can't be opened in earlier versions.

Important! The new version introduces a number of BREAKING CHANGES. Do not roll out the new version blindly, without examining whether your current projects will be affected by the changes.

A few words from the creators of EasyMorph

This release is dedicated to improving EasyMorph fundamentals such as expressions, workflow composition, and ETL capabilities. It introduces (in experimental mode) new expression syntax, a mechanism of warnings, the “Skip” action as a simpler way to create conditional IF/THEN branching, and finally, an action for updating database tables – the “Update database table” action.

Another major novelty is the in-app license purchasing. Until now, we at EasyMorph processed all orders for new licenses and renewals manually. As the number of organizations that use EasyMorph has recently reached 300, manual license administration started showing its inefficiency. With this release, single-user licenses can be purchased and renewed automatically, right from the applications. Just click “Buy/extend license” to open the purchase wizard, provide necessary inputs, submit your order, and pay an online invoice. A new/renewed license key together and a PDF invoice will be emailed to you automatically. The key can also be installed automatically with a single click right in the purchase wizard. The whole process shouldn't take longer than 2-3 minutes.

Finally, we keep speeding up EasyMorph. The new version does aggregations and pivoting 2-3 times faster. Together with the new, faster expression evaluation mechanism, the improvements can speed up workflows by 20% on average and in some cases even more.

Breaking changes

Aggregate in the Concatenate mode

In previous versions the “Aggregate” action in the “Concatenate” mode concatenated values differently depending on whether grouping was applied or not. Without grouping, values were concatenated in the straight order. With grouping, values were concatenated in the reverse order.

Group	Count
1	1
1	2
1	3
2	1
2	2
2	3

Group	Count
1	3,2,1
2	3,2,1

Screenshot 1: Concatenation order before v4.4.

Such behavior was inconsistent and sometimes required additional sorting prior to aggregation. The new version changes the concatenation order to the straight one in all cases to make the action's behavior consistent. However, the change is breaking. If a project was dependent on concatenation order, then it needs to be reviewed and edited in order to work correctly in version 4.4.

Group	Count
1	1
1	2
1	3
2	1
2	2
2	3

Group	Count
1	1,2,3
2	1,2,3

Screenshot 2: Concatenation order in v4.4

To simplify migration to the new version and finding projects that may require editing in order to keep working correctly in v4.4, we've created a project that scans EasyMorph projects in a given directory and finds those that can be affected by the change. For more detail see this forum topic: ["Breaking change in v4.4: Aggregate with Concatenate and grouping"](#).

Function "Hash()" now ignores trailing decimal zeros

In previous versions the **Hash()** function would return different values for two equal numbers if they have different numbers of trailing decimal zeros. For instance, Hash(1) returned "2314Ee7FxMHOTZ910MntFw" while Hash(1.00000) returned "lwHMIA7K6qiJWDeRTKfw7w".

This behavior was inconsistent and could lead to wrong results. It has now been fixed. Now Hash(1.00000) returns exactly the same value as Hash(1) which is "23I4Ee7FxMHOTZ910MntFw".

"Parse JSON" could insert extra rows by mistake

The "Parse JSON" action behaved incorrectly in some cases and could insert extra rows if the name of an XML element started with the name of another XML element (e.g. "FooBar" and "Foo"). This behavior has been fixed.

Sheet/range name length limits

The "Export to Excel" action previously allowed sheet names with more than 31 character and range names with more than 255 characters which could lead to creating workbooks that can't be opened in Excel.

The new version enforces the restrictions on sheet and range names which are now not allowed to be longer than 31 and 255 characters respectively.

