

# AIXM-401 Use of term UA(S) instead of UAV

ID:	AIXM-401
target version:	AIXM 5.2
version:	1.0
last updated:	09 MAY 2019
status:	APPROVED



## Description

Add additional values to the AIXM UML Model that use the up-to-date unmanned aviation terminology, i.e. UA(S).

## Rationale for change

See <https://aixmccb.atlassian.net/browse/AIXM-170>.

AIXM 5.1(.1) uses the term UAV to refer to unmanned aircraft terminology, while the international aviation community is stepping away from this term in favor of UA(S) (unmanned aircraft (system)). A few sources:

- ICAO: [ICAO Circular 328](#) marks the term UAV as obsolete and uses UA(S). In addition, RPA(S) is used to refer to the subset of UA(S) that require a remote pilot. Their [list of frequently used terms in unmanned aviation](#) also solely uses UA(S) and RPA(S).
- Europe: The [SESAR roadmap for drone integration in Europe](#) uses the term “drones” as generic term, in addition to UAS and RPAS. This is aligned with EASA’s opinion on the [Safe operation of drones in Europe](#).
- US: The [FAA Aerospace Forecast 2018 – 2038](#) solely uses the term UA(S); there is no use of RPA(S). This is also confirmed by FAA in the JIRA issue.

Given the fact there is no global consensus on the term RPA(S), the suggested change only introduces UA(S) as term to refer to unmanned aircraft (systems) as replacement for UAV. Additional values that specify subsets of UA(S) can be added in future versions.

## Impact assessment

There is no impact on existing implementations as the current AIXM 5.1(.1) data remains fully valid against AIXM 5.2. No values are removed from this list.

When receiving data from AIXM 5.2 implementations, current AIXM 5.1(.1) systems will have be able to map back the new values into the existing UAV value, as described in the mapping rules further in this document.

## Change Proposal details

In the UML model:

- Add the following value to the CodeAircraftBaseType
  - UA with definition (from [ICAO](#)) *“Unmanned aircraft. An aircraft intended to be flown without a pilot on board. It can be remotely and fully controlled from another place (ground, another aircraft, space) or pre-programmed to conduct its flight without intervention.”*
- Add the following value to the CodeAirspaceActivityBaseType
  - UAS with definition (from [ICAO](#)) *“An aircraft and its associated elements which are operated with no pilot on board.”*
- Delete UAV in CodeAircraftBaseType and CodeAirspaceActivityBaseType.

The UML class diagram at the right highlights the changed lists of values.

## Mapping AIXM 5.1.1 to AIXM 5.2 (forward)

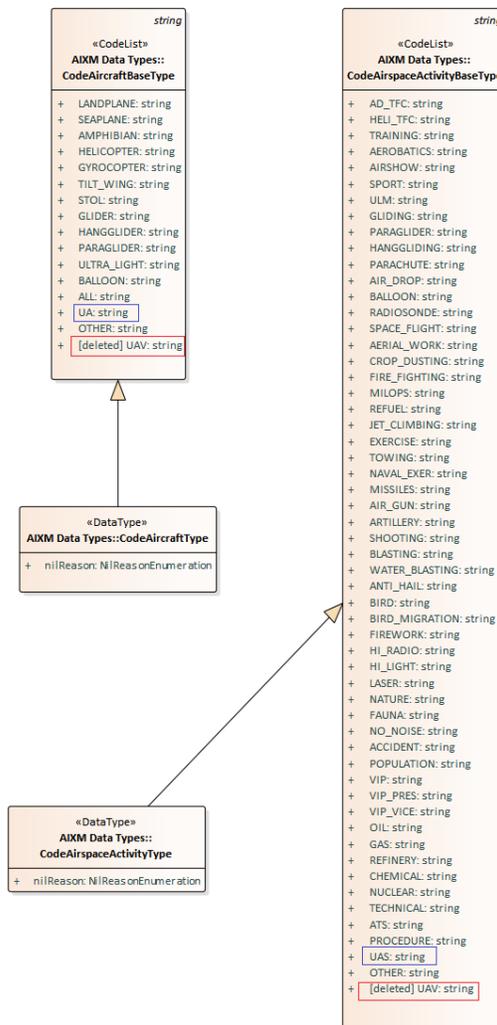
[MAPC-00] The following algorithm shall be applied:

- For each AircraftCharacteristic. type that has values “UAV”
  - Replace the value “UAV” with “UA”
- For each AirspaceActivation. activity that has values “UAV”
  - Replace the value “UAV” with “UAS”

## Mapping AIXM 5.2 to AIXM 5.1.1 (backward)

[MAPC-00] The following algorithm shall be applied:

- For each AircraftCharacteristic.type that has value "UA":
  - Replace the value "UA" with "UAV".
- For each AirspaceActivation.activity that has values "UAS":
  - Replace the value "UAS" with "UAV".



## Mapping example

(Note: for mapping test data see: [https://github.com/aixm/mapping\\_52\\_511/tree/master/AIXM-401](https://github.com/aixm/mapping_52_511/tree/master/AIXM-401))

AIXM 5.2	AIXM 5.1(.1)
<pre> message:AIXMBasicMessage   message:hasMember     Airspace       gml:identifier = fdaeffb4-6897-41fb-a33d-8861c2e91980       timeSlice         AirspaceTimeSlice           gml:validTime             gml:TimePeriod               gml:beginPosition = 2017-07-01T00:00:00Z               gml:endPosition =                 interpretation = BASELINE                 sequenceNumber = 2                 correctionNumber = 0                 featureLifetime                   gml:TimePeriod                     gml:beginPosition = 2002-11-30T00:00:00Z                     gml:endPosition =                       type = MTR                       designator = LDMA             </pre>	<pre> message:AIXMBasicMessage   message:hasMember     Airspace       gml:identifier = fdaeffb4-6897-41fb-a33d-8861c2e91980       timeSlice         AirspaceTimeSlice           gml:validTime             gml:TimePeriod               gml:beginPosition = 2017-07-01T00:00:00Z               gml:endPosition =                 interpretation = BASELINE                 sequenceNumber = 2                 correctionNumber = 0                 featureLifetime                   gml:TimePeriod                     gml:beginPosition = 2002-11-30T00:00:00Z                     gml:endPosition =                       type = MTR                       designator = LDMA             </pre>

```
name = KARASICA
activation
  AirspaceActivation
    activity = UAS
    status = ACTIVE
    aircraft
      AircraftCharacteristic
        type = UA
```

...

```
name = KARASICA
activation
  AirspaceActivation
    activity = UAV
    status = ACTIVE
    aircraft
      AircraftCharacteristic
        type = UAV
```

...