



IAEA

International Atomic Energy Agency

RAIS+ Administrator Manual

Regulatory Authority Information System

Interim version

Division of Radiation, Transport and Waste Safety
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Introduction

In a typical regulatory body structure, RAIS+ will be used by many users, each with one or more roles (Inspection, Authorization, etc). It might therefore be desirable to restrict the users only to the entities and processes they are supposed to work with in accordance with their respective roles.

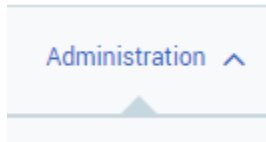
Furthermore, RAIS+ is a highly customizable system. Many aspects of it can be altered to fit the requirements of the regulatory body. Although the system has been carefully designed to try to make these customization tasks as easy as possible, some of them still require some technical/analytical skills in order to be completed successfully. Therefore, these tasks can only be performed by a user with the Administrator role.

This manual specifically focuses on the administration and customization possibilities of RAIS+. For information about the “day-to-day” use of the system by “regular” users, please refer to the User Manual document.

In order to avoid inadvertent misconfigurations of the system, it is highly recommended that only specific privileged users obtain the Administrator role.

The Administrator Menu

The administrative items of the system are accessible by clicking on the administrator menu on the right. These menu items are only visible to users with the Administrator role.



Below is an overview of the different parts of the system that can be administered:

<ul style="list-style-type: none"> User Management Data Roles Functional Roles Security Profiles Users Web Service Account Customization Power Tools Custom Components Entities Evaluators Queries Reports Specific Reports Workflows 	<ul style="list-style-type: none"> Settings Backup and Restore Application Settings Dashboard and Email Settings Templates Document Template Email Template Dashboard Templates 	<ul style="list-style-type: none"> System Reports Database Performance Reports Exception Reports System Language and Translations Language Translations
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User Management	This contains all the functionalities regarding access to the system. This includes creating and editing users, roles (both functional and data-related), user/role assignments and other security related features.
Settings	This section contains functionalities to configure the core functioning of the system, and especially how it integrates within the IT infrastructure of the regulatory body. Once configured correctly, these settings will typically rarely change again.
System Reports	Contains various reports about the performance and health of the system.
Customization Power Tools	In this section, the administrator will be able to perform most of the customization tasks like editing entities, workflows, queries, etc. This section will be heavily used whenever the regulatory body requires specific “business logic” implemented in the system.
Templates	This section allows you to configure and customize the different sorts of templates used by the system
System Language and Translations	Provides a mechanism for translating the system into your own language should you so desire

User Management

All management of users and their respective permissions are managed in this section. Permissions are mostly configured by two concepts: **Functional Roles** and **Data Roles**.

Functional roles define the actions a user can perform in the system, while Data Roles define the scope of the data to which these actions can be performed.

Functional Roles

On the Functional Roles screen, you have the roles on the left side, and the associated permissions with the selected role on the right side.

To create a new role, click the “Add New Role” button.

On the right side, you can add the permissions for the selected role by clicking on the Add New Permission button, or edit existing permissions by clicking on the appropriate row.

Functional Roles

Security Profiles Export Add New Permission

Role List Add New Role

Entity Permission Workflow Permissions Workflow Action Permission Report Permissions

Entity Group	Entities	Validate	View	Add	Edit	Delete
Authorizations	All	✓	✓	✓	✓	✓
Common Table	Practice, Workflow Status, Gender, Am...	✓	✓			
Inventory	All	✓	✓	✓	✓	✓
Others	Declaration Facility	✓	✓			
System	User	✓	✓			

You can use the same logic to apply role permissions to Workflows, Workflow Actions and Reports by clicking on the respective tabs.

Data Roles

Data Roles configuration follow the same principle as Functional Roles configuration. On the left is the list of roles, on the right are the permissions (or restrictions) you assign to the selected role.

Data Role Permissions allow you to specify the combination of practices, regions, districts and facilities this data role has access. If you wish to use other properties or data to determine access of the role, you can further fine-tune it by designing a specific custom query (see “Queries” further in this manual) and assign the query in the Restrictions tab.

In the example below, the selected role DRPracRadiotherapy has access to all facilities (in all regions and districts) having a practice of Radiotherapy.

Data Roles		Permissions		Restrictions		Export	Add New Permission
Role List		Practice	Region	District	Facilities		
All Data		Radiotherapy	All	All	All		
DRCRegion							
DRPracRadiotherapy	Add New Role						
Own Facility							

Users


In this section, you can configure the users of the system and assign them Functional and Data Roles you created earlier.


When you click the “Add New User” button, you are presented with a 3-step wizard.


[Add New User](#)

Add New User [Reset Password](#) [Cancel](#) [Next](#)

- User Type
- Inventory Information
- User Detail


Expert


Officer


Worker

Email

Step 1: User Type → select the type of user you want to create

- **Officer:** is someone who is working internally in your regulatory body
- **Expert:** is someone attached to another agency, who you might contract on a regular basis to provide expertise assistance (e.g. during the review and assessment process of a complex licensing case)
- **Worker:** is a person linked to a licensee facility

After selecting the user type, enter the email address of the user. If a user with this email address already exists, the system will tell you. Click Next to continue.

Step 2: Inventory information

Depending on your choice of type of user, you will need to enter different information. Fill in at least the required information (marked with *).

Step 3: User Detail

On the final step, you need to choose how this user will authenticate (external or internal, depending on the system settings) and which roles (functional and data) you assign to him/her. Also, if you wish that this user is able to log in, he/she needs to be activated.

Once the 3 steps are completed, the user will receive an email with a secure link to choose a password and confirm the account. After that, the user will be able to log in.

Sub accounts

A user always has one primary account, but can also have some sub accounts. Creating a sub account for a user can be useful if the same user is going to have to fulfil different roles in the system. For instance, a specific user can be a licensee user (and therefore is attached to a facility) but maybe this same user is contracted as an external expert on a timely basis to perform some review and assessments tasks for the regulatory body.

With the sub account system, the same existing user can be reused to create a sub account with type Expert, and the same email address as his/her primary email address can be reused.

To create a sub account, simply click the “Add Sub” button on the existing user:

Edit User

Primary Account



Primary

mso_licencee

This will open the same dialog as creating a regular user, except that the email address will already be filled in and cannot be changed.

Resetting a user password

In the event a user forgets his/her password, or the password gets compromised, the administrator can initiate a password reset by clicking on the “Reset Password” link on the appropriate user.

User Logs

Reset Password

Cancel

Next

This will send an email to the user containing a link for further instructions on how to reset the password.

Note: the user can him-/herself also request a password reset on the login screen of RAIS+ by clicking the “Forgot Password” link.

Security Profiles

Security Profiles allow you to restrict viewing or editing specific fields/attributes of an entity. You can assign a security profile to one or more Functional Roles.

For instance, say you have an Identity Card Number field on the Worker entity. This is sensitive information that you don't want all your users to see, but they should still see the other information of the Worker entity.

You can add a new Security Profile for this field to restrict "viewing" this property on the forms:

[Add New Profile](#)

Add New Security Profile Cancel Save

Name* Identity Card Number Entity* Worker Add New Entity

Fields* Identity Card Number Add New Fields

Restriction View Edit

If you then want to restrict users with Functional Role "AuthorizationFR" of viewing this field, you can assign, from the Function Roles menu, this profile to this role:

Functional Roles Security Profiles Export Add New Permission

Role List Add New Role

- Administrator
- Licensee
- AuthorizationFR**
- Guest
- Restricted Access Regulator
- LicenseeFR
- Regulator
- InspectionFR

Entity Group	Entities	Validate	View	Add	Edit	Delete
Authorizations	All	✓	✓	✓	✓	✓
Common Table	Practice, Workflow Status, Gen...	✓	✓			
Inventory	All	✓	✓	✓	✓	✓
Other						
System						

Security Profiles

Identity Card Number

Cancel Save

Web Service Account

Web services are used to interconnect applications. If you have the requirement of making another application “talk” to the RAIS+ application, this can be configured from here. This other application can be internal to the regulatory body, or even external (provided the system is accessible online). For example, the Customs Department of the country, operating their own software, could potentially be given access to the RAIS+ data and functions through the web services so that they can automate some interaction between their software and the RAIS+ software (for example checking of Import Authorizations).