No locale-dependent formatting in SQL statements

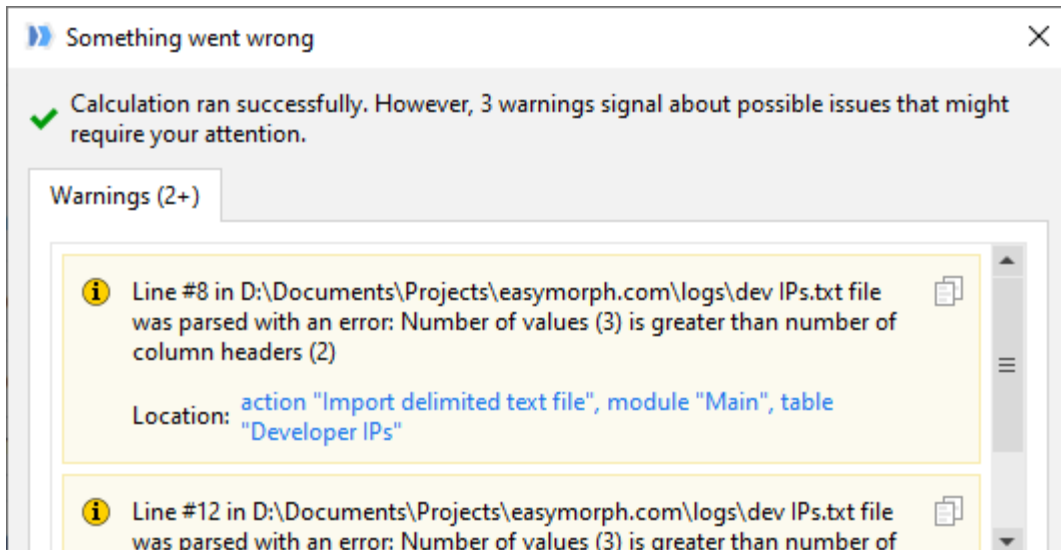
Previously, if a fractional number is inserted in a SQL query via parameter, it could be inserted with a comma as the decimal separator in certain Windows locales. Now this behavior is locale-independent and non-integer numbers are inserted with a dot as the decimal separator.

Also, in Custom SQL and Vertica SQL dialects dates were inserted in the format corresponding to the current Windows locale. Now they are inserted in the format corresponding to the SQL dialect.

What's new

Warnings

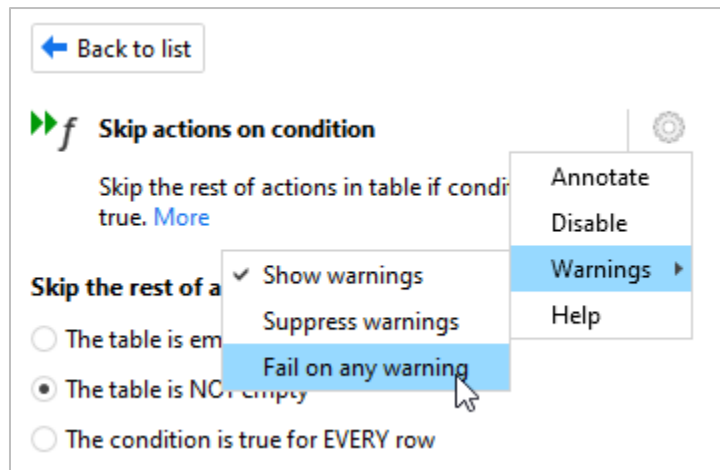
To signal about suspicious issues that arise during project calculation, EasyMorph now generates warnings. Unlike errors, warnings don't make projects fail because the detected issues aren't deemed critical. Nevertheless, they may signal about possible data quality issues or errors in workflows.



Screenshot 3: Warnings in the execution summary.

While warnings don't cause a project fail, we recommend fixing the issues that trigger warnings and making sure your workflows are warning-free.

In the action settings, it is possible to make action fail on warning. In this case, a warning in that action will become an error and will force project to fail.



Screenshot 4: Warning options in action settings.

New expression syntax

The syntax of expressions in EasyMorph has been expanded with new features (see also [this post](#)):

- 1) The unary minus operator. So instead of writing:

`addmonths([Date], 0 - 1)`

it is now possible to write:

```
addmonths([Date], -1)
```

- 2) Local constants. Constants must be assigned using the “let” operator before they can be used in expression. Syntax:

```
//Constant assignment.
```

```
let a = ([A] + [B]) / [C]
```

```
//Use of the constant in an expression.
```

```
([D] + a) / ([E] - a)
```

Notice that constant names don't have to be wrapped in brackets, unlike field or parameter names. Constants help make expressions more readable. They also eliminate the need to create temporary columns in some cases.

