

First yearly release of AW-Drones Repository

D6.2

AW-Drones

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Authors of the document

Name/Beneficiary	Position/Title	Date
Stratos Arampatzis / Ortelio	Contributor/Project manager	29/06/2020

Reviewers internal to the project

Name/Beneficiary	Position/Title	Date
Damiano Taurino / Deep Blue	Project Coordinator	

Rejected By - Representatives of beneficiaries involved in the project

Name/Beneficiary	Position/Title	Date
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AW-Drones

CONTRIBUTING TO A WELL-REASONED SET OF AIRWORTHINESS STANDARDS FOR MASS-MARKET DRONES

Abstract

This document presents the first version of the AW-Drones open repository. The AW-Drones open repository is an online platform where users will be able to easily identify relevant information from the AW-Drones database of standards and regulations. Since the nature of this report is “Websites, patents filling, etc.”, this document presents some basic screenshots of the platform and it presents an initial URL that is being used for feedback from EASA and INEA. The next steps are:

- to populate the AW-Drones repository with the content,
- to receive feedback from EASA and INEA before making the AW-Drones url publicly available,
- to continuously extend the functionalities of the repository.



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Executive Summary

This document presents the first version of the AW-Drones open repository. The AW-Drones open repository (first version available here: <http://drones.ortelio.co.uk>) is an online platform that will provide a single point of access to relevant information about:

- rules, procedures and technical standards developed for civilian drones;
- best practices, gaps and bottlenecks;
- technical standard for each category of drone operations;

This is a temporary URL and it is mainly used to receive a first feedback from EASA and INEA. After EASA's and INEA's approval, we will move the repository to a URL under the AW-Drones website.

1 Introduction

1.1 Purpose and Scope of this document

The purpose of this document is to briefly present the the AW-Drones open repository that is developed in AW-Drones project and acts as the synthesis for the whole project. According to the Grant Agreement, the nature of this report is “Websites, patents filling, etc.”. The URL of this first version of the AW-Drones repository is available here: <http://drones.ortelio.co.uk>.

1.2 Deliverable Structure

This document is divided in two different sections.

Section 1 defines the main scope and objectives of this deliverable, Section 2 provides some screenshots of the AW-Drones repository and Section 3 summarizes future work.

1.3 List of Acronyms

AEH	Airborne Electric Hardware
ANSP	Air Navigation Service Provider
ATM	Air Traffic Management
ATS	Air Traffic Services
C2	Command and Control
CA	Consortium Agreement
DoA	Description of Action
EASA	European Aviation Safety Agency
EC	European Commission
GA	Grant Agreement
HMI	Human Machine Interface





IFR	Instrument Flight Rules
RPAS	Remotely Piloted Aircraft Systems
RPS	Remote Pilot Station
UI	User Interface
UAS	Unmanned Aircraft System
URL	Uniform Resource Locator
UTM	UAS Traffic Management
VLL	Very Low Level
WP	Work Package



2 The AW-Drones repository

2.1 Purpose of the platform

The AW-Drones open repository (first non-public version is available here: <http://drones.ortelio.co.uk>) is an online platform that provides single point of access to relevant information about:

- rules, procedures and technical standards developed for civilian drones;
- best practices, gaps and bottlenecks;
- technical standards for each category of drone operations;

The main objective is to support the European Aviation Safety Agency (EASA) and the European Commission (EC) in their rulemaking process for the definition of rules, technical standards and procedures for civilian drones. The mid-term aim of the open repository is to become a relevant **drone-focused informative tool** where experts can easily identify relevant information and contribute to the extension of the AW-Drones database.

From a technical point of view, an **online repository** is a web-based software application that brings together various data sources to make them available to stakeholders. It allows administrators to publish data to a web portal in order to make it available to the target audience. An **open repository** is a digital platform that provides free, immediate and permanent access to data for anyone to use, download and distribute. To facilitate open access such repositories must be interoperable and search engines must be able to harvest the content of such repositories.

2.2 Functionalities

The screenshots presented below use mock-up data taken from WP4. The full list of requirements will be displayed to the AW-Drones open repository at the end of July 2020. Using the full list of requirements will help have a better understanding of the core functionalities of the platform.

2.2.1 Frontend

The homepage of the AW-Drones repository displays a list with the available standards:



[Home](#) [About](#) [Help](#)

Filters

Requirements ▾

Choose a domain

- General **5**
- Initial Airworthiness (at UAS level) **0**
- Continuing Airworthiness **0**
- UAS Operations **2**
- Aerodromes **0**
- U-Space/ATM **0**
- Environment **0**
- Personnel **0**
- Oversight **0**

STANDARDS **7**

Welcome to AW-Drones repository

This is the AW-Drones open repository of technical standards and "best practices".