The applications will communicate to each other using the REST protocol (over https) and the developers of the “consuming” or “client” application will need to make some custom developments so that their system can call these REST endpoints.

Each application wishing to interact with RAIS+ should be given a separate “Web Service Account”.

The screenshot below is an example configuration of a webservice account being created for customs:

Add New Web Service Account

Cancel Save

Account Name *
CustomsWS

Client Id *
af33eed2-9c83-7828-73cf-9a2bfe68b2cf
[Generate Client Id](#) | [Copy Client Id](#)

Client Secret *
cx736AUVYT16xDg711Frp27MbbldRFbG3U3E3SPQ32Hf3q09ub
[Generate Client Secret](#) | [Copy Client Secret](#)

Assigned Query
[Add Query](#)

Functional Role *
CustomsFR × [Add Functional Role](#)

Data Role *
All Data [Add Data Role](#)

Status
 Activate
 Deactivate

End Points
1. api/external/entity/ActivityUnit
2. api/external/entity/AssociatedEquipment
3. api/external/entity/AssociatedEquipmentStatusHistory
4. api/external/entity/Department
5. api/external/entity/WFExportAuthorization
6. api/external/entity/WFImportAuthorization
7. api/external/entity/Practice
8. api/external/entity/RadiationGenerator
9. api/external/entity/RadiationGeneratorStatusHistory
10. api/external/entity/SealedSource
11. api/external/entity/SealedSourceStatusHistory
12. api/external/entity/UnsealedSource
13. api/external/entity/UnsealedSourceStatusHistory
[Copy All End Points](#)

Note:
Step 1: To authenticate a bearer token is needed and to get it hit this endpoint: xxxxxx/connect/token
Step 2: Use the token and hit any of the generated endpoints.

For each web service account, you must specify a name, generate a client id and a client secret, and define a functional role.

In this case, a specific custom functional role was created (CustomsFR), granting view only permissions to the Import Authorizations and Export Authorizations (and its auxiliary entities).

You can also give permissions on one or more queries if you so desire, by clicking the appropriate queries in the “Assign Query” dropdown.

The generated endpoints must then be given to the developers of the “client” application, along with the base URL on which RAIS+ can be accessed. E.g. if your RAIS+ is accessible online on URL <https://rais.mycountry>, the URL for accessing the generated endpoints would be <https://rais.mycountry/api/external/>.... (as mentioned in the endpoints list).

The client id and client secret must also be shared with the client application developers. **Note:** this is sensitive information, much like a username and password, and should only be shared through a secure channel !

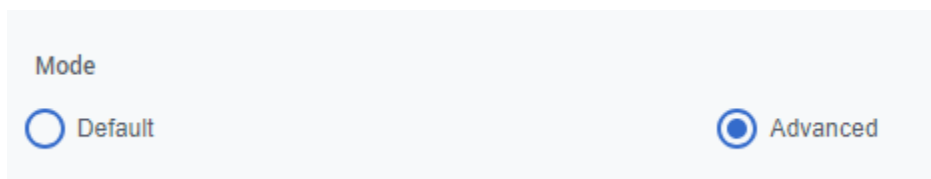
Settings

Application Settings

The application settings section is used to configure the core functioning of the RAIS+ application.

Dual Mode


You can configure the system in two modes: Default or Advanced



Some of the more advanced administration options will not be available in default mode, to avoid inadvertently making undesired changes to the system. You can switch between modes at any time.

Application Header

Here you can customize the title and tagline of the application, as well as upload a custom logo for your organisation to be displayed in the application header.

A screenshot of the 'Application Header' configuration form. It contains three main input fields: 1. 'Title' with the value 'RAIS' and a note 'Upto maximum 100 charecters allowed'. 2. 'Tagline' with a note 'Upto maximum 100 charecters allowed'. 3. 'Upload File' with a file upload icon and a note '##AllowedTypes## -png, jpg, jpeg, PNG' and '(##MaxFileSize## - 4000 ##KB##)'. The form is styled with a light blue header and a white background.

Base Theme

You can set the base theme of the application to a choice of 3 different colors. Each user can individually choose another theme if desired (from his/her profile settings).

You can also indicate if you want to system to appear in light or dark mode

Base Theme

Choose Color

Choose Mode

Light Mode Dark Mode

Process Type

The system comes preconfigured with processes for all regulatory activities. These can either be of Simple or Complex type. Simple processes might be a good choice for a small sized or young regulatory bodies, while complex processes might be more adequate for larger or more experienced regulatory bodies.

Here you can choose which type you want to use as a base, keeping in mind that you can always customize any of the preconfigured processes to your likings, or even add new ones. You can also choose at any time to switch from one type to another.

Process Type

Simple Complex


Mail Server Settings

At various stages, the system has to be able to send out emails (process step notifications, administrative reports, etc.). Here you can configure how to connect RAIS+ to your desired email sending system.

Mail Server Settings

SMTP SMTP Port

SMTP Username POP

SMTP Password  SSL Enable Disable

LDAP Settings

Should you wish to integrate RAIS+ with your organizations' internal user management system (i.e. Active Directory) for single sign-on purposes, this can be done through these settings.

LDAP Settings

Domain	LDAP Username	LDAP Password
--------	---------------	---------------

Storage Media

The system can store documents (either uploaded or system-generated) in two ways. Either directly in the database, or on the file system. If you specify the File System, you have to enter desired the path to the file system. The advantage of using Database is that both the data and the documents will be stored together in the same database, which is easier for backup purposes. However, if over time the system has lots of documents of important size, database performance might suffer.

Caution: please note that when you switch from one storage media to another, the already uploaded documents are NOT automatically transferred to the new storage media.

Storage Media

Database File System

Database/File Server Path

Note : When storage media or its path changed server will be down for a while, so please restart the application when storage media or its path changed successfully

File Upload Settings

Here you can specify a maximum size for uploaded documents, as well as restrict the types of documents and images that can be uploaded.

File Upload Settings

File Size Limit(KB)
4000

Document Extensions
doc x docx x pdf x txt x xls x trdx x msg x eml x xlsx x

Image Extensions
png x jpg x jpeg x PNG x

Authentication Settings

In this section you can indicate which types of authentication mechanisms you wish to allow. For Active Directory Authentication to work correctly, the correct LDAP settings must be configured (see higher). If you wish to enable two factor authentication for the Default authentication mechanism, you can check the corresponding checkbox. Users will then need to use an authenticator app on their smartphone when logging in. **It is highly recommended to activate two factor authentication if you plan on exposing your RAIS+ installation on the Internet to interact with your licensees or other external partners.**

Authentication Settings

Active Directory Authentication

Enable Disable

Default Authentication

Enable Disable

Login Panel Label *
External

Login Panel Label *
Internal

Enable two factor authentication

Database Performance Report Settings

Here you can enable or disable reports regarding the performance of the database. Indicate the threshold (in milliseconds) for which queries executing longer than this duration will be logged in a report. You should most likely only need to activate this option when troubleshooting performance issues.

Database Performance Report Settings

Duration Threshold (in milliseconds) *
1000

Capture SQL queries which exceeds this threshold in their runtime

Enable Database Performance Report

Backup and Restore Settings

Here you can enter the default path here where the backup files should be stored. See “Backup and Restore” in the next section

Backup and Restore Settings

Backup File Path

Backup and Restore

You can backup and restore your database from this section.

To create a new backup, click the “Add Backup” button.

Backup And Restore Export Add Backup

Server Name	Location	Description	Size	Start DateTime	End DateTime	Restore	Delete
raisplus\SQLEXPRESS	C:\RAISPlus\PublishBackup_202...		136.409088 MB	09/13/2023 17:16:01	09/13/2023 17:16:08	Restore	Delete

1 - 1 of 1 items

You will be presented with a popup asking you for the location to store the backup. If you filled in the default backup path in the “Application Settings” (see previous section), this will be pre-filled here. Click the “Save” button to start the backup.

