platform 24

BUSINESS RULES USER MANUAL

TRIAGE24 V. 1

Manual version 1.0
2023-06-14

CE 2862

Triage24 is a certified medical device. All data is encrypted while transmitted and processed according to the GDPR and the Patient Data Act.

Platform24 Healthcare AB

Västra Järnvägsgatan 7, SE-111 64 Stockholm, Sweden

Consult instructions for use: eIFU provided from within the product and via manufacturers webpage.

UDI

Basic UDI-DI: 735012722P24001LR

UDI-DI: 7350127221004

Any serious incidents that have occurred in relation to the medical device should be reported to Platform24 and to the competent authority of the Member State in which the user and/or patient is established.

Table of Contents

1. Introduction

1.1. About this manual

This is the User Manual for business rules in Manage.

> **NOTE**
>
> The User Manual might not always be fully up to date regarding all User Interface (UI) elements. For example, smaller UI elements, such as updated names for buttons, fields etc. might not in themselves produce a new version of the User Manual. All UI changes will, however, be communicated in the Release Notes at the time of the update. All warnings will always be up to date in the User Manual, and, in addition, new warnings will be communicated in the Release Notes.

2. Contact details

2.1. Manufacturer

Address	**Platform24 Healthcare AB**
	Västra Järnvägsgatan 7
	SE-111 64 Stockholm
	Sweden
Website	https://platform24.com

2.2. Technical Support

2.2.1. End user support

For questions about editing medical content, contact the Customer Success Manager at Platform24.

2.2.2. Urgent cases

For urgent support cases users should call the Platform24 support phone number below.

Phone: +46 (0) 10-140 23 21

2.2.3. Non urgent cases

For all non urgent support cases users should email the support email below.

E-mail: `<support@platform24.com>`

For questions regarding additional services or modules your organization may want to buy or activate, users should contact their *Customer Success Manager*, (*CSM*) at Platform24.

2.3. Feedback and questions regarding the user manual

For feedback and questions regarding the user manual, email the user documentation support email below.

E-mail: `<ud.feedback@platform24.com>`

2.3.1. Request printed version of the instructions for use

Platform24 provides the instructions for use for its products in electronic form.

If you require a paper version of the user manual, contact Platform24 via:

E-mail: `<ud.feedback@platform24.com>`
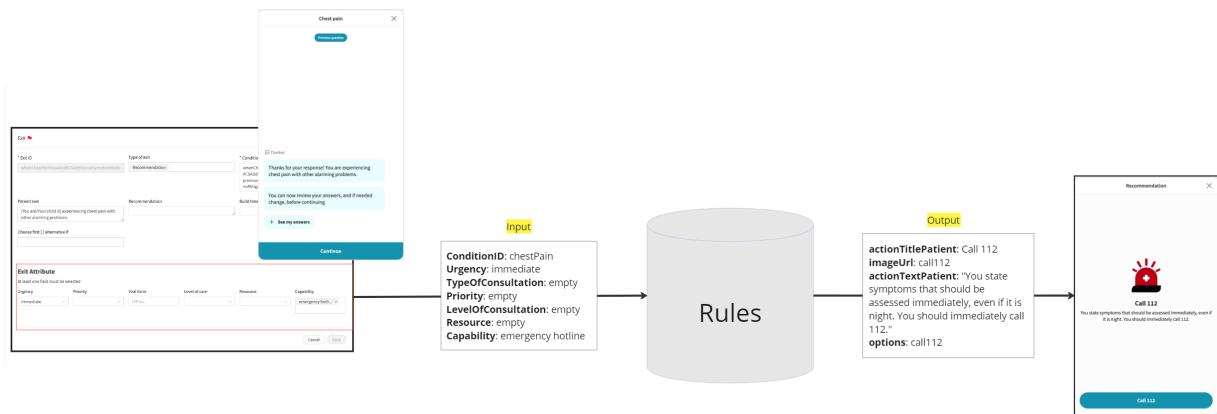
3. Business rules

This manual describes how to edit business rules through the Manage User Interface. Rules are written to configure the customer flows and to allow flexibility to adjust the system towards the customer business needs. The rule engine can for instance execute rules when an interview is finished, to generate a patient-friendly recommendation screen based on the medical interview result. A rule can for example be written to determine which option should be available for a certain exit. Furthermore, rules can be used to change the values of many different variables that affect the functionality of the triage.

