

## DATABASE FRAMEWORK FOR DATA STORAGE AND INTEGRATED CUSTOMIZED PROCESSES

# RADBASE

### APPLICATIONS AND SCENARIOS

The **RadBASE** is a component of the **DigiWaste** platform.

The **RadBASE** is designed to store the data coming from the **RadHAND 600 PRO**, from the **RadREAD** e from other data source well integrated in the framework.

The **RadBASE** is the database of the **DigiWaste** platform and can store the data coming from the in-field instruments which can be employed in the following scenarios:

#### Waste Digitization

- UHF RFID tagging of the measured items and storage of most sensitive data in RFID tag
- Full description of measured items and transmission of data to remote database

#### Waste Storage

- Survey and tracking of waste until final disposal

#### Radioprotection patrols

#### Nuclear transportation

- Measurement and tracking of medical and industrial radioactive items from production site to end user

#### Large Surface Measurement

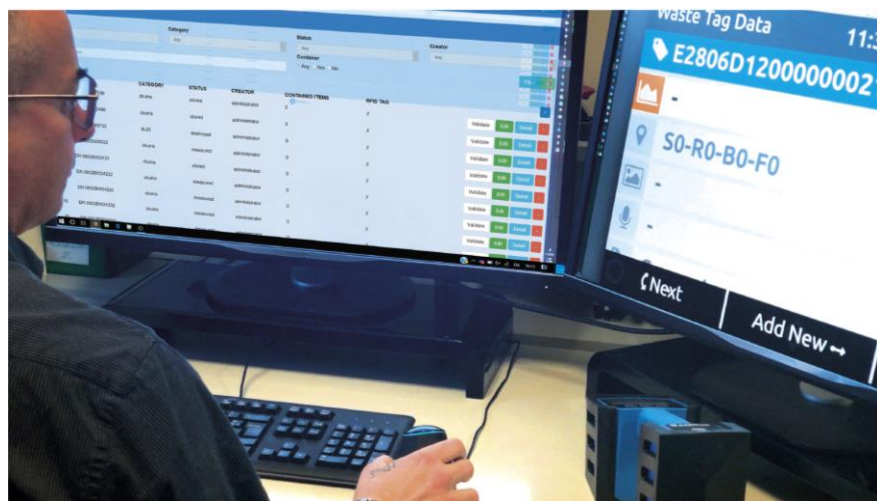
- Characterization of large surfaces and deployment of RFID tags according to user defined surface meshing

### INTRODUCTION

The CAEN Sys **DigiWaste** Platform is the first fully comprehensive solution which provides seamless digitization of D&D activities. The system offers easy tracking of any type of radioactive material or object produced via D&D operations thanks to the use of specialized, radiation tolerant UHF RFID tags.

The data included in these RFID tags is integrated into a central database, where all relevant information associated with the D&D cycle is securely stored and easily accessed by authorized personnel.

All the information produced in subsequent D&D activities can be uploaded, collected and processed by the customizable database framework, **RadBASE**.



**RadBASE** is a data management framework designed to support the development, tracking and integration of information critical to D&D and waste management activities.

Our secure web service employs high level data encryption and a multi-layered user access strategy to ensure safe and secure network management. User-specific access levels determine the type of data an operator may retrieve. Network administrators are afforded complete control and access management for all integrated devices. Each device transmits live, real time information on instrument status, location, measured radioactivity levels and alarm status, task progression, and RFID tag inventory.

The devices may also receive, in real time, operator-specific instructions from network administrators and managers.