Should you ever need to restore a backup, you can do so by clicking the “Restore” link from the corresponding backup you wish to restore. Keep in mind that all data entered in the system after this backup will be lost (unless you have backed it up too).

After a backup has been restored, the system will restart and you will be re-prompted with the login screen.

Caution: if you chose “File System” as Storage Media for documents (see previous section), these documents will NOT be part of this backup, and you should back them up manually. Only the Database is backed up from this section. If “Database” is used as Storage Media, the documents will be included in the backup.

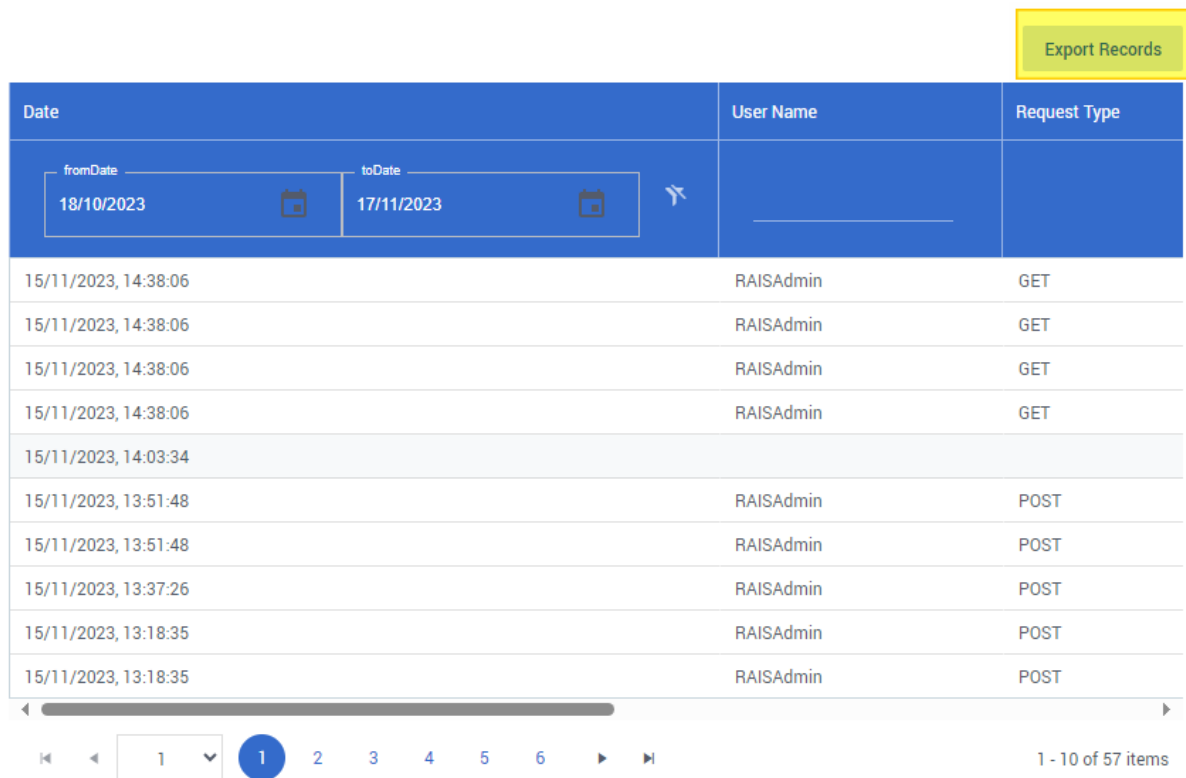
System Reports

The system reports contain information that can help administrators troubleshoot any issues with the system.

Exception Reports

The exception reports logs all application exceptions that occurred in the system. It can be helpful to provide these messages to IAEA if they ask to provide it. They can be exported to Excel with the Export Records button.

Exception Reports



The screenshot shows a web interface for viewing exception reports. At the top right, there is a yellow button labeled "Export Records". Below it is a table with three columns: "Date", "User Name", and "Request Type". The "Date" column has a date range filter set from "18/10/2023" to "17/11/2023". The table contains 10 rows of log entries, all with "RAISAdmin" as the user name. The request types are either "GET" or "POST". At the bottom of the table, there is a pagination control showing "1" of 6 pages, with "1 - 10 of 57 items" displayed on the right.

Date	User Name	Request Type
15/11/2023, 14:38:06	RAISAdmin	GET
15/11/2023, 14:38:06	RAISAdmin	GET
15/11/2023, 14:38:06	RAISAdmin	GET
15/11/2023, 14:38:06	RAISAdmin	GET
15/11/2023, 14:03:34		
15/11/2023, 13:51:48	RAISAdmin	POST
15/11/2023, 13:51:48	RAISAdmin	POST
15/11/2023, 13:37:26	RAISAdmin	POST
15/11/2023, 13:18:35	RAISAdmin	POST
15/11/2023, 13:18:35	RAISAdmin	POST

Database Performance Reports

The database performance reports will log all database queries that are taking longer than a predetermined threshold (by default 1 second). This can be helpful to troubleshoot a slow responding system. Note that for these logs to populate, the "Enable Database Performance Report" checkbox must be enabled in the "Application Settings". Once the troubleshooting is complete, you are advised to disable this option again, as keeping it enabled permanently might put an unnecessary load on the system in terms of CPU and storage.

Database Performance Reports

*** Note:**Database Performance reports will appear here only if it is enabled by Administrator in Application Settings. The 'Duration Threshold' limit shall also be specified by Administrator in Application Settings.

Session ID	Time Stamp	SQL Text	Batch Text	Duration (In Millisecon...
##NoRecordsFound##				

Customization Power Tools

Entities

Entities are the core components of the system. Entities are used to store all the data about facilities, workers, sources, equipment, country infrastructure information, etc...

The system comes with a lot of predefined entities, but you can customize them at will, and add new ones. The most common types of customization of entities are:

- Adding new fields to an entity
- (Re)designing the input form of an entity
- Customizing the RAN (Regulatory Authority Number) generation
- Customizing the displayed data in list views
- Adding consistency checks

To edit an existing entity, click on it in the list. Let's take Facility as an example

Entities Export Add New Entity

Type to filter

Entity Name ↑	Description	Type	Group
fac			
Declaration Facility	Maintains various type of Declaration for a Facility	Custom	Others
Facility	List of Facilities using Radioactive Materials/devices	Business	Inventory
Facility Status	Used to specify the current status of the Facility	Business	Inventory
Manufacturer	Maintains details of Manufacturers of different Sources/Equipments/Generators	Business	Inventory

On the edit entity screen, you will see a submenu on the left where you can edit/view the Linked Forms, Attributes, Linked Entities and Consistency Checks regarding this entity. Depending on your selection, the middle part will change. If the entity has the "Enable RAN" checkbox checked, a "Configure RAN" button will appear at the top.

Facility

Configure RAN Cancel Save

Entity Detail

- ↳ Linked Forms
- ↳ Attributes
- ↳ Linked Entities
- ↳ Consistency Checks

Internal Name* Facility

Description* List of Facilities using Radioactive Materials/devices

Singular Label* Facility

Plural Label* Facilities

Group* Inventory

##EntityRecordQuery##* Facility_EntityRecordQuery

Entity Role* Inventory

Publish in Navigation* Inventory

Facilities and Departments

Enable WorkFlows

Enable RAN

RAN Type* Custom

Prevent Deletion Of Record

Prevent Modification Of Record

Enable History

Enable Document Attachments

Override Default Behavior

Then main entity editing screen is where the general information about the entity is configured such as name, plural name, where it is published in the navigation etc, can be configured. Also, if you design a custom Entity Record Query (see “Queries” further in the manual), you can assign it here in the Entity Record Query dropdown.