When writing rules in the triage context, the exit attributes from the interview will be the incoming values to use in the business rules to create a recommendation from.

To access the **Business rules** section in Manage, you must be assigned to a rules editor role and participate in specific training for editing business rules.

The exit attributes from an interview go through the business rules to create the recommendation to the patient. The most common attributes to base rules on are:

• Urgency

• Level of care

• Type of consultation

• Resource

• Capability

4. Edit business rules in Manage

4.1. Rule packages

The rule packages are available in the **Business rules** section in Manage.
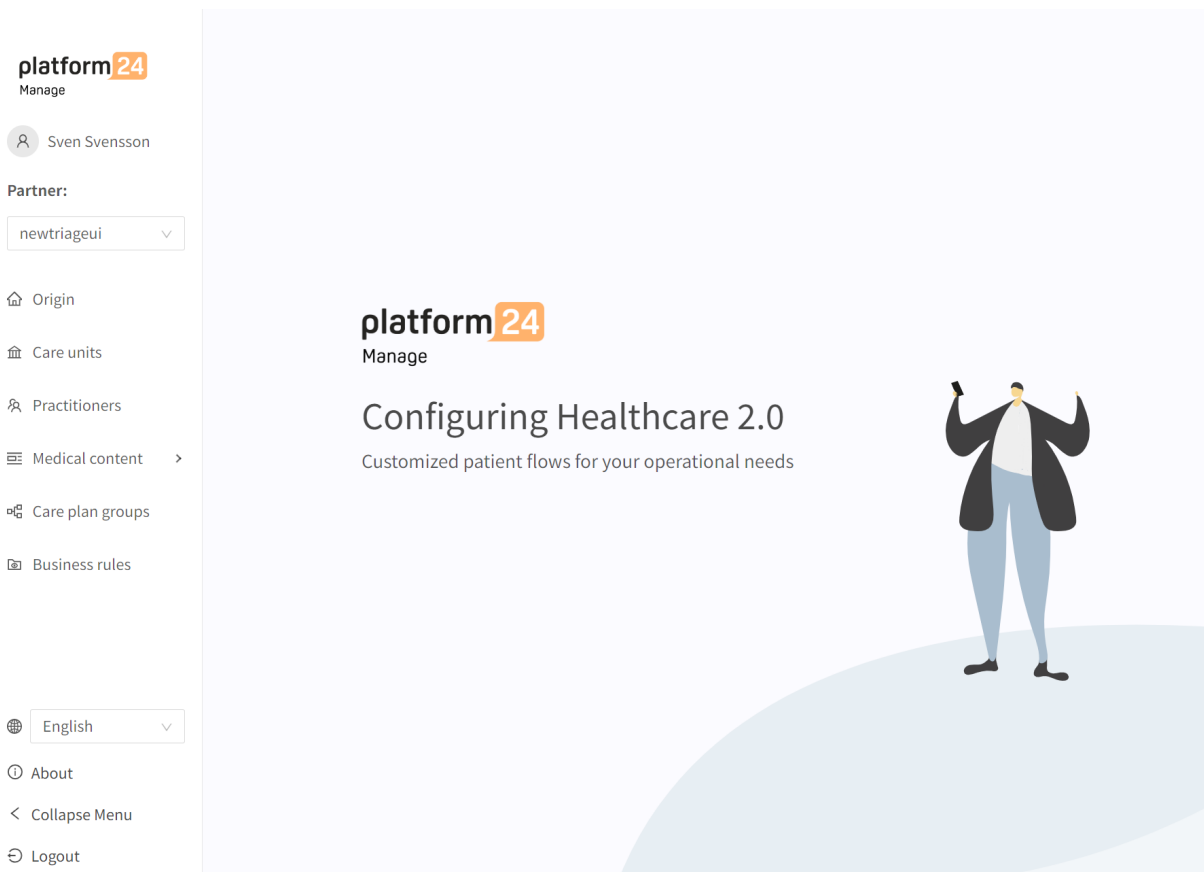
A rule package consists of one or several rules. A rule package can have one or several purposes, for instance:

1. It can contain rules to set the care unit at which the patient should seek care at.
2. It can contain rules to create the recommendation screen the patient will see after the triage.
3. It can contain rules that set different opening hours for different care units or flows.

