

# SWIM-INFO-016 Mapping of information concepts

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## Requirement

<b>Title</b>	Mapping of information concepts to the matching AIRM concept
<b>Identifier</b>	SWIM-INFO-016
<b>Requirement</b>	The mapping of an information concept <b>shall</b> contain a trace from the information concept in the information definition to the AIRM concept that has an equivalent or wider meaning.
<b>Rationale</b>	This is a basic trace to establish the semantic correspondence between concepts. Without such a trace the mapping is pointless.
<b>Verification</b>	Correctness
<b>Examples/Notes</b>	<p><i>Example:</i> An example of trace to an AIRM concept with an equivalent meaning is provided by AIXM. It contains an information concept called "AirportHeliport" that is defined as "A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft/helicopters." This traces to the AIRM concept "Aerodrome" that has exactly the same definition.</p> <p><i>Note:</i> In cases where the trace is to an AIRM concept that has a wider meaning, SWIM-INFO-018 also applies. An example of a trace to an AIRM concept with a wider meaning can be found in SWIM-INFO-018.</p> <p><i>Note:</i> SWIM-INFO-019 requires the use of the AIRM's unique identifiers in traces.</p>
<b>Level of Implementation</b>	Mandatory

## Guidance

This requirement covers the basic trace option for information concepts. The figure below shows how the concept in the information definition (on the left) has a mapping, in this case containing a single trace, to its equivalent AIRM concept. The trace also satisfies the requirement on [preservation of meaning](#).



 The [Using the AIRM page](#) gives a summary on how to start using the AIRM for semantic correspondence purposes.

It is usually fairly simple to spot an exact match when comparing the definitions of the concepts. The main skill is when the definitions do not match exactly. Some things then need to be considered.

- The specification talks about an "equivalent" meaning. This allows some differences in the textual descriptions. The requirement on preservation of meaning gives some guidance on this.
  - AIXM 5.1 defines a *Runway* as "A defined rectangular area on a land aerodrome/heliport prepared for the landing and take-off of aircraft. Note: this includes the concept of Final Approach and Take-Off Area (FATO) for helicopters." The AIRM defines the same concept as "A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft." There is some difference in the text of the definitions. However, they are equivalent.
- The specification talks about a "wider" meaning. This means that the information definition has a more restricted meaning than the AIRM concept. This is allowed.
  - AIXM 5.1 defines a *NavaidEquipment* as "A physical navaid equipment like VOR, DME, localizer, TACAN, etc.". The AIRM concept *RadioNavigationAid* is defined as "Any electronic system which provides information to be used by the pilot or aircraft navigation systems for position determination or flight path guidance." Therefore it is possible to trace NavaidEquipment to RadioNavigationAid.

It is also possible to rule out some traces:

- When the information definition's concept has a wider, more general, meaning than any AIRM concept, no trace can be made.
  - AIXM 5.1 defines *DepartureArrivalCondition* as "A condition which is established for a departure or an arrival." The closest AIRM concept is *DepartureLegCondition*, defined as "A condition which is established for a departure leg." This is a case where the information definition (AIXM 5.1) contains a wider definition than the AIRM concept. No trace can be established. Therefore, one of the other forms of semantic correspondence will need to be considered.
    - A change request should be considered. It is beneficial to record this near match in any resulting change request.
    - It could also be that an issue has been found in the information definition and, as such, the no semantic correspondence established declaration should also be considered.

## Verification Support

### Correctness

Check that:

- [ ] Each trace from the information concept in the information definition is to the AIRM concept that has an equivalent or wider meaning.

### Examples

See [SWIM-INFO-014 Forms of semantic correspondence](#) for an example of a trace in XML schemas.