Attributes

Attributes are the fields of the Entity. An entity is always composed of 1 or more attributes.

Form this submenu, you can add new attributes or edit existing attributes of this entity.

Facility

Export Add New Attribute

Entity Detail

- ↳ Linked Forms
- ↳ Attributes
- ↳ Linked Entities
- ↳ Consistency Checks

Attribute	Data Type	Mandatory Inputs	Show In List View	Is Name
Address	Text	Recommended		
District	Lookup	Recommended	✓	
Email	Text	Recommended		
Email Address	Text	Recommended		
Facility Image	Image	Optional		

An attribute must have at least:

- An internal name (i.e. the name it is known by inside the system)
- A label (how it will be named on the form)
- A data type (what type of data it is, e.g. text, number, date, ...)
- Indication if it is mandatory, optional or recommended.



Internal Name *

Tooltip

Label *

Data Type *
Select

Mandatory Inputs *
Select

Unique Values Read Only

Searchable Show in list view

Cancel

Save

Depending on the datatype you choose, some more options may appear.

Most of the datatypes are self-explanatory, but some of them are worth looking at in detail:

Data Type *

Select

- Select
- Checkbox
- Date
- Image
- Lookup
- Lookup with Value
- Memo
- Multi lookup
- Multiple documents
- Multiple Users
- Numeric
- Single document
- Text
- Time Interval
- User

- Lookup → allow you to make a link to another entity. This will be rendered on forms as a dropdown with the possibility of selecting only one item. E.g. a Department entity has a lookup to a Facility entity. This means that a department can be linked to one facility.
- Lookup with Value → same as Lookup, but allows you to specify an additional value in the relationship. E.g. A Dose entity might have a lookup with value to the entity Dose Unit, so it can specify the Dose Unit and a numerical value at the same time (for example 0.2 mSv).
- Multi-Lookup → this is the same concept as Lookup, but with the difference that the rendered control will be a “multiple selection” control. E.g. a Facility may have multiple practices, so there will be a Multi-Lookup attribute on Facility linking to the Practice entity.

RAN

One special type of attribute is the RAN (Regulatory Authority Number). Every entity in the “business domain” of a regulatory body (such as Facility, Department, Authorization, Inspection, ...) should have a RAN. It is in most cases a structured number allowing the identification of an entity record. RANs should be unique for an entity (i.e. no two facilities should have the same RAN). Sometimes the RAN can easily be derived from already existing unique identifiers from the country infrastructure (e.g. a National Registry Number for a Worker, or a Chamber of Commerce Number for a Facility), but often the Regulatory Body needs to have its own numbering system (e.g. an Authorization Number or an Inspection Number). Luckily, RAIS+ provides a mechanism that can automatically generate a unique RAN for these entities. This scheme can be configured by the “Configure RAN” link on the Entity Detail page.

The RAN can be configured to contain one or more prefixes, suffixes, and even include an entity field or system date in its scheme. These different RAN sections can be arranged at will with a chosen separator.

Configure RAN



RAN Format

RAN Parameters

Prefix

Sequence

Length *

Current Sequence *

 ^ v

Offset *

 ↻

Suffix

Separator

+ Add Prefix + Add Suffix + Add Data Attribute

Cancel

Save

Linked Forms

Linked forms is the section where you configure the form (how an entity looks like on screen). All entities have a “Default Form”. Some entities also have a “Summary Form”, or you can choose to add a Summary Form to an entity. This is achieved by the “Add New Summary Form” button at the top.

Click on a form to open the editor.

In the form designer you will see the list of attributes on the left and the form itself on the right. Attributes in black are not yet placed on the form and can be placed by drag and drop. Attributes in grey are already placed on the form. You can add new attributes from here (by clicking on the “Add New” button next to Attributes) or from the Attributes submenu (see “Attributes”).

Forms can be divided into sections. You can add a new section with the “Add section” button at the top. A section can contain up to 3 columns. Sections can be rearranged with the up and down arrows. Each column has some properties that are customizable by clicking on the “Properties” link of the respective column.

Attributes you drag onto the form will automatically be displayed in the adequate control (e.g. free text fields for textual attributes, a checkbox for boolean attributes, a dropdown for lookup attributes, etc). Some controls can have additional properties. You can view/edit these properties by clicking on the “Properties” link next to the control.

Controls can be rearranged on the form by means of drag and drop.

The screenshot shows the 'Facility' form designer interface. At the top, there are buttons for 'Cancel', 'Save', and 'Save And Continue'. Below these, the 'Form Title' is set to 'Default Form', and there is an 'Add Section' button. On the left, a list of attributes is shown, including Address, District, Email, Email Address, Facility Image, Facility Name, Facility Status, Fax, Legal Person, Phone, Practices, Region, Regulatory Authority Number, and 'This Facility is a Service Provider'. The main area displays a form with a 'Section Title' field. Below this, there are two columns of controls. The left column contains 'Regulatory Authority Number' (text field), 'Facility Name' (text field), 'Facility Status' (dropdown menu), and 'Legal Person' (lookup field). The right column contains 'Facility Image' (image upload control). Each control has a 'Properties' link next to it. The 'Facility Image' control has a detailed properties panel showing allowed types (png, jpg, jpeg, PNG) and a maximum file size of 4000 KB.

Linked Entities

On the linked entities submenu, you will see a list of all other entities that are in some way related to the current entity. Should you wish to show a link to a particular related entity while browsing working with records of the current entity, you can enable this by checking the “Show as Child” checkbox and click “Save”

Facility

Save

Entity Detail

↳ Linked Forms

↳ Attributes

↳ Linked Entities

↳ Consistency Checks

Entity Name	Description	Show As Child
Permanent Transfer Authorization Follow...	Process to notify the Regulatory Body w...	<input type="checkbox"/>
Temporary Transfer Authorization Follow...	Process to notify the Regulatory Body w...	<input type="checkbox"/>
Simple Transfer Authorization	Process to acquire Authorization for tran...	<input type="checkbox"/>
Simple Transport Authorization	Process to acquire Authorization for tran...	<input type="checkbox"/>
Simple Transport Authorization	Process to acquire Authorization for tran...	<input type="checkbox"/>
Transfer Authorization	Process to acquire Authorization for tran...	<input type="checkbox"/>
Transport Authorization	Process to acquire Authorization for tran...	<input type="checkbox"/>
Transport Authorization	Process to acquire Authorization for tran...	<input type="checkbox"/>
Worker	List of Workers who belong to different F...	<input type="checkbox"/>
Worker History	Maintains details about the history/statu...	<input checked="" type="checkbox"/>

Consistency Checks

Consistency checks allow you to build some logic for validating data when entering records of the current entity. You can add new consistency checks, or edit existing ones.

Consistency checks are “coded” by the help of consistency check queries (which are covered in the “Queries” section of this manual).

For example for Facilities, there is a default consistency check that checks for duplicates (based on the name) whenever a new facility is recorded in the system.

Facility Name *	Facility name duplicate check
Description *	Facility name duplicate check
Sequence *	1
Language *	English (USA) ▼
Warning Message *	Duplicate name not allowed
Query *	Facility Name Duplicate Check ▼
Applicable To *	New Records ▼

Cancel

Delete

Save

Workflows

Workflows play an important role in RAIS+, and are actually one of the major additions in comparison to the previous RAIS 3.x version. They allow to implement the actual regulatory processes as workflow steps, with potentially different actors interacting with the process at different stages (steps) of the process.

RAIS+ comes with a powerful visual designer to design the processes.

The system comes predefined with the common regulatory processes already preconfigured, either a simple or complex implementation (depending on the “Process Type” selection in “Application Settings”). You can choose to edit the existing processes, or to create completely new ones.

Note: the terms “process” and “workflow” are used interchangeably throughout this manual. They represent the same concept.