Rule packages will be run in the order they are defined when implementing the solution. The rules within the rule package will run in the order they are placed in the rule package.

4.1.1. Add a rule package

1. Click on the large plus icon in the lower right corner of the **Rule packages** section.
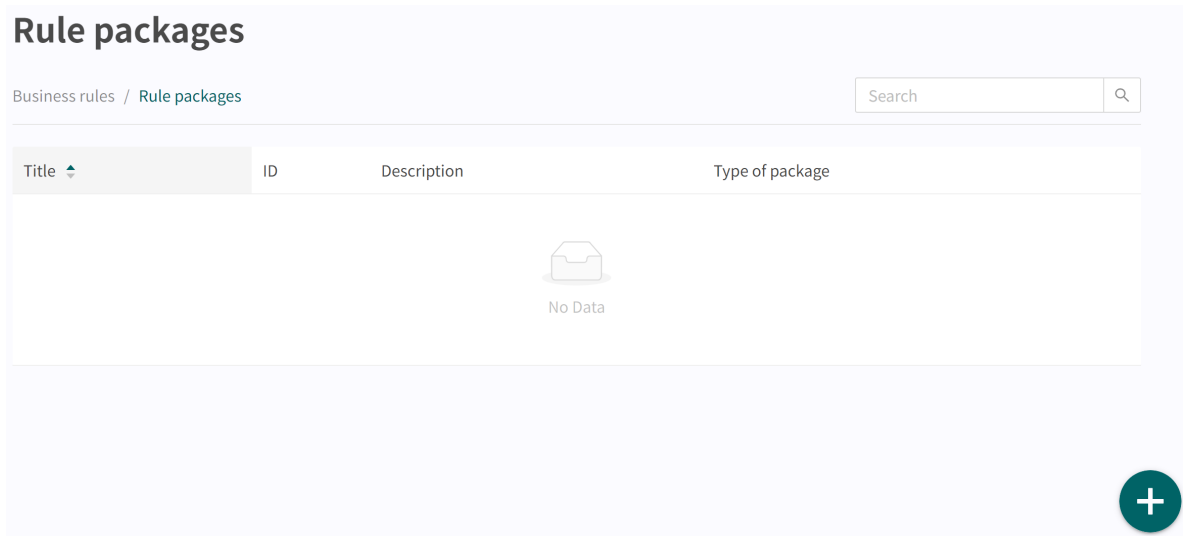
2. Fill in the fields in the **New rule package** dialog. Mandatory fields are marked with * in the UI.

Mode	Select "New" to add a new rule package or "Copy" to copy an existing rule package. (Mandatory)
Id	The unique ID of the rule package. (Mandatory)
Copy	Select a rule package to copy. Only visible if "Copy" has been selected in the **Mode** field.
Title	The title of the rule package. (Mandatory)
Description	Description of what the rule package should contain and what the usage is.

New rule package

* Mode

New

* Id

newtriageui-

* Title

Description

Cancel   Save

3. Click **Save**.

When a new rule package is created, it will appear in the **Rule packages** list. If creating a rule package from scratch, no rules are included in the package. If copying a rule package, the rules from the copied package will be used in the new rule package.

4.2. Rules

In a rule package, it is possible to add new rules and to delete or edit existing rules.