## DESCRIPTION

**RadBASE** is a very flexible framework for data storage and management. It can merge data produced by diverse sources and run user-defined analysis for the optimization of the operational processes:

- Operators ID
- Operators categories
- Item ID
- Item category
- Locations
- GPS and Indoor positioning (UWB)
- Dose Rates
- Identified Nuclides
- Item descriptions and attributes (e.g. matrix, chemicals, etc)
- Pictures
- Voice Notes
- Operational workflows and steps
- Tracking of items
- Item inventory
- Gamma Spectra
- Count Rates
- Hot Spot (Nuclide picture - position)

The **RadBASE** in the data framework synchronization center for the data flux coming from the D&D operation performed with the **DigiWaste** platform. The in-field instrument like **RadHAND 600 PRO** and **RadREAD** write and read the data from the **RadRFID** UHF tag. This data flux is traced and synchronized automatically between the instruments by passing through the **RadBASE** framework for data storage



The **RadBASE** is a customizable data framework. CAEN provides customization packages tailored on the end user application by defining categories, hierarchies, priorities and link between the parameter of the database.

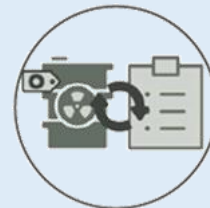
- Definition of Accounts
  - group with their hierarchy (admin, technician, inspector, user...)
  - Enable new user (admin 1, admin 2, technician...)
- Device management
  - Add new instrument model (RadHAND 600 PRO, RadREAD...)
  - Enable new instrument (RadHAND 600 PRO: SN-0001, SN-0002...)
- Location categorization for mapping:
  - Define location type and hierarchy (shelf, room, building, facility...)
  - Add and remove location (room 1, room 2, building A, building B...)
- Item management
  - Measure (data, spectra, location, user, date, hour...)

## MAIN FEATURES



### Data Access

Quick access to all information produced during the D&D activity cycle



### Automation

Automatic inventory of tagged waste containers and report generation



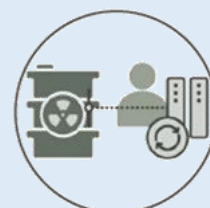
### Sorting

Waste sorting according to user defined criteria



### Categorization

Waste bagging, categorization and grouped-waste monitoring



### Synchronization

Continuous monitoring and update of waste data

- Spectra
- Define categories of the container and hierarchies
- Define categories of the material and hierarchies
- Define categories of the statuses and hierarchies
- ...

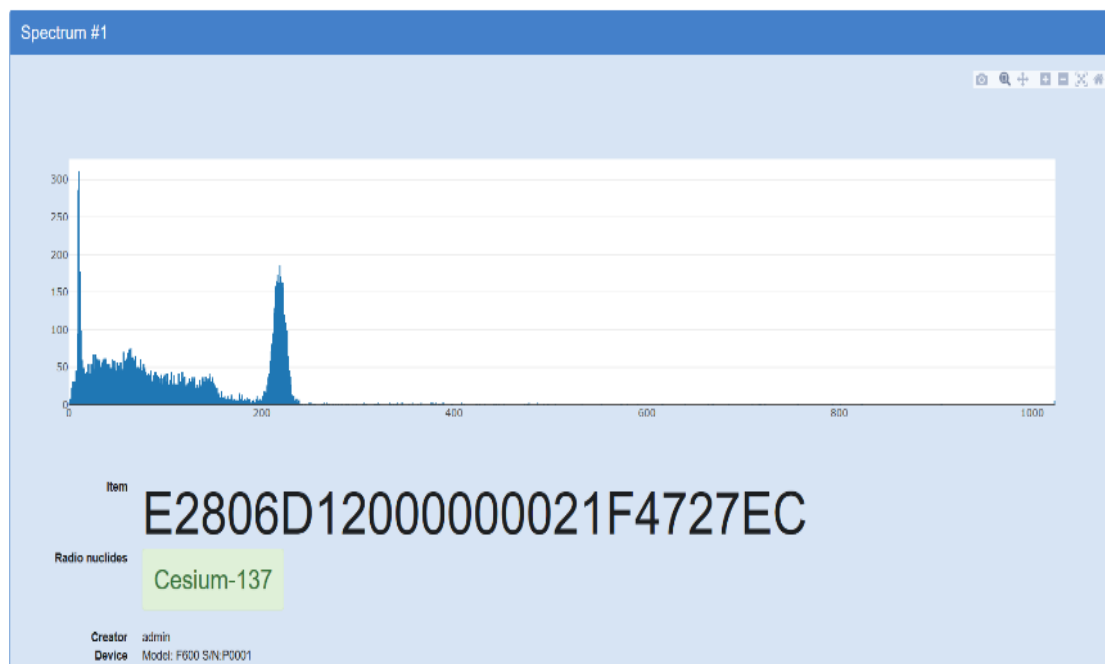
RadBASE Accounts - Items - Locations - Devices - Utils Profile Logout