Let’s take a look at the “Simple Use Authorization” process as an example

Cancel Unpublish Publish Save Export

Designer Properties

Controls

- Add Source History Exported Activity
- Add Source History Imported Activity
- Add Source History Returned Activity
- Add Source History Transferred Activity
- Cancel Dependent Activity
- Child Workflow Activity
- Data Form Activity
- End Activity
- Generate Document Activity
- If Branch Activity
- Invalidate Entity Record
- Notification Activity
- Parallel Branch Activity
- Parallel Branch Merge Activity
- Schedule Reminder Notification
- Start Activity
- Status Update Activity
- Update Secondary RAN Activity
- Validate Entity Record

In the middle part of the screen you see the designer surface. There you can see the actual process how it is currently designed (you can use the “+” and “-” in the top right corner to zoom in and out). You can see that the various steps are connected by arrows. Depending on the activity type of a step, the visual representation will have a different shape and colour.

On the left hand side, there are two tabs: Designer and Properties.

In the “Designer” tab, there is a list of all the possible activity types. You can drag and drop activity types onto the designer surface. Steps can be connected to each other by clicking on a step and holding down the left mouse button. This will create a connector which you can then drag to the step you want to connect to, and release the mouse button there. Clicking on the little cross (X) of a connector allows you to delete that connection.

The “Properties” tab contains general information about the process such as its name, the Entity it is connected to, where it is published in the navigation, how it is triggered and some additional properties. You can also indicate if you want this process to be part of the Simple or Complex workflow package. This “Properties” tab is also the first tab you will need to fill in if you create a totally new workflow definition, before you are taken to the designer view.

Designer
Properties
Configure RAN
Cancel
Save

Workflow Details

- ↳ Linked Forms
- ↳ Attributes
- ↳ Consistency Checks

Workflow Name *
Simple Use Authorization

Internal Name *
WFShortUseAuthorization

Description *
Process to acquire Authorization for using Equipment(s) / Generator(s) / Source(s) in a Facility.

Version - 21

Initiation Source

Initiated Manually

Triggered by another process

Group *
Authorizations

Select Entity *
Facility

Publish in Navigation
Regulatory Processes

Submenu
Authorizations

##EntityRecordQuery## *
SimpleUseAuthorization_GridView

Enable Workflows

Enable Document Attachments

Allow Amendment

Allow Renewal

Allow Withdrawal

Override Default Behavior

Process Type

Simple

Complex

Note: before editing an existing workflow definition, it has to be in the “Unpublished” state. You can do so by clicking on the “Unpublish” button at the top. Before a process is useable by end users of your system, it has to be published by the means of the “Publish” button.

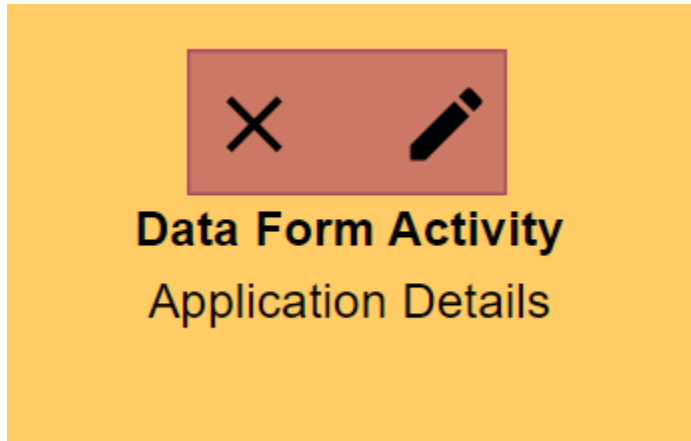
Below is a list of the different supported activity types:

Activity Type	Description
Start Activity	This is the entry point for the entire workflow. Every workflow should have one Start Activity
End Activity	This is the exit point for the workflow. Every workflow should have one End Activity
Data Form Activity	This allows the end user to enter data into a form and submit it. Permissions can be configured so to restrict which user-role can edit or view the data of the form.
Status Update Activity	This allows to set the status of a workflow to a predefined value (e.g. draft, in process, approved, ...)
If Branch Activity	Is used to “split” the path of the workflow based on conditions of the data entered in a previous step. Depending on the outcome of the condition evaluation, either the “yes” path or the “no” path will be followed

Notification Activity	Allows notifying a specific user, specific role, specific email address or the assignee of the current process step with a message (dashboard or email) about the progress of the workflow.
Generate Document Activity	Allows the generation of documents according to a specific template (e.g. an authorization certificate)
Parallel Branch Activity	Is used to start a new parallel path. The steps in the parallel paths will be executed independently from each other until they are merged together with a Parallel Branch Merge Activity
Parallel Branch Merge Activity	Used to merge the paths started by a Parallel Branch Activity back together. This activity will wait until all steps in the connected Parallel Branches are completed before continuing to the next step of the workflow
Child Workflow Activity	Is used to start a child workflow, which contains its own logic. Each workflow definition marked as ‘Triggered by another process’ can be reused as a child workflow for another workflow. This avoids having to duplicate the same steps again for recurring related tasks. E.g., a Payment Process could be triggered at some point during a Use Authorization Process, but also for the other authorization process types like Transport Authorization Process. The same Payment Process definition can be reused if it is configured as a child process.
Cancel Dependent Activity	Is used to cancel any running child processes should the main process be cancelled
Validate Entity Record	If the process is updating a record that needs to be validated, this activity type will automatically validate the record
Invalidate Entity Record	If the process is updating a record that needs to be validated, this activity type will automatically invalidate the record
Update Secondary RAN Activity	Will update a chosen “secondary RAN” of the workflow. This can be any attribute of type “Text”
Schedule Reminder Notification	This step is used to define a notification reminder according to a certain date (typically expiration date) and using a specific template
Add Source History Exported Activity	Will add a history record with source status “Exported” to the target source
Add Source History Imported Activity	Will add a history record with source status “Imported” to the target source
Add Source History Returned Activity	Will add a history record with source status “Returned” to the target source

Add Source History Transferred Activity	Will add a history record with source status “Transferred” to the target source
---	---

When you hover the mouse over an activity step on the designer surface, a edit and delete icon will appear.



Clicking on the edit icon will open a new dialog where you can configure the properties of the step, similar as to when the step was first dragged onto the designer surface.

Queries

The inner workings of RAIS+ rely heavily on SQL Server queries for many concepts (lists, reports, filters, consistency checks, etc). This was also the case in the previous RAIS 3.x version. The difference is that in RAIS+ there is now a visual query designer available. This will allow RAIS+ administrators who are not very familiar with the SQL language to still be able to build useful and powerful queries to integrate in different parts of the system.

When you open the query menu, you are presented with a list of existing queries, along with its query type and an indication if it is compiled or not. Only compiled queries can be used elsewhere in the system.

Clicking on an existing query will take you to its definition. If you want to create a new query, you can do so by clicking on the “Add New Query” button.

Sr. No.	Query Name	Query Type	Query Status
1	Equipment Manufacturing - Unsealed Sources	Summary View List	Compiled
2	Report - Active Facility by Practice	Report	Compiled
3	Report - Short Regulatory Notification	Report	Compiled
4	Accreditate	Entry Filter	Compiled

Queries can be of the following types:

Query Type	Description
------------	-------------

Consistency Check	Used to define the logic of a specific consistency check when creating or updating an entity record (see “Entities”)
Data Role Restriction	Used to restrict a certain Data Role to only view records filtered by the logic of this query (see “Data Roles”)
Entity Record Query	This is the query that represents the columns you wish to show when opening a list of records for an entity
Entry Filter	Provides a mechanism for filtering attributes of type “Lookup” for a given entity
Preselection Filter	Is used to define dependent lookups that allow the filtering of records displayed in Reports and Statistics
Report	A query that allows the generation of a report in the Reports section of the system
Specific Report	A query used by the Specific Reports mechanism, i.e. reports that cannot be reproduced by the standard reporting mechanism
Statistics	A query that allows the generation of a statistical report in the Statistics section of the system
Summary List View	Allows the display of custom additional data in a list form when the user browses the details of an entity record
Other	

The powerful query designer is split into 3 parts:

- A) On the left you have the list of entities and views that are currently in your system
- B) On the right you have the actual graphical designer. You can drag and drop items from the left to the designer, connect them (i.e. establish relationships) and adjust some properties like naming, filtering, ordering, ... on the bottom part of the designer
- C) At the very bottom you have the actual SQL query that is generated “on-the-fly” as you make modifications with the designer.