4.2.1. Add a new rule

1. Click on the large plus icon in the lower right corner of a rule package.
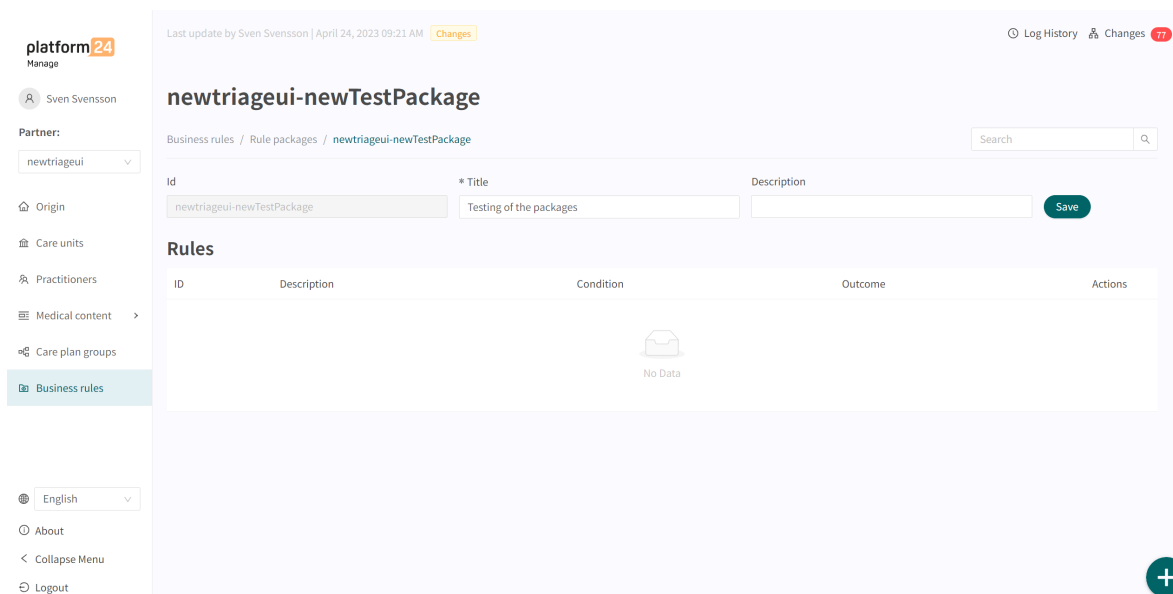
2. Fill in the fields in the **Rule** part of the dialog. Mandatory fields are marked with * in the UI.

    ID   A unique ID for the rule. The ID should be descriptive. (Mandatory)

    Description   A description of what the rule does and is intended for.

    Condition   Defines the condition that needs to be fulfilled before the rule is executed.

3. Fill in the fields in the **Outcome** part of the dialog. These fields determine the outcome of the rule, that is, what the rule should do. Mandatory fields are marked with * in the UI.

    Field   Defines what field should be affected by the rule. (Mandatory)

    Operator   Sets the operation of the rule. For a list and description of the operators, see Outcome [18]. (Mandatory)

    Add outcome   If applicable, click on the **+ Add outcome** button to add another outcome. When adding an additional outcome to the rule, it is added as an additional outcome that also will be executed when the condition of the rule is fulfilled.

Outcome

Outcome 1

* Field	* Operator
Search... ⌄	⌄

(+ Add outcome)

(Cancel) (Save)

4. Click **Save**.

4.2.2. Edit existing rules

1. Click on the pen icon in the **Actions** column to open the rule.

newtriageui-packageForTesting

Business rules / Rule packages / newtriageui-packageForTesting   Search 🔍

Id	* Title	Description	
newtriageui-packageForTesting	new name care unit rule package		Save

Rules

ID	Description	Condition	Outcome	Actions
TestTime				✏️ 🗑️

2. Perform the desired changes.

3. Click **Save**.

4.2.3. Delete rules

Delete an entire rule

1. Click on the delete icon (rubbish bin) in the **Actions** column.

newtriageui-packageForTesting

Business rules / Rule packages / newtriageui-packageForTesting

Search

Id	* Title	Description	
newtriageui-packageForTesting	new name care unit rule package		Save

Rules

ID	Description	Condition	Outcome	Actions
TestTime				✎ 🗑

2. Confirm by clicking **OK**.

⚠ Are you sure you want to delete?

Cancel   OK

✎ 🗑

Delete an outcome or a value in a rule

1. Click on the pen in the **Actions** column to open the rule.

newtriageui-packageForTesting

Business rules / Rule packages / newtriageui-packageForTesting

Search

Id	* Title	Description	
newtriageui-packageForTesting	new name care unit rule package		Save

Rules

ID	Description	Condition	Outcome	Actions
TestTime				✎ 🗑

2. Delete an outcome in the rule by clicking on the **Remove Outcome** icon (rubbish bin). Confirm by clicking **OK**.

Outcome

Outcome 1   🗑 Remove Outcome 1

∗ Field   ∗ Operator

| currentTime   ⌄ | | SET   ⌄ |

∗ Value

| 15:23 | ⚠ Are you sure you want to delete?