- 3) The IF/THEN/ELSE operator.

Since the very early versions EasyMorph has been offering the **if()** function which works similarly to the IF() function in Excel.

Now, for better readability of expressions we're adding the **IF/THEN/ELSE** operator, which is well known to Tableau users. Example:

```
IF isempty([FX Rate]) THEN error("Missing FX rate!") ELSE  
[Amount] * [FX Rate]
```

The ELSE statement is optional. If omitted it returns an empty value:

```
//If FX rate is empty the result will be empty too.
```

```
IF not isempty([FX Rate]) THEN [Amount] * [FX Rate]
```

The new expression syntax is off by default. Currently, it has to be explicitly turned on in the Expression Editor. This is a temporary measure to make transitioning to the new syntax less risky. The new syntax will become permanent in one of the future versions. It is backwards compatible with the old syntax therefore you can safely enable it on in projects created in earlier versions.

Note that when the new syntax is enabled, the syntax error messages change too. If the workflow of one of your projects depends on analyzing error messages, then it will have to be adjusted to the new error messages.

Also, with the new syntax on, expressions are evaluated 2-3 times faster, especially on large datasets. On smaller datasets the speedup is insignificant.

New actions



The **Skip actions on condition** action makes EasyMorph skip the rest of actions in table (i.e. the actions after “Skip” action) if the specified condition is not fulfilled. [Read more.](#)



The **Update database table** action allows updating a database table with values from EasyMorph. The matching key fields must have only unique combinations of values in EasyMorph in order to avoid ambiguity. [Read more](#).

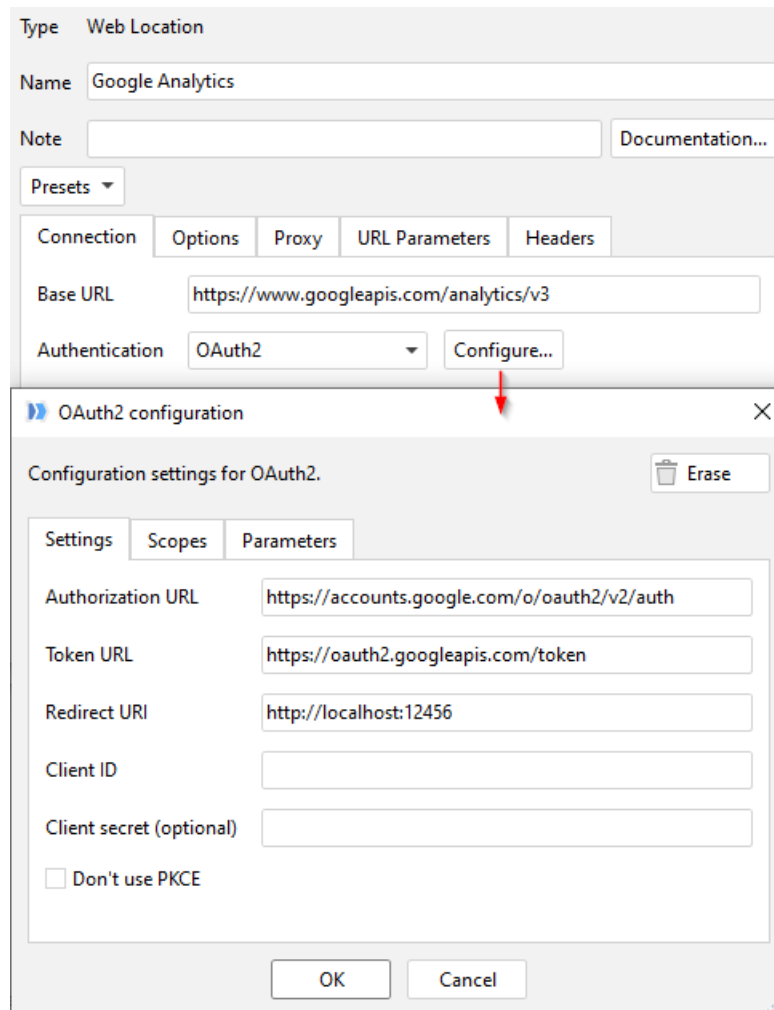
Changes to existing actions

The **Remove columns** and **Select columns** actions are now combined into one action named **Keep/remove columns**.