Definitions (3)
Classification of drones (1)
Manuals (1)
Marking and Registration (1)

UAS Propulsion System Terminology

Organization: SAE E-39 Unmanned Aircraft Propulsion Committee

Document N°: AS####

Status: planned

READ MORE

New Standard Terminology for Unmanned Aircraft Systems

Organization: ASTM F38 Unmanned Aircraft Systems

Document N°: ASTM WK62416

Status: ongoing

READ MORE

Requirements for the categorization and classification of civil UAS

Organization: ISO TC20 / SC16 / WG1

Document N°: ISO 21895

Status: published

READ MORE

General requirements for UAS for civil and commercial applications, UAS terminology and classification

Organization: ISO TC20 / SC16 / WG1

Document N°: ISO 21384-1

Status: deleted

READ MORE

New Practice for General Operations Manual for Professional Operator of Light Unmanned Aircraft Systems (UAS)

Organization: ASTM F38 Unmanned Aircraft Systems

Document N°: ASTM WK62744

Status: ongoing

READ MORE

Small Unmanned Aerial Systems Serial Numbers

Organization: CTA R6 Portable Handled and In-Vehicle Electronics Committee WG 23 Unmanned Aerial Systems

Document N°: ANSI/CTA - 2063

Status: published

READ MORE

Unmanned aircraft systems -- Part 3: Operational procedures

Organization: ISO TC20 / SC16

Document N°: ISO 21384-3

Status: ongoing

READ MORE

7 results

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Figure 1. AW-Drones repository (Home page)



Users can filter via Requirements and Domain:

The screenshot shows the AW-Drones repository interface. On the left, a 'Filters' sidebar is active, showing a dropdown menu for 'OSO 01' and a list of domain checkboxes: 'General' (checked), 'Initial Airworthiness (at UAS level)', 'Continuing Airworthiness', 'UAS Operations', 'Aerodromes', 'U-Space/ATM', 'Environment', 'Personnel', and 'Oversight'. A 'STANDARDS 1' button is at the bottom of the filters. The main content area features a 'Welcome to AW-Drones repository' message, a search bar with the text 'Search standards', and a 'Definitions (1)' section. A card titled 'UAS Propulsion System Terminology' displays the following details: Organization: SAE E-39 Unmanned Aircraft Propulsion Committee; Document N°: AS###; Status: planned. A 'READ MORE' button is located below the details. Below the card, it indicates '1 result'. The footer contains the copyright notice '© 2020 AW-Drones'.

Figure 2. Filtered results



Users can use the live search functionality:

The screenshot shows the AW-Drones repository search page. On the left, there is a 'Filters' sidebar with a 'Requirements' section and a 'Choose a domain' section containing various categories like 'General', 'Initial Airworthiness', etc. The main content area features a search bar with the text 'uas' entered. An autocomplete dropdown menu is open, displaying several suggestions: 'UAS Propulsion System Terminology', 'General requirements for UAS for civil and commercial applications, UAS terminology and classification', 'Requirements for the categorization and classification of civil UAS', and 'New Practice for General Operations Manual for Professional Operator of Light Unmanned Aircraft Systems (UAS)'. Below the search bar, a grid of search results is displayed, each with a 'READ MORE' button. The results include details such as 'Organization', 'Document Nº', and 'Status' for various standards.

7 results

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Figure 3. Search standard with autocomplete



Users can view a specific standard:

Home About Help

[Home](#) / [Standards](#) / UAS Propulsion System Terminology

AS####

UAS Propulsion System Terminology

Details

Type:	Standard	Domain:	General
Document N°:	AS####	Keywords:	Definitions
Status:	planned		
Organization:	SAE E-39 Unmanned Aircraft Propulsion Committee		

Description

Scope includes both chemical and electrical propulsion and the supporting systems, including but not limited to: engines, servo actuators, fuel, motors, controllers, batteries, fuel cells, wiring, connectors, fluid systems, instrumentation and sensors, power management, filler valves, filters, pumps, propellers, propeller balancing rigs, test stands, thrust measurement rigs, and flight management for energy efficient flight.

SORA

Requirement: OSO 01

Criteria: Criterion 1

Robustness:

Integrity			Assurance		
Low	Medium	High	Low	Medium	High
	Partial			Partial	
This is a gap for integrity			This is a gap for assurance		

Last modified by: Admin, 2020-03-30 11:35:50

Comments

[1 Comment](#)

Admin on May 25, 2020 at 10:09 am
 Hi, this is a comment.
[Log in to Reply](#)

Submit a Comment

You must be [logged in](#) to post a comment.

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Figure 4. Standard page with one requirement



ISO 21384-3

Unmanned aircraft systems -- Part 3: Operational procedures

Details

Type:	Standard	Domain:	UAS Operations
Document N°:	ISO 21384-3	Keywords:	
Status:	ongoing		
Organization:	ISO TC20 / SC16		

Description

This WG details the requirements for safe commercial UA operations and applies to all types, categories, classes, sizes, and modes of operation of UA.

SORA

Requirement: OSO 01

Criteria: Criterion 1

Robustness:

Integrity			Assurance		
Low	Medium	High	Low	Medium	High
Full	Full	Full		Full	Full
This is a gap for integrity			This is a gap for assurance		

Last modified by: Admin, 2020-05-06 11:18:06

Requirement: OSO 07

Criteria: Criterion 1

Robustness:

Integrity			Assurance		
Low	Medium	High	Low	Medium	High
Full	Full		Full	Full	
This is a gap for integrity			This is a gap for assurance		

Last modified by: Admin, 2020-05-06 11:18:06

Comments

1 Comment

Admin on May 25, 2020 at 10:09 am
Hi, this is a comment.
[Log in to Reply](#)

Submit a Comment

You must be [logged in](#) to post a comment.