                                                    Cancel   **OK**

Outcome 2   🗑 Remove Outcome 2

∗ Field   ∗ Operator

| actionTextPatient   ⌄ | | SET   ⌄ |

∗ Value

| en   ⌄ | | Object | ⊖

| sv   ⌄ | | Objekt | ⊖

⊕ Add value

(+ Add outcome)

3. Delete a value in the rule by clicking on the "-" sign next to the **Value** field. Confirm by clicking **OK**.

Outcome

Outcome 1   🗑 Remove Outcome 1

* Field   * Operator

| currentTime ∨ | SET ∨ |

* Value

| 15:23   🕐 |

Outcome 2   🗑 Remove Outcome 2

* Field   * Operator

| actionTextPatient ∨ | SET |

❗ Are you sure you want to delete?

Cancel   **OK**

* Value

| en ∨ | Object ⊖ |

| sv ∨ | Objekt ⊖ |

⊕ Add value

(+ Add outcome)

5. Rules description

5.1. Syntax when writing conditions

When writing the rule condition, the condition can be written based on all available attributes. The table below presents examples on how to write conditions on different attributes.

Attribute	Syntax	Description
appointmentPriority	appointmentPriority >= 3	The appointment priority must be greater than or equal to 3.
capability	'emergencyHotline' NOT IN capabilities	The interview must end with an exit that does not contain emergencyHotline in capability.
careProviderId	careProviderId != 'platform24Care'	The rule will only be executed if the ID of the care provider is not equal to platform24Care.
careUnitId	careUnitId IS 'platform24specialists'	The rule will only be executed if the ID of the care unit is equal to platform24specialists.
conditionId	conditionId IS NOT 'depression'	The rule will only be executed if the condition of the interview is not depression.
currentDate	days(currentDate, date (2023-06-16)) >= 10	The amount of days between the current date and 23-06-16 must be greater than or equal to 10.
currentTime	hours(currentTime, time(22:50)) == 2	It must be two hours between now (currentTime) and 22:50.
customizations	'ENABLE_DROP_IN_CLOSED ' IN customizations	The customization ENABLE_DROP_IN_CLOSED must be enabled in customizations.
guidanceCodes	'overweightAdult AND triedSelfCareWithoutSuccess' IN guidanceCodes	The condition overweightAdult AND triedSelfCareWithoutSuccess of the flag must be fulfilled.
imageUrl	imageUrl == 'themed-chat_heart'	The url of the image must be set to themed-chat_heart.
levelOfCare	levelOfCare == 'stop'	The level of care of the exit must be stop.
mtwtf	mtwtf == true	The time of the execution of the rule must be during Monday, Tuesday, Wednesday, Thursday or Friday.
open	open == false	The care unit must be closed for the rule to be executed.
options	'call112' IN options	The rule will only run if the option is set to call112.
originId	originId IS 'triageTeam'	The ID of the origin must be triageTeam.
partnerId	partnerId IS 'platform24'	The ID of the partner must be platform24.

Attribute	Syntax	Description
patientAge	patientAge <= 18	The patient must be 18 or younger.
patientBirthDate	years(patientBirthDate, date(2022-06-16)) <= 5	It must be 5 years or less between the birthdate of the patient and the date 2022-06-16.
patientSex	patientSex IS 'female'	The sex of the patient must be female.
resourceType	'NURSE' IN resourceType	The exit must contain the resource nurse.
searchTermId	searchTermId == 'acne'	The search term of the patient must be acne.
serviceRequestCodes	'xRay' IN serviceRequestCodes	The exit must contain the service request xRay.
supportResourceType	'NURSE' IN supportResourceType	The resource that should help a patient with a booking must be nurse.
typeOfConsultation	'onlinePossible' IN typeOfConsultation	The visit form must be onlinePossible.
urgency	urgency == 'immediate'	The urgency of the exit must be immediate.
userToPatientRelationship	'guardian' IN userToPatientRelationship	The relationship between the user and patient must be guardian.
weekend	weekend == true	The execution of the rule must be during the weekend.

It is possible to bind or combine the conditions by using the syntax below. Note that using parenthesis might be needed in order for the condition to be executed according to expectation.

Binding conditions:

AND = and

OR = or

What has to be fulfilled:

"!=" = not equal to

"==" = equal to

If no value can exist:

null = no value

Figure 1. Example:

Condition

(((urgency=='acute') OR (urgency=='planned')) AND (open==false) AND('ENABLE_DROP_IN_CLOSED' NOT IN 'custiomizations'))

In this example, the rule will only be executed if the patient performed the triage while the care unit was closed, and exited on an exit where the urgency was either acute or planned. The customization which does not allow patients to make drop-in visits must also be set for the condition to be fulfilled.