Query Parameters Query Result Cancel Delete Compile Save

Query Name: Report - Facility - Last Inspection Query Type: Report

A

Database Explorer showing a tree view of the database structure.

B

Visual query designer showing two tables: WFinpection1 and Facility (views.Facility). Columns are being selected for each table.

Visible	Expression	Column Name	Sort Type	Sort Order	Aggregate	Grouping	Criteria	Or	Or
<input checked="" type="checkbox"/>	WFinpection1 [Inspection RAN]		Ascending	1		<input type="checkbox"/>			
<input checked="" type="checkbox"/>	Facility.Name	Facility	Ascending	2		<input type="checkbox"/>			
<input checked="" type="checkbox"/>	WFinpection1 Dep...					<input type="checkbox"/>			
<input checked="" type="checkbox"/>	WFinpection1 Status					<input type="checkbox"/>			
<input checked="" type="checkbox"/>	WFinpection1 [Inspection RAN]					<input type="checkbox"/>			
<input checked="" type="checkbox"/>	WFinpection1 [Sou...					<input type="checkbox"/>			

C

```

Select WFinpection1.[Inspection RAN],
Facility.Name As Facility,
WFinpection1.Department,
WFinpection1.Status,
WFinpection1.[Inspection Scope],
WFinpection1.[Sources and Equipment],
(internal.ConvertDateToAppSettingsDateFormat(WFinpection1.[Last Inspection date])) As [Last Inspection Date],
(internal.ConvertDateToAppSettingsDateFormat(WFinpection1.[Next Inspection date])) As [Next Inspection Date],
WFinpection1.[Non Compliances]
From (Select Distinct WFinpection.RAN As [Inspection RAN],
WFinpection.RecordId,
WFinpection.Status,
IsNull(WFinpection.Department, '') As Department,
Concat(WFinpection.ScopeOfInspection, ' '),
WFinpection.ScopeOfExternalInspection) As [Inspection Scope],
Concat(WFinpection.SealedSources, ' ', WFinpection.UnsealedSources, ' ',
WFinpection.RadiationGenerators, ' ', WFinpection.AssociatedEquipments)
As [Sources and Equipment],
Concat(Convert(nvarchar(20),WFinpection.IntInspectionDate,101),
' ', Convert(NVARCHAR(20),WFinpection.ExtInspectionDate,101)) As
[Last Inspection date],
Row Number() Over (Partition By WFinpection.RecordId Order By
WFinpection.IntInspectionDate Desc) As rowINSP,

```

If you make modifications to the textual representation of the query, you can click the little refresh icon that appears in the bottom right corner to automatically update the graphical designer accordingly.



Important: before a query can be used in the system, it needs to be compiled. This can be done by clicking the “Compile” button at the top. If the compile button is not visible, you might have to save your query first with the “Save” button.

Queries can have parameters. They are prefixed with a @-sign.

<input checked="" type="checkbox"/>	<input type="checkbox"/>	Facility.ValidationSta...
<input checked="" type="checkbox"/>	<input type="checkbox"/>	@FacilityId
<input checked="" type="checkbox"/>	<input type="checkbox"/>	WFinpection1.rowl...

When you add parameters to your query and save it, a new tab “Parameters” will appear at the top of the query designer. You need to configure each parameter appropriately.

Reports

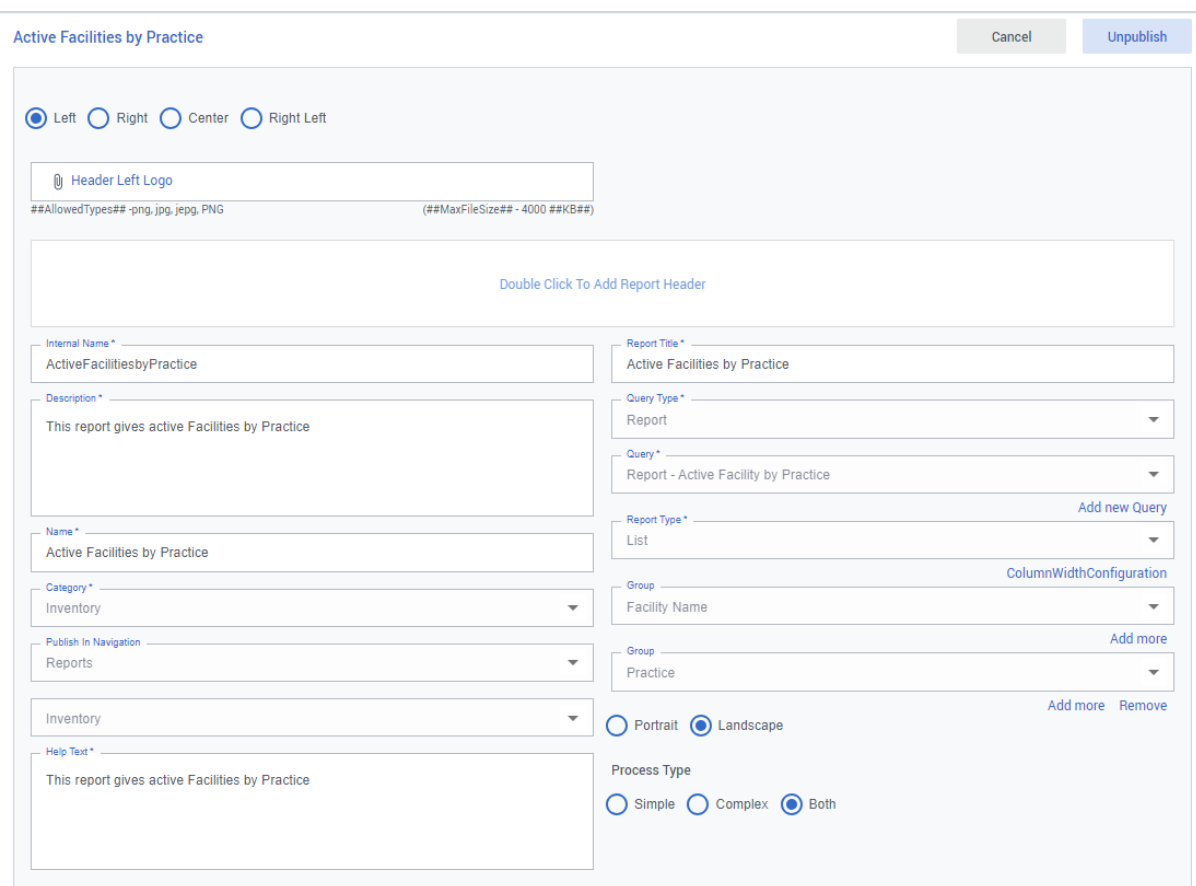
Reports play an important role in the RAIS+ system as they allow the user to view the information that was imported into RAIS+ in forms of lists, bars or pie charts.

Reports rely heavily on the queries, so having a good understanding of the “Queries” section is a prerequisite to be able to edit or add reports.

Note: before editing an existing report, you should “Unpublish” it by using the unpublish button in the top right corner:



The report configuration form allows you to make all the necessary changes to configure the report to your liking:

The image shows a screenshot of a report configuration form titled "Active Facilities by Practice". At the top right, there are "Cancel" and "Unpublish" buttons. Below the title, there are four radio buttons for layout: "Left" (selected), "Right", "Center", and "Right Left". A "Header Left Logo" field is present with a file upload icon and a note: "##AllowedTypes## -png, jpg, jpeg, PNG (##MaxFileSize## - 4000 ##KB##)". Below this is a large empty box with the text "Double Click To Add Report Header". The form is divided into two columns of fields. The left column includes: "Internal Name*" (ActiveFacilitiesbyPractice), "Description*" (This report gives active Facilities by Practice), "Name*" (Active Facilities by Practice), "Category*" (Inventory), "Publish In Navigation" (Reports), "Inventory", and "Help Text*" (This report gives active Facilities by Practice). The right column includes: "Report Title*" (Active Facilities by Practice), "Query Type*" (Report), "Query*" (Report - Active Facility by Practice), "Report Type*" (List), "Group" (Facility Name), "Group" (Practice), "Process Type" (Simple, Complex, Both - Both is selected), and "Landscape" (selected) radio button. There are also links for "Add new Query", "ColumnWidthConfiguration", "Add more", and "Remove".