List of items

Name: Any Category: Any Status: Any Creator: Any

RFID tag: Enter RFID tag epic Container: Any Yes No Filter All

ID	NAME	CATEGORY	STATUS	CREATOR	CONTAINED ITEMS	RFID TAG	
1	aaa	drums	created	admin	1	X	Validate Edit Detail
2	bbb	bags	created	admin	0	X	Validate Edit Detail
3	ccc	boxes	created	technician	0	X	Validate Edit Detail
4	ddd	B-25	created	technician	0	X	Validate Edit Detail
5	eee	drums	measured	admin	0	X	Validate Edit Detail
6	fff	bags	measured	admin	0	X	Validate Edit Detail
7	ggg	boxes	measured	technician	0	X	Validate Edit Detail
8	hhh	B-25	measured	technician	0	X	Validate Edit Detail



Once the **RadBASE** framework is defined, the in-field instrument imports the settings with a synchronization procedure. The updated instruments allow the users to follow the layout defined by the administrator in the **RadBASE** framework. All the information produced in the D&D activities are automatically uploaded, collected and processed by the customizable database framework, **RadBASE**.

## OPTIONS AVAILABLE

There are different license packaging depending on the end user needs:

- RadBASE Lite licenses (1 User)
- RadBASE Silver (5 Users)
- RadBASE Gold (15 Users)
- RadBASE Platinum (30 Users)
- RadBASE Custom (>30 Users)

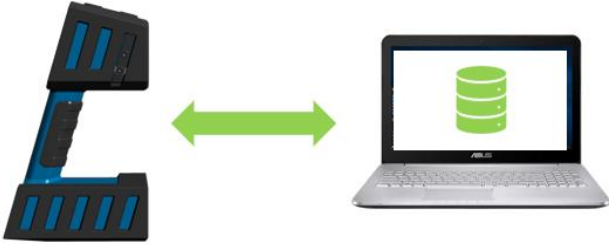
Each user licenses should be defined in terms of user hierarchy (admin, technician, inspector, user...).

## NETWORKING CONFIGURATION

The RadBASE networking is available in two different configurations:

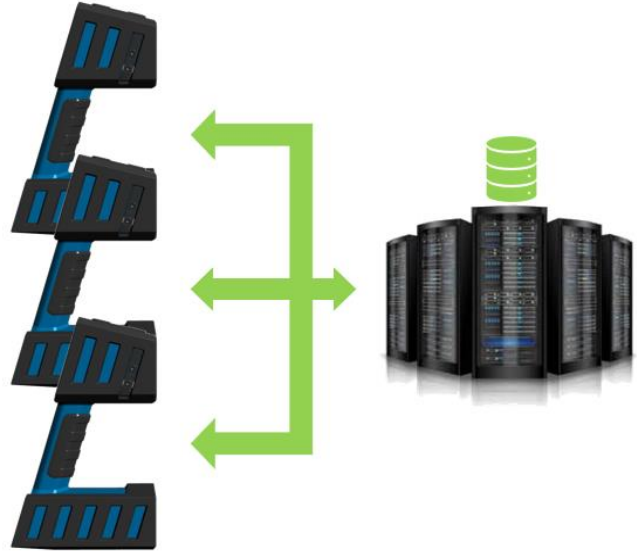
### Single handheld configuration

- This configuration is suggested for single user experience that are equipped with 1 **RadHAND 600 PRO** and need a personal database to store their measurement and extra information.



### Multi handheld configuration

- This configuration is suggested for companies with many operators and many in-field devices. With this configuration all the instruments are synchronized with the central server and all the enabled user can update the data on the **RadBASE**.



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