The **Import from delimited text** action now has an option (in the advanced settings) to treat numeric values as text in all cases, or only when they are quoted in the source file. With this option it's now possible to import all values as text, if necessary. Also the action is now 20-30% faster.

Support for OAuth in "Web location" connector

The "Web Location" connector now supports the OAuth2 authentication protocol. This enables accessing many web APIs (e.g. Google Analytics, or Salesforce) that require OAuth2 for authentication.



Screenshot 5: OAuth in the "Web location" connector.

Note that OAuth1 is not supported.

New functions

columnexists(text) – returns TRUE if a column with provided name exists in the input dataset of the current action. Example:

`columnexists('Count')` returns TRUE if the current dataset contains column [Count].

Together with the “Skip actions on condition” the function can be used for optional calculations on columns that may or may not exist.

metadata(text) – returns various workflow metadata:

`metadata('current table')` returns the name of the table that contains the current action.

`metadata('current block')` returns the name of the tab that contains the current action. Note: in the next release, tabs will be renamed to blocks, hence the term.

`metadata('current module')` returns the name of the module that contains the current action.

isinteger(value) – returns TRUE if the argument is an integer number, and FALSE in all other cases.

Examples:

`isinteger(123)` returns TRUE.

`isinteger('123')` returns FALSE.

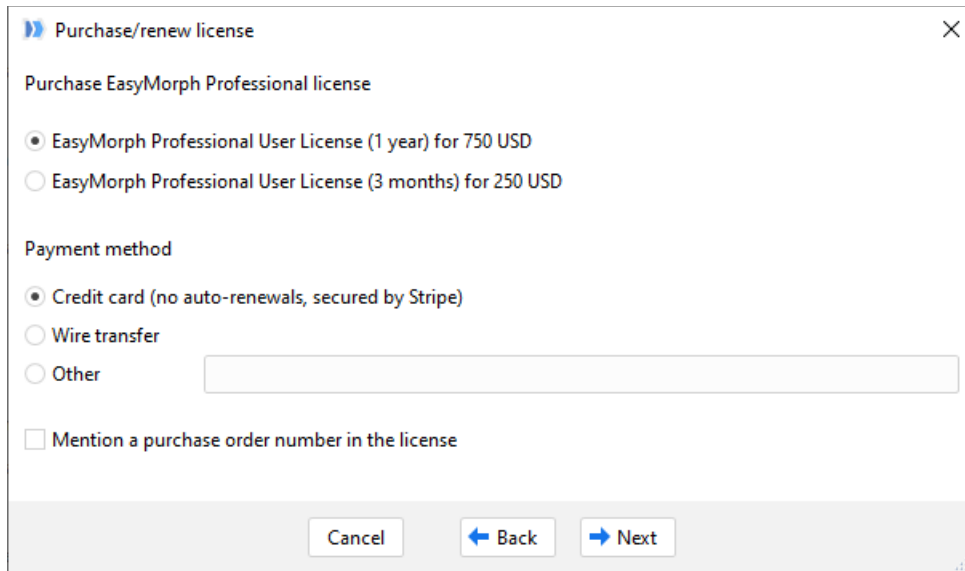
`isinteger(123.45)` returns FALSE.

What's new in Desktop

In-app license purchase wizard

It is now possible to purchase or renew one EasyMorph Professional license automatically right from EasyMorph Desktop. Click the “Buy/Extend license” link on the Start screen of the application, provide order and billing information, and submit order. In most cases your order will be processed automatically: you will be forwarded to a payment web page, and immediately after payment a license key will be sent to you by email, or even installed, automatically.