Figure 5. Standard page with many requirements



2.2.2 Backend

Below we present a list of screenshots that showcase the functionality of the backend environment of the platform. Administrators can login to the platform using their credentials:

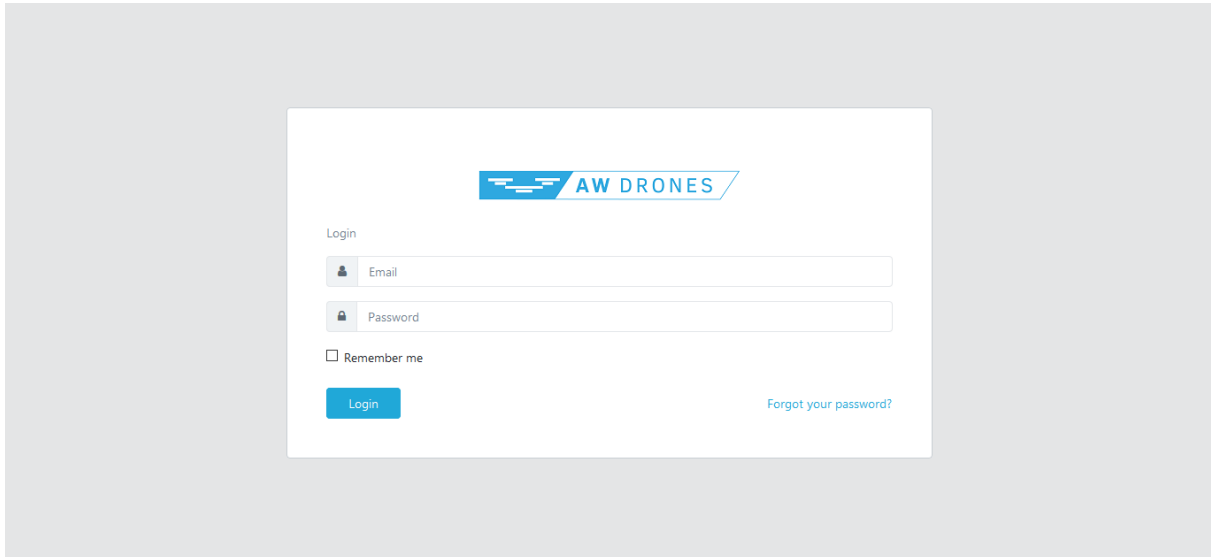


Figure 6. Backend login



This is the dashboard of the administrators:

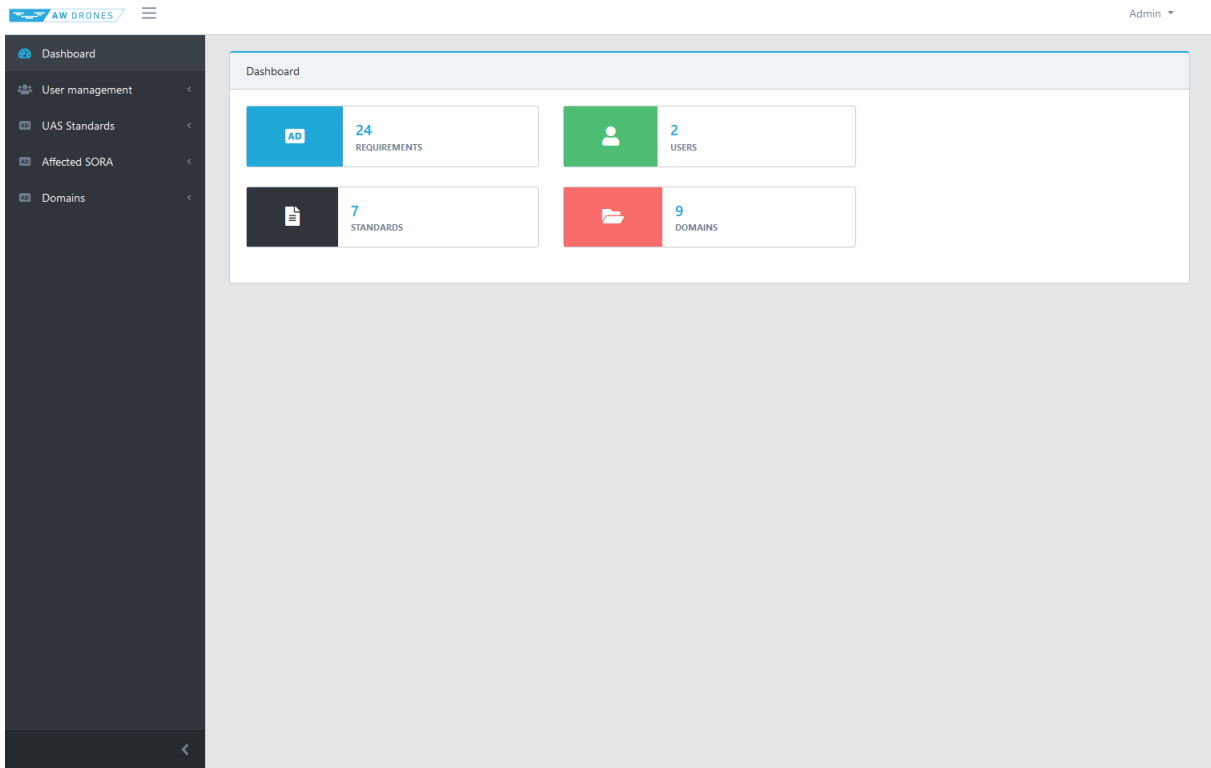


Figure 7. Backend dashboard



Administrators can manage the users of the platform:

The screenshot displays the 'User List' management interface. The table contains the following data:

ID	Name	Email	Roles
1	Admin	admin@admin.com	administrator

Figure 8. Backend user management



Administrators can manage the roles of the users:

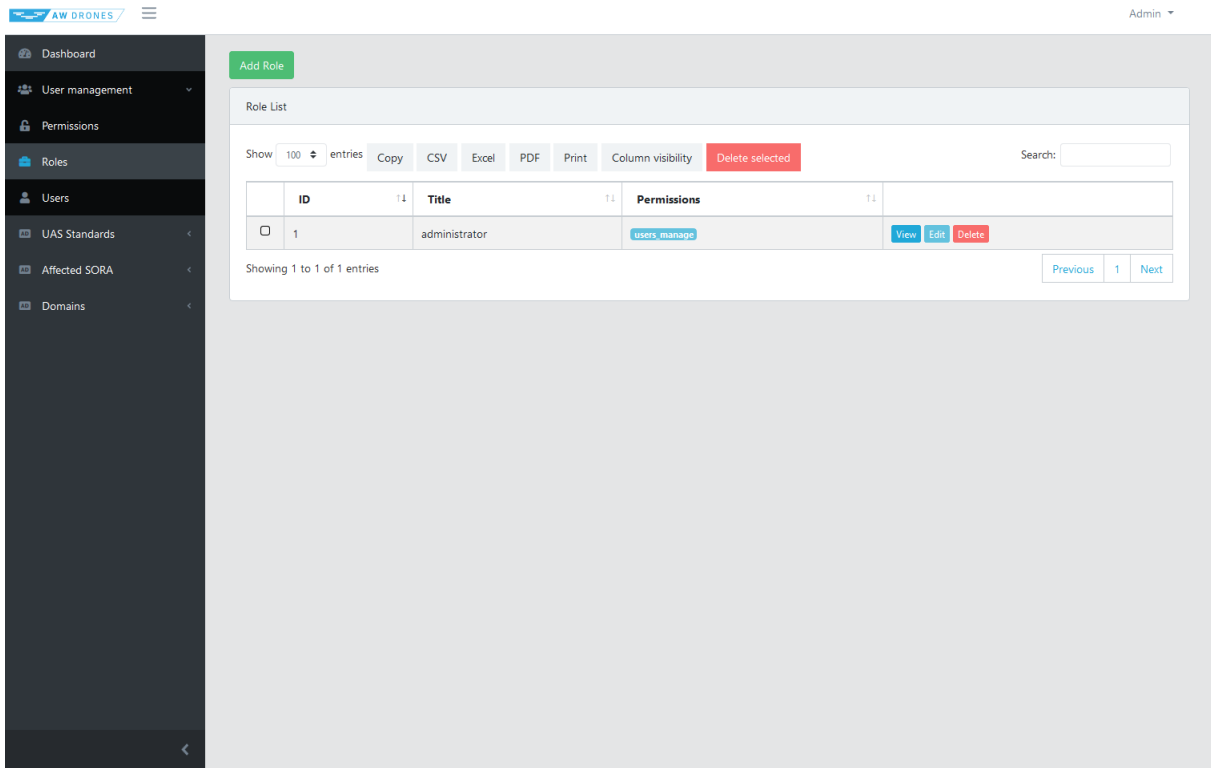


Figure 9. Backend roles management



Administrators can manage the permissions of the users:

AW DRONES Admin

Dashboard

User management

Permissions

Roles

Users

UAS Standards

All UAS Standards

Add new

Affected SORA

Domains

Add Permission

Permission List

Show 100 entries Copy CSV Excel PDF Print Column visibility Delete selected Search:

	ID	Title	
<input type="checkbox"/>	1	users_manage	View Edit Delete

Showing 1 to 1 of 1 entries

Previous 1 Next

Figure 10. Backend permissions management



Administrators can easily edit the Domains of the Standards:

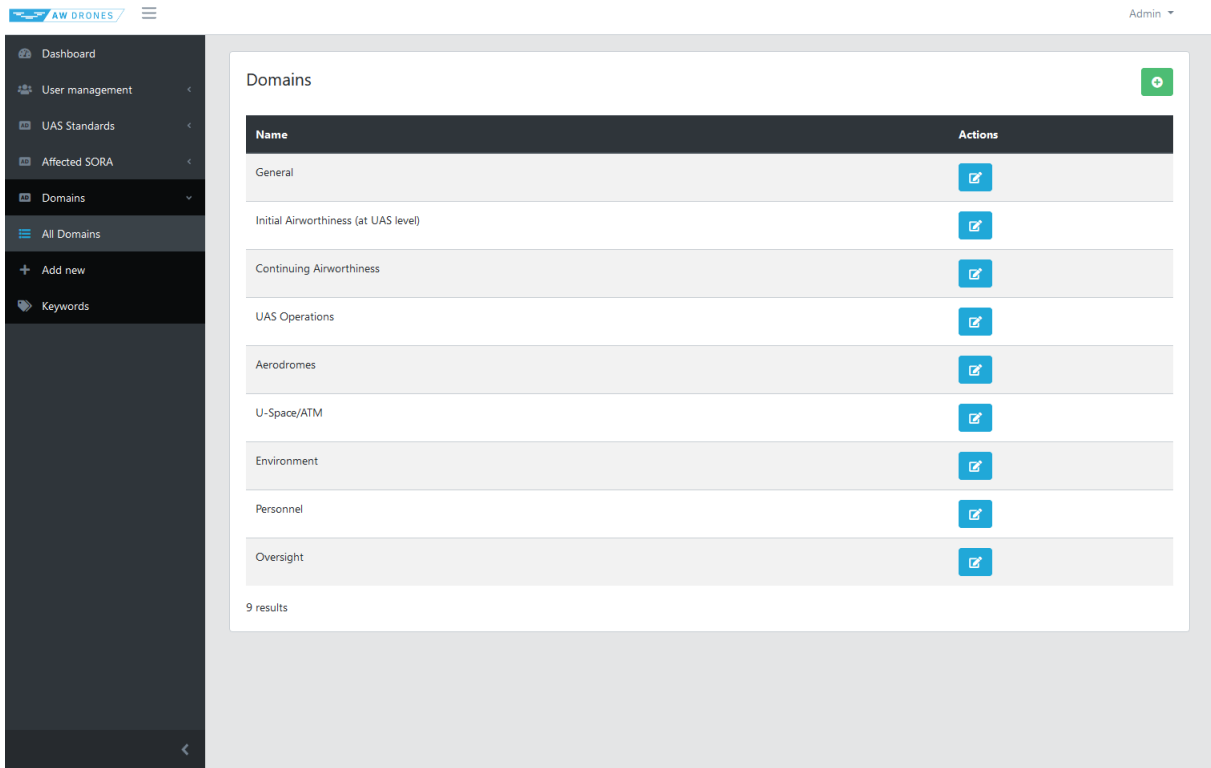


Figure 11. Backend domains management



Administrators can edit the keywords:

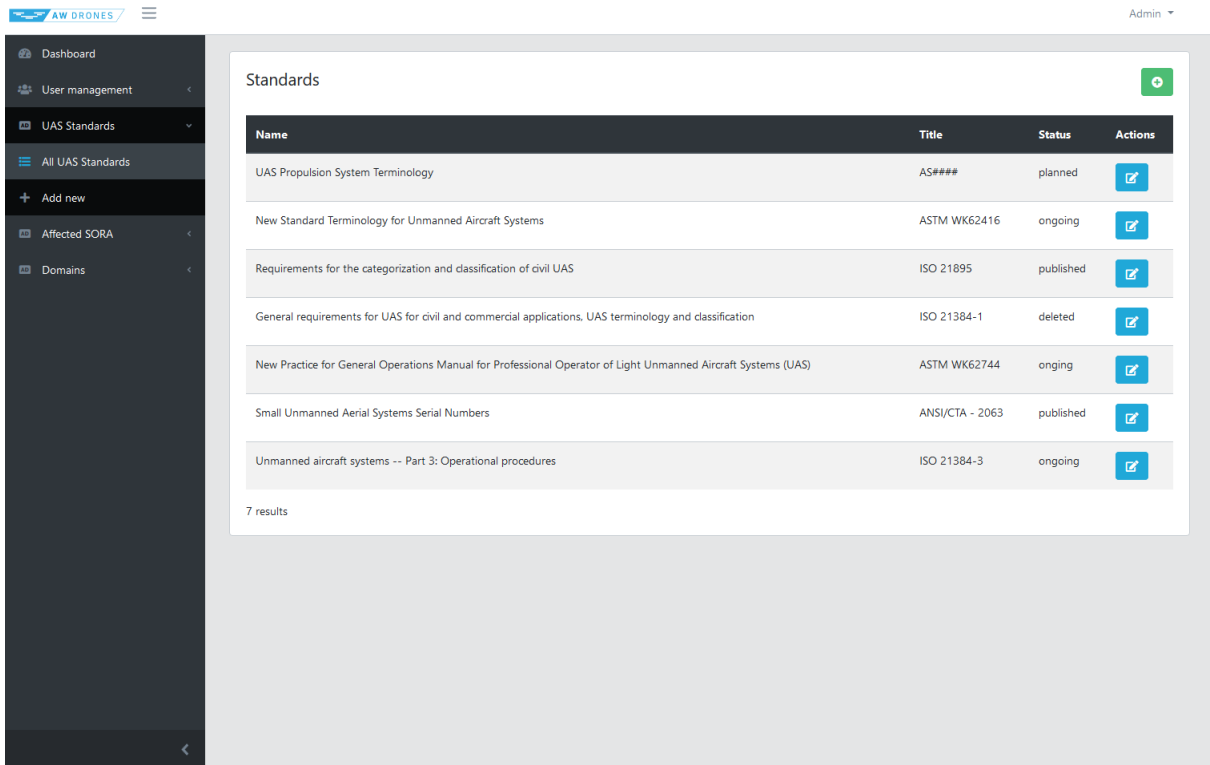
A screenshot of the AW DRONES backend interface. On the left is a dark sidebar with navigation items: Dashboard, User management, UAS Standards, Affected SORA, and Domains. The main content area is split into two panels. The left panel, titled "Add New Keyword", contains a form with a "Name*" field, a "Slug" field, and a green "Add New Keyword" button. The right panel, titled "Tags", displays a table with columns for Name, Slug, and Actions. The table lists four entries: "Definitions", "Classification of drones", "Manuals", and "Marking and Registration". Each entry has a blue edit icon in the Actions column. Below the table, it says "4 results". In the top right corner of the interface, there is a user profile dropdown labeled "Admin".