5.2. Outcome

Field   Defines what field should be affected by the rule.

Operator   Sets the operation of the rule. The various operators are:

- **Set**: Sets the field to the given value.
- **Clear**: Clears the field from a value, the field will not have a value after this operation.
- **Append**: Appends the given value to the field.
- **Remove**: Removes the given value from the field.

The operators can be selected from a drop-down list. What operator that can be selected depends on the type of the attribute selected in **Field**:

- **Set**: Supported for all types of attributes.
- **Clear**: Supported for all types of attributes.
- **Append**: Supported for the types SET, LIST, MAP, STRING.
- **Remove**: Supported for the types SET, LIST, MAP, STRING.

Value   Sets the value that the operator should operate to the rule outcome.

5.3. Attributes to use

The rule engine supports the following attributes:

Type	Description	Example
STRING	Text value	"hello"
BOOL	Value which is either *true* or *false*	true, false
LONG	Integer, either positive or negative	42, -239
DOUBLE	Decimal number, either positive or negative	42.7, -239.001
MAP	Type that contains one or more keys and values. Keys are STRING, values can be any base type.	{sv: "hej", en: "hello"}
LIST	List of items, where each item can be any base type.	[42, 42, -239], ["hello"]
SET	List of items where each item is unique and can be any base type.	[42, -239], ["hello"]
DATE	Date value, including year, month and day.	2023-04-24
TIME	Time value, including hour and minute.	12:21

5.4. Dynamic texts

The rule engine supports two methods for having dynamic texts: string templates and child/parent strings.

5.4.1. Child / parent strings

The child/parent syntax looks like this [first alternative/second alternative] and can be used in any text presented to the patient on the recommendation page.

After the rules have been executed the rule engine will look for the child attribute, and if the attribute is *true*, then it will use the second alternative, otherwise the first alternative.

For example if we have the following text:

- [You need/Your child needs] a physical examination.

And child is *false* or *not set*, then the result will be:

- You need a physical examination.

And if child is *true*, then the result will be:

- Your child needs a physical examination.

5.5. Verification

The rule engine will check that all the rules are technically correct. It will check both the condition expression and the list of outcomes for:

- Attribute presence
- Correct type usage, attribute type matches the operator or expression
- Constraints are honored
- Valid operator combinations
- Immutable fields are not updated
- All rules activated by at least one unit test
- Valid template expressions

If the validation does not pass, the user will be notified when editing in Manage.

5.6. Unit tests

To be able to automatically test the rules and flows, unit tests need to be created. Currently, it is not possible for the user to create unit tests in Manage but the Product Success Manager (PSM) can help you whenever a rule has been updated. It is a requirement by the solution that every rule is tested in at least one unit test.

5.7. Examples of rule packages and rules

Rule packages should be created per use case and should be standalone in its purpose. For example, if you want to define which care unit the patient should be directed to, that should be defined in one rule package, it should not be split between several rule packages. If you want to define rules to create the actual recommendation to the patient, that should also be defined in one rule package (not the same as the care unit rules) so the recommendation rules are gathered in the same package.

Example of this use case:

Rule package 1 - Assign the patient to a suitable care unit

- Defines rules and outcomes to set which care unit the patient (if applicable) should be directed to.

Rule package 2 - Create recommendation to patient

- Defines rules and outcomes based on the incoming values from the medical exit.

Rule packages

Business rules / Rule packages

Search 🔍

Title ⇕	ID	Description	Type of package
Care unit	triageteam-careunit	Rules that sets the appropriate CU for the patient	Partner
Recommendations	triageteam-recommendation	Rules that create recommendation based on medical exit	Partner

The order of the rule packages in Manage does not impact the usage of the rule packages. To enable rule packages to be used in the patient flow, the rule packages need to be configured in the flow, ask the PSM to help you set this up. The order of the rule packages in configuration impacts the order the rule packages and its rules will be executed in.

6. Terms and definitions

Term	Definition
Set	Set value to the field
Clear	Remove the field
Remove	Remove value from the field
Append	Append value to existing string or list

7. Business rules - Versions

#	Date	Description	Created by	Reviewed by
1.0	2023-06-14	1st version	Helena Nilsson	Lovisa Lundin Nicole Kvist