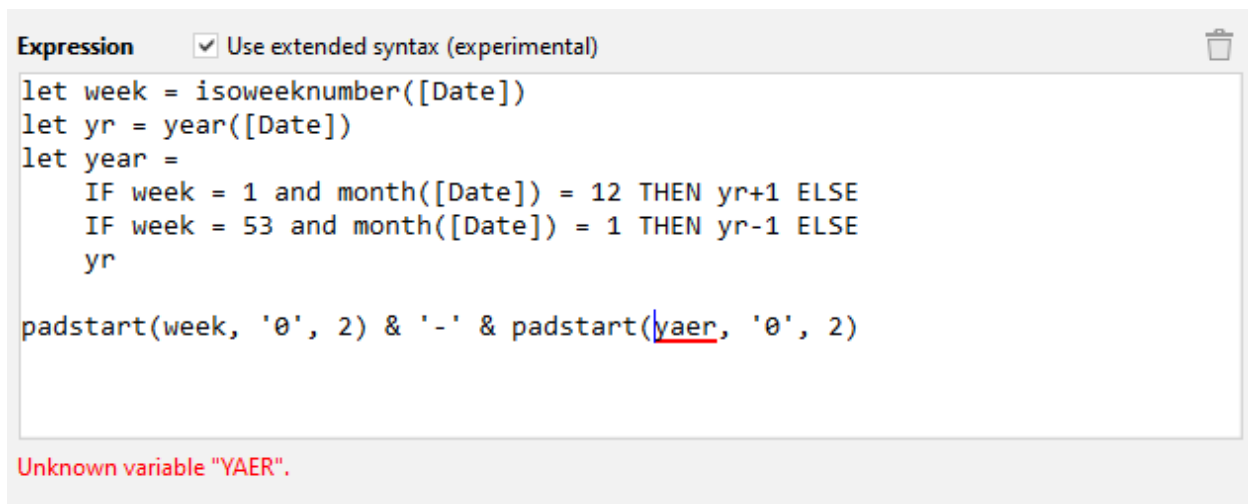
In some cases your order may require manual processing by our sales team. In this case you will receive a notification with further instructions.



Screenshot 6: The license purchase wizard.

Syntax error highlighting

When the extended expression syntax (described above) is enabled, the expression editor highlights the error location. Also, the error message below the text box becomes clickable and brings the cursor to the error location.

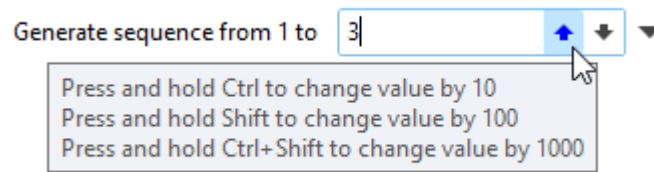


Screenshot 7: Syntax error highlighting.

Usability improvements for numeric input box

Now, it's possible to increase/decrease numeric settings in steps of 10, 100, or 1000 by depressing Ctrl, Shift, or Ctrl+Shift respectively.

The numeric input box also supports the mouse wheel. The step modifiers also work with the mouse wheel.



Hint: hover the up or down button to see a tooltip with increments.

Miscellaneous

- Derived tables/charts can now be created immediately in a new tab.
- A derived table is now by default named after the table it was derived from.
- Much faster “Aggregate” and “Pivot” actions (typical speedup is 2-3x).
- Faster iterations.
- The “Export to delimited text” action is now faster.
- The “Reload and run” button has moved from the “Project” menu to the “Main” menu.
- A license key can now be installed by simply dragging it into EasyMorph Desktop.
- The “Move to tab” dialog has a new look and the ability to move to a new tab.
- The “Create repository” dialog has a new look and better usability.
- In the Query Editor, aggregations can now be added in the list of fields on the left (right-click a field name).
- In the Query Editor, an aggregation can be applied to multiple selected columns at once.
- In the Query Editor, it is now possible to sort by SQL expressions.
- The Expression editor now shows lists of column names AND parameters. The radio-switch Columns/Parameters has been removed.
- Super-compression is now ON by default in Desktop, Launcher, and Server.

Previous release notes

Link: [Release notes for v4.3.1](#).