Name	Slug	Actions
Definitions	definitions	
Classification of drones	classification-of-drones	
Manuals	manuals	
Marking and Registration	marking-and-registration	








Figure 12. Backend keywords management



Administrators can manage the standards of the repository:



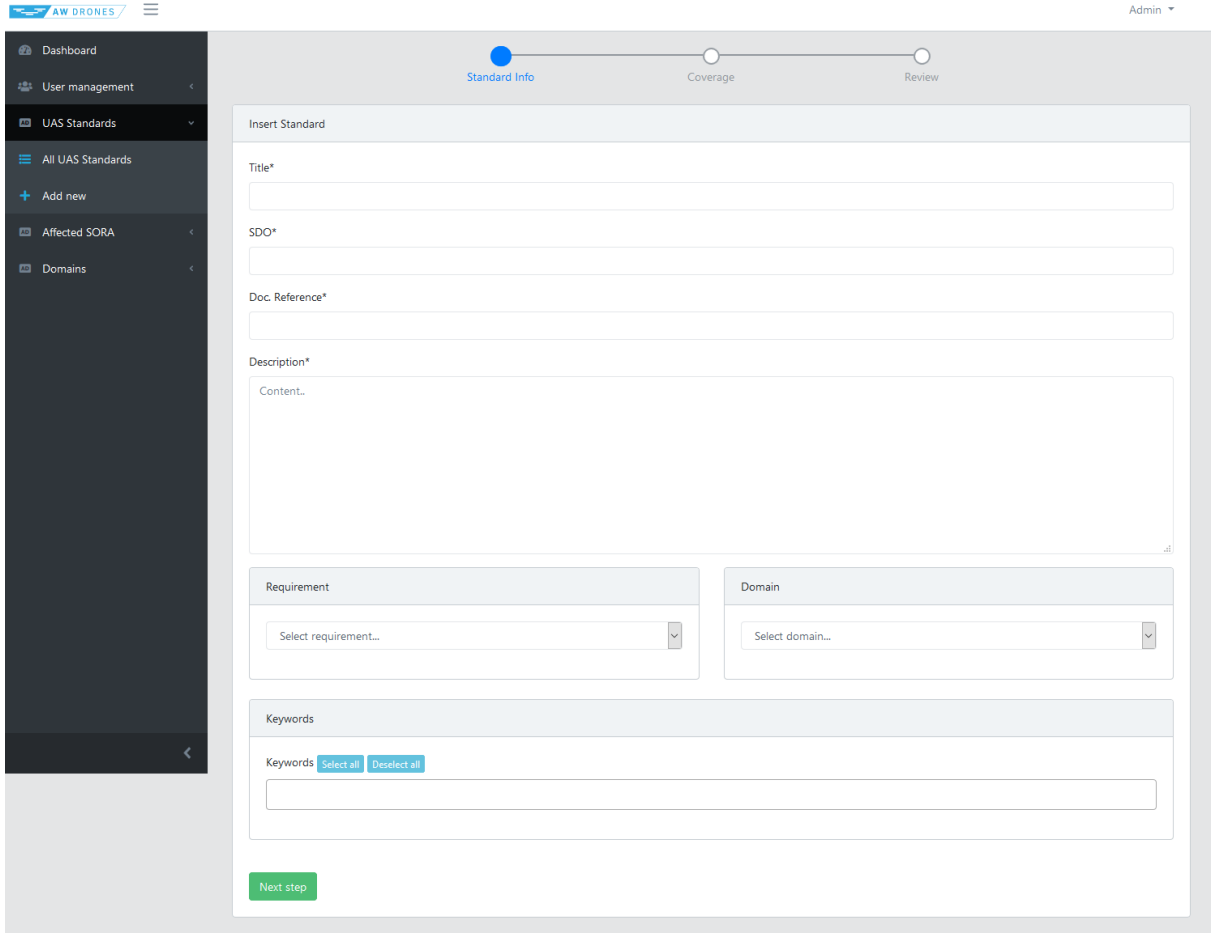
The screenshot shows the 'Standards' management page in the AW DRONES backend. The page features a sidebar on the left with navigation options: Dashboard, User management, UAS Standards, All UAS Standards, Add new, Affected SORA, and Domains. The main content area is titled 'Standards' and contains a table with the following data:

