

NAS Enterprise Architecture



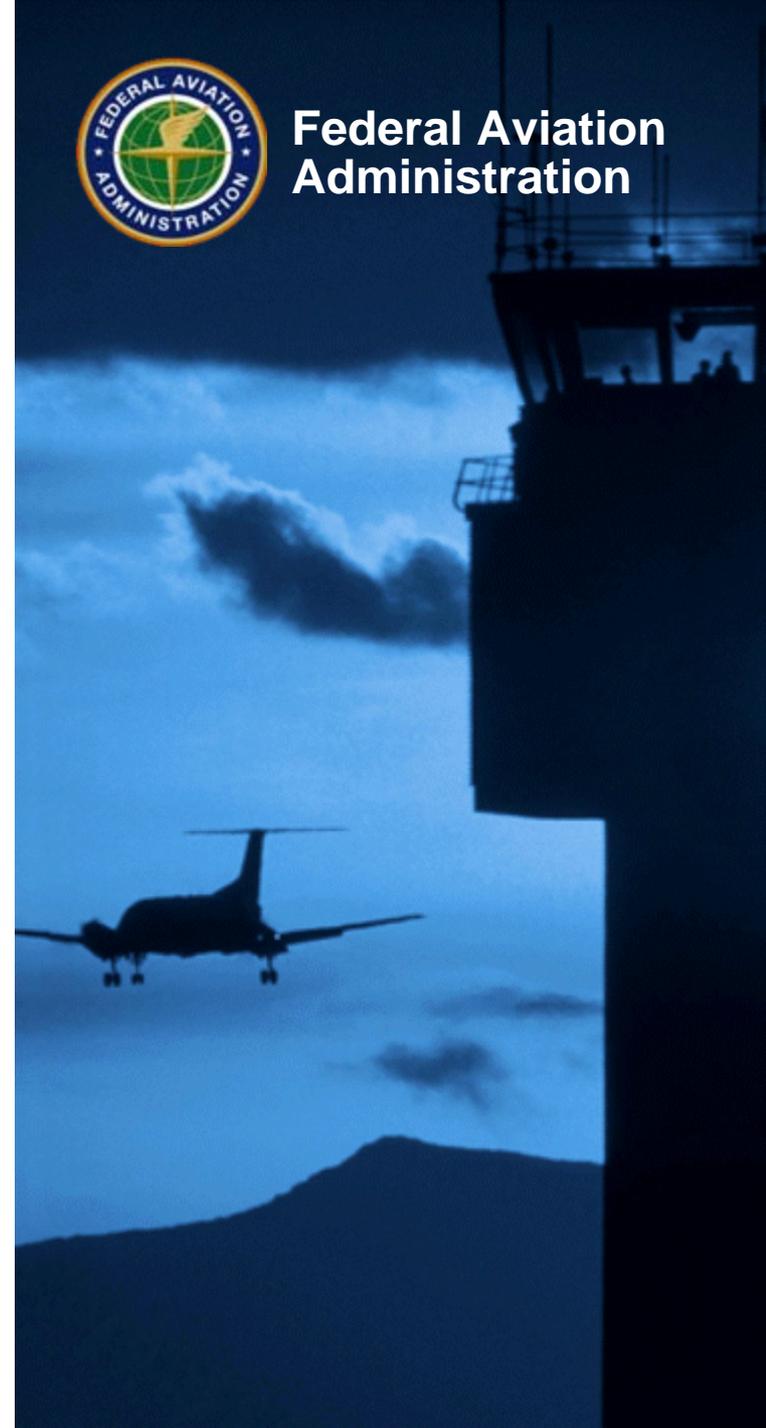
Federal Aviation
Administration

NextGen 2025 Operational Information Exchange Matrix OV-3

System Information Flow

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Purpose of View

Standard Purpose –

- **Identify the exchange of information among operational nodes and activities.**

Adapted Purpose –

- **Identify the exchange of information among major system functions.**

Classical OV-3 vs. Adapted OV-3

- **NAS EA Guidance calls for the OV-3 to contain the following:**
 - Sending/receiving operational nodes with node identifiers.
 - Sending/receiving operational activities with activity identifiers.
 - Information Element names, descriptions, and identifiers.
 - Information Exchange Needline Identifiers consisting of combinations of sending and receiving node identifiers.
 - Information Exchange Identifiers consisting of combinations of needline identifiers and information element identifiers.
 - Various characteristics describing the exchange (e.g., nature of transaction, performance attributes, etc.)

Classical OV-3 vs. Adapted OV-3 (Continued)

- **Adapted OV-3 contains the following:**
 - Sending/receiving activities without activity identifiers.
 - Activities equivalent to major system functions or stakeholder operations.
 - Information Element names and limited descriptions; no identifiers.
 - Unofficial placeholders meant to characterize the type of information, not provide details of the information exchanged.
 - No Information Exchange or Needline Identifiers.
 - Will be added as the architecture matures and element hierarchies are established.
 - Only one non-standard characteristic describing the exchange.
 - Identifies the associated information “flow category” to align with the sub-diagrams included in the SV-2.



Why an Adapted Version

- **Is this an OV-3, an SV-6 or a combination of both?**
 - Yes!
- **Are the sending and receiving activities operational activities or functions?**
 - Functions, but even operational activities are a form of function.
- **Why did you choose to develop an OV-3 based on the SV-1p instead of basing it on the OV-2 or developing an SV-6?**



Why an Adapted Version (Continued)

Rationale:

- **Each of the major functions identified in the SV-1p align with an area of operational activity.**
 - Some functions were derived directly or in part from the NextGen CONOPS, which is operationally oriented.
 - The OV-3 is designed to cover system information exchanges at an operational level.
- **The specific systems, system nodes (facilities), and functional allocation are yet to be determined.**
 - Accordingly, the specific data exchanges are also yet to be determined.
 - However, the types of information that major functions will need and produce are generally known.
- **The net-centric nature of NextGen might make it impossible to capture all possible data exchanges.**
 - The OV-3 focused on the types of exchanges that would be needed for the functions to operate as a cohesive and complete system.
 - The OV-3 included “collaboration” exchanges that represent part of the net-centric nature of NextGen.

Information vs. Data

- **Information as used in the adapted OV-3:**
 - Characterization of content
 - High level
 - Non-prescriptive
 - Provides a framework without dictating a design
- **Data as would be used in an SV-6:**
 - Specific content and structure
 - Detailed
 - Could imply design

Information vs. Data (Continued)

Information (OV-3)	Data (SV-6)
Winds information	Wind speed in nautical miles per hour to zero decimal places formatted in binary coded decimal with a maximum of 12 bits
Forecast information	4-hour area forecast product updated every 2 hours covering a twelve mile radius around an airport including wind velocity, temperature, pressure, and any derived meteorological phenomenon.

Sample OV-3 Entries

#	Sending Activity	Receiving Activity	Information Name	Content Description	Flow Category
2	Aeronautical Information Management	Aircraft Flight Management	Aeronautical Information	Airspace structure and status; geographic structure and status; service structure and status; TMIs and restrictions; hazardous weather information	Aeronautical Information
18	Aeronautical Information Management	Surveillance Information Management - Local	Aeronautical Information	Airspace structure and geographical features	Aeronautical Information
52	Airport Stakeholder Operations	