Specific Reports

The default document template designer is in most cases enough for relatively simple reports or documents, but it has its limitations. Therefore, there is a mechanism that allows you to design much

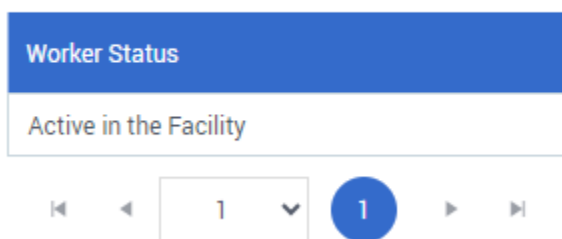
more complex document templates to be used in reports or for generated documents by workflows. This is achieved with the help of the Telerik Report Designer

Evaluators

Evaluators are used as an auxiliary system for queries. They provide the possibility to change some of the filtering conditions of certain queries, without having to change and recompile the query itself.

As an example, let's take a look at the default "Evaluator Active Worker" evaluator. If we go to "Regulatory System" settings and open the "Evaluator Active Worker" evaluator, we can see it has one associated status:

Evaluator Active Worker



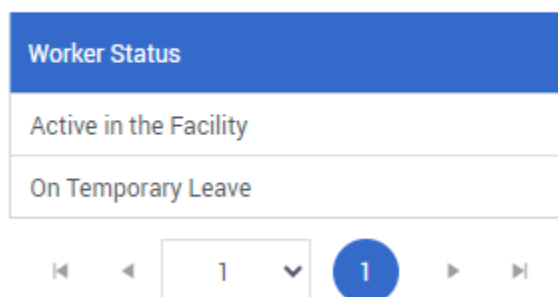
Worker Status
Active in the Facility

Navigation: << < [1 v] > >> (Selected: 1)

This evaluator is used in the report query "Report - Facility - Worker Current" to filter the results only on workers that currently have this status.

If, for some reason, we decide that workers with status "On Temporary Leave" should also be reflected in this report, we can simply add the record "On Temporary Leave" to the "Evaluator Active Worker" evaluator:

Evaluator Active Worker



Worker Status
Active in the Facility
On Temporary Leave

Navigation: << < [1 v] > >> (Selected: 1)

Now, without changing the query or the report itself, all workers having one of these two latest statuses, will be reflected in the result of the report.

You can add a new Evaluator by going into Administration / Customization Power Tools / Evaluators, click on "Add New Evaluator", give it a name and a label and select on which entity the evaluator should apply. If we open the evaluator definition for our example, we see it applies on the Worker Status entity.

Internal Name*

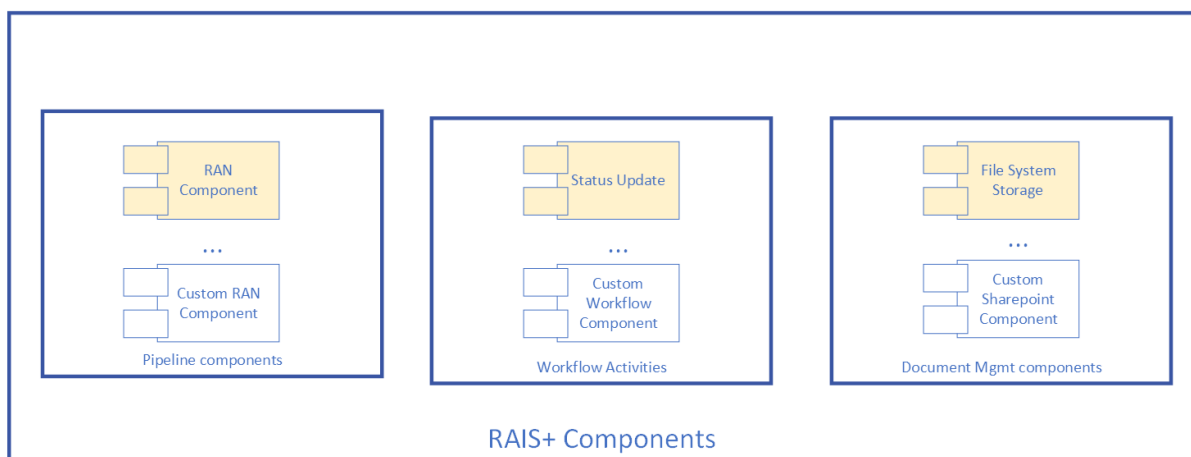
Singular Label*

Lookup Entities

Custom Components

RAIS supports the creation of custom components by Member States and external parties that can encapsulate some unique business scenarios or requirements. The custom components are based on core RAIS+ component types:

- Pipeline components
- Workflow activities
- Document management component



Custom Pipeline components

A pipeline component is injected into RAIS message processing pipeline and can be registered to be invoked whenever a specific type of message is received for a specific entity. For example, a custom RAN generation component can be created by a Member State that contains some complex business logic that cannot be accommodated using the OOTB RAN patterns. This custom RAN is supposed to be assigned to newly created Facility records. Since a RAN is supposed to be generated whenever a new record is created, this component should be registered to be invoked in the RAIS message processing pipeline as follows –

- Registered for the Facility entity
- Registered to be invoked in the pre-execution stage of the Messaging Framework

Developing custom pipeline components

Definition

Custom pipeline components are created as follows –

- Custom pipeline components should be created in a new class library project that either targets .NET Core or .NET Standard. The project should have a reference to IAEA.RAIS.Customization assembly.
- Create a new class that inherits from BasePipelineComponent.
- Override the code in the Execute method with custom logic.

Accessing execution context

The Execute method contains an input parameter of type PipelineExecutionContext. The pipeline execution context parameter can be used by custom components to access the following information –

- UserId – The current logged in user's Id
- Stage – The stage in the message processing pipeline the component is invoked from. For example, Pre-execution.
- Order – The order in which the component is invoked. This value is stage specific. For example, the first component invoked in the Pre-execution stage has Order = 1. The first component invoked in the Post-execution stage also has Order = 1.
- EntityMetadata – Metadata information about the entity the component is invoked for. This property can be used to inspect the following details about the entity –
 - The entity Id
 - The Internal name of the entity
 - Whether RAN is enabled on the entity or not
 - The RAN format (applicable only if RAN is enabled)

Accessing / modifying values assigned to entity attributes

The Execute method contains an input parameter of type IRequestMessage. This input parameter represents the request message that was received as input by the message processing pipeline. Note: The request message that is available to your custom pipeline component may not be the original message sent by a client application because it could have passed thru other pipeline components, which could have altered it.

IRequestMessage exposes a property named Attributes which is a dictionary of dynamic objects. The key in the dictionary is the internal name of the attributes. Note: It is important not to always assume the presence of an attribute in the dictionary even if the attribute is present in the entity definition. This is because the client application that could have triggered the execution of the message may not have provided some attributes in the request message.