Name	Title	Status	Actions
UAS Propulsion System Terminology	AS####	planned	
New Standard Terminology for Unmanned Aircraft Systems	ASTM WK62416	ongoing	
Requirements for the categorization and classification of civil UAS	ISO 21895	published	
General requirements for UAS for civil and commercial applications, UAS terminology and classification	ISO 21384-1	deleted	
New Practice for General Operations Manual for Professional Operator of Light Unmanned Aircraft Systems (UAS)	ASTM WK62744	ongoing	
Small Unmanned Aerial Systems Serial Numbers	ANSI/CTA - 2063	published	
Unmanned aircraft systems -- Part 3: Operational procedures	ISO 21384-3	ongoing	

7 results

Figure 13. backend standards management

Administrators can add/edit new standards:

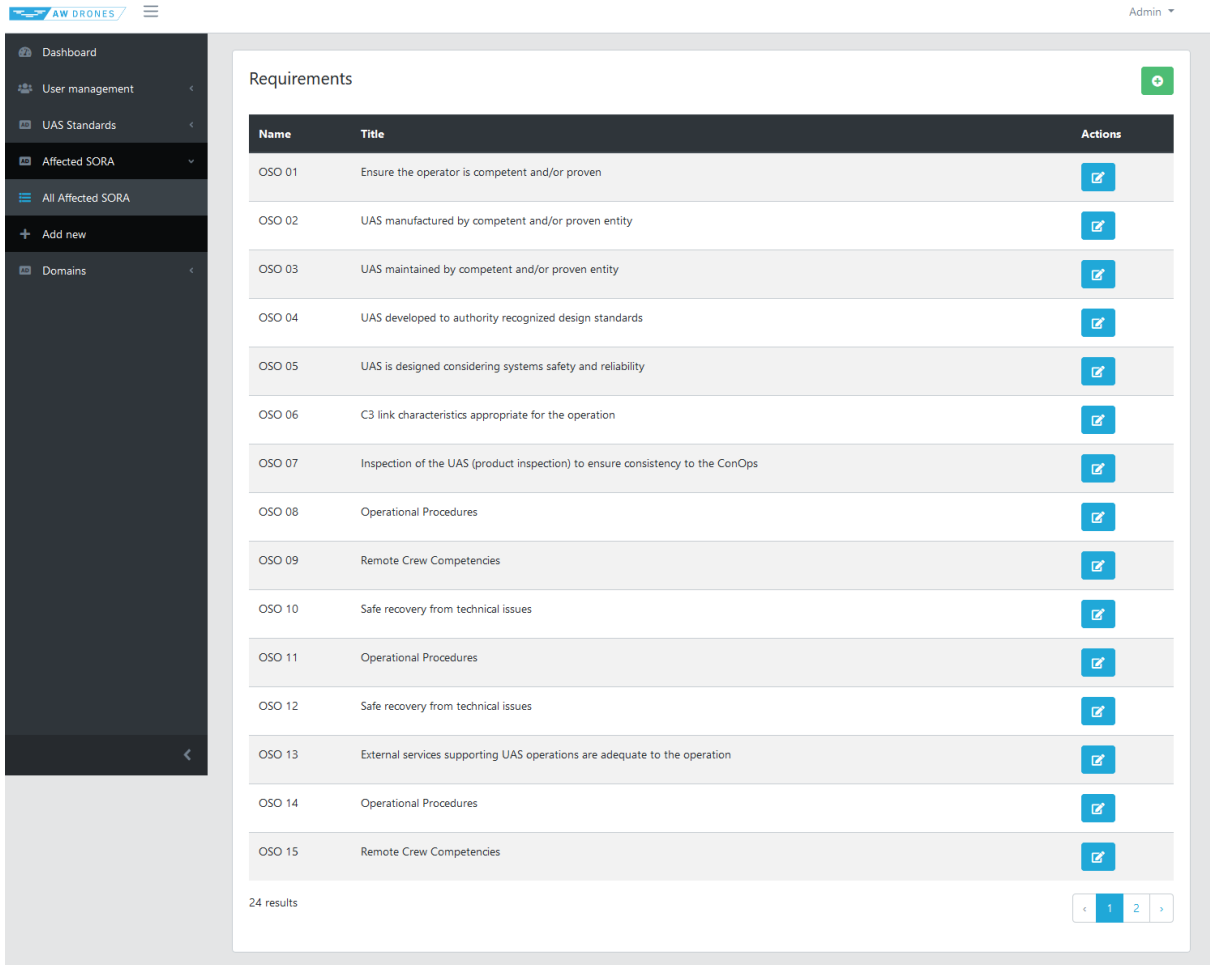


The screenshot shows the 'Insert Standard' form in the AW DRONES backend. The form is titled 'Insert Standard' and is part of a three-step process: Standard Info, Coverage, and Review. The 'Standard Info' step is currently active. The form includes the following fields and sections:
