Registering custom pipeline components

To register the custom pipeline component, carry out the following steps –

The assembly containing the pipeline component must be added to the PipelineComponents folder.

```
Select * FROM [internal].[Component] where [Type] = 'GP'
```

Description	AssemblyFileName	AssemblyName	ClassName	IsCustom	Type	ActivityType	Active	C
Use to perform consistency check on entity records.	IAEA.RAIS.PipelineComponents.dll	IAEA.RAIS.PipelineComponents.dll	IAEA.RAIS.PipelineComponents.ConsistencyCheckEval...	0	GP	NULL	1	:
Update Event Duration and State For Long Running ...	IAEA.RAIS.PipelineComponents.dll	IAEA.RAIS.PipelineComponents.dll	IAEA.RAIS.PipelineComponents.UpdateLongRunningQu...	0	GP	System	1	:
Used to set data role id in database session context.	IAEA.RAIS.PipelineComponents.dll	IAEA.RAIS.PipelineComponents.dll	IAEA.RAIS.PipelineComponents.SetDataRoleContextPip...	0	GP	NULL	1	:
Used to set field level security	IAEA.RAIS.PipelineComponents.dll	IAEA.RAIS.PipelineComponents.dll	IAEA.RAIS.PipelineComponents.MaskAttributesPipelineC...	0	GP	NULL	1	:

An entry for the assembly must be present in the internal.Component table. The Type should be GP and IsCustom should be true.

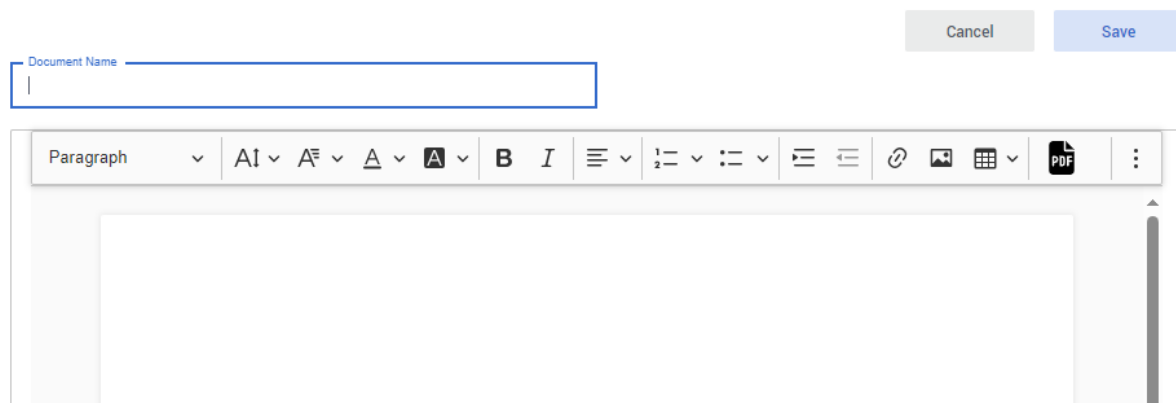
Templates

Document Templates

Document templates are used in conjunction with the document generation mechanism of the Workflows (Generate Document Activity).

The document template designer allows you to edit existing templates, or add new ones.

[Add New Document Template](#)



It provides you with a Rich Text Editor you can use to design your template. Any text that should be populated by data coming from the system should be inserted as a placeholder by delimiting the word with **##**. For example, to insert a placeholder for facility name, you could add following placeholder:

##FacilityName##

This placeholder will then show up in the parameter binding details of the Generate Document Activity step in the workflow designer if you select this template.

The easiest way to learn about how templates are used and edited, is to look at some of the existing ones.

Email Templates

Email templates work in a very similar way as the Document Templates, but instead they will be used by the Notification Activity of a workflow step, when you define the notification type to be "Email".

The same logic for placeholders applies.

Dashboard Templates

Similarly, the Dashboard Templates work exactly the same way as the Email Templates, except that they are used for Notification Activities of type "Dashboard".

System Language and Translations

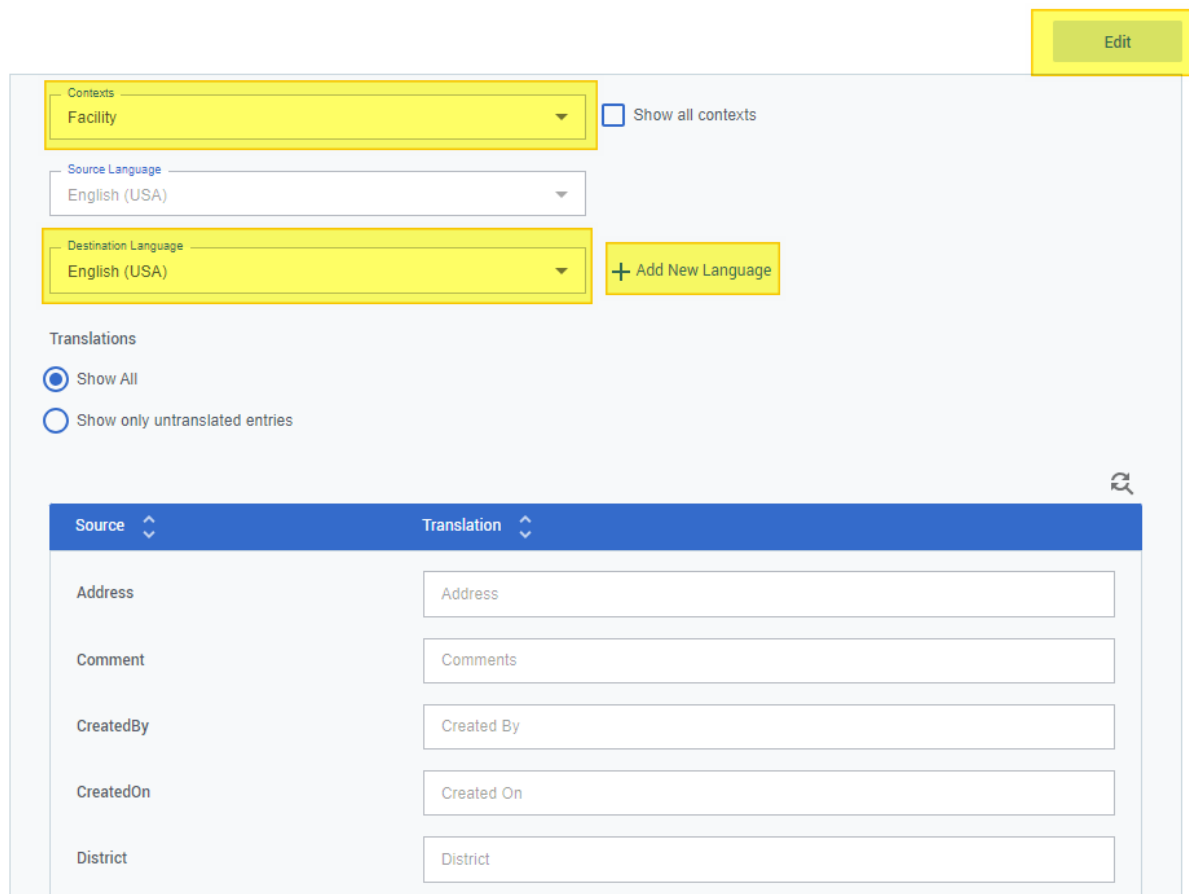
By default the system is available into a few default languages, which can be selected from the “Application Settings” menu.

If some labels don’t suite your countries’ requirements, you can adjust them with the feature System Language and Translation.

Select the context where the label you want to change is located, select the destination language, click the Edit button, edit the labels as you desire, and click the Save button.

If you want to translate the system in a completely new language that doesn’t come with RAIS+ by default, you can use the button “Add New Language”, and start translating from there.

Language Translations



The screenshot displays the 'Language Translations' configuration page. At the top right, there is an 'Edit' button. The main configuration area includes a 'Contexts' dropdown menu set to 'Facility', a 'Show all contexts' checkbox, a 'Source Language' dropdown set to 'English (USA)', and a 'Destination Language' dropdown set to 'English (USA)'. An '+ Add New Language' button is located next to the destination language dropdown. Below these settings, there are radio buttons for 'Translations': 'Show All' (selected) and 'Show only untranslated entries'. The bottom section features a table with two columns: 'Source' and 'Translation'. The table lists several labels and their corresponding translations.

Source	Translation
Address	Address
Comment	Comments
CreatedBy	Created By
CreatedOn	Created On
District	District