- Title***: A text input field.
- SDO***: A text input field.
- Doc. Reference***: A text input field.
- Description***: A large text area with a placeholder 'Content..'. A small 'df' icon is visible in the bottom right corner of the text area.
- Requirement**: A dropdown menu with the placeholder 'Select requirement...'.
- Domain**: A dropdown menu with the placeholder 'Select domain...'.
- Keywords**: A section with two buttons, 'Select all' and 'Deselect all', and a text input field below them.
- Next step**: A green button at the bottom left of the form.

Figure 14. Backend standards add/edit form

Administrators can manage the requirements:



Requirements

Name	Title	Actions
OSO 01	Ensure the operator is competent and/or proven	
OSO 02	UAS manufactured by competent and/or proven entity	
OSO 03	UAS maintained by competent and/or proven entity	
OSO 04	UAS developed to authority recognized design standards	
OSO 05	UAS is designed considering systems safety and reliability	
OSO 06	C3 link characteristics appropriate for the operation	
OSO 07	Inspection of the UAS (product inspection) to ensure consistency to the ConOps	
OSO 08	Operational Procedures	
OSO 09	Remote Crew Competencies	
OSO 10	Safe recovery from technical issues	
OSO 11	Operational Procedures	
OSO 12	Safe recovery from technical issues	
OSO 13	External services supporting UAS operations are adequate to the operation	
OSO 14	Operational Procedures	
OSO 15	Remote Crew Competencies	

24 results

< 1 2 >

Figure 15. Backend requirements management



Administrators can add/edit the requirements:

A screenshot of the 'Edit Requirement' form in the AW DRONES backend. The interface includes a dark sidebar menu on the left with options like 'Dashboard', 'User management', 'UAS Standards', 'Affected SORA', 'All Affected SORA', 'Add new', and 'Domains'. The main content area has a top navigation bar with 'Information' and 'Criteria' tabs. The 'Information' tab is active, showing the 'Edit Requirement' form. The form has two input fields: 'Requirement name*' with the value 'OSO 01' and 'Requirement title' with the value 'Ensure the operator is competent and/or proven'. At the bottom of the form are 'Cancel' and 'Save' buttons. The top right corner of the page shows 'Admin' with a dropdown arrow.

Figure 16. Backend add/edit requirement form – Information tab



The screenshot displays the 'Criteria' management interface. On the left is a dark sidebar menu with options: Dashboard, User management, UAS Standards, Affected SORA, All Affected SORA, Add new, and Domains. The top navigation bar shows 'AW DRONES' and 'Admin'. The main content area is divided into two sections: 'Criteria' and 'Add new criteria'.

Criteria Table:

Criteria	Robustness	Description	Actions
Criterion 1 Integrity	Low	The applicant is knowledgeable of the UAS being used and as a minimum has the following relevant operational procedures: checklists, maintenance, training, responsibilities, and associated duties.	Edit
	Medium		Edit
	High		Edit
Criterion 1 Assurance	Low		Edit
	Medium		Edit
	High		Edit

Add new criteria Form:

Criteria name*

Integrity

- Low: [Text area] [Select compliance]
- Medium: [Text area] [Select compliance]
- High: [Text area] [Select compliance]

Assurance

- Low: [Text area] [Select compliance]
- Medium: [Text area] [Select compliance]
- High: [Text area] [Select compliance]

Buttons: Save, Save and stay, Cancel criteria, Cancel (top); Cancel, Save and stay, Save (bottom).

Figure 17. Backend add/edit requirement form - Criteria tab



3 Conclusions and next steps

The AW-Drones open repository is an online platform where users are able to easily identify relevant information from the AW-Drones database of standards. The development of the platform focuses on the following key principles: a) focus on the user, b) focus on quality, c) keep UI simple, d) think long term (exploitation prospects of AW-Drones). To accomplish this, the platform is being developed in several iterations:

- a) A very first draft of the AW-Drones open repository was presented during the 1st AW-Drones workshop in Brussels on the 19th of September 2019.
- b) A preliminary version of the AW-Drones open repository was released end of March 2020 for comments. Comments received by the AW-Drones consortium (during the WP leaders meeting) and selected external experts (during the EUSCG plenary).
- c) The first release of the AW-Drones open repository on M18 of the project (June 2020), where “D6.2 First yearly release of AW-Drones repository” is submitted.
- d) Comments will be received from EASA and INEA.
- e) The platform will be released to the public and dissemination will focus on receiving feedback from users (through various means) and on disseminating and exploiting the platform to a wide audience
- f) The final version of the platform will be ready at the end of the project on M36. A sustainability plan will be developed to ensure that the platform will be active even after the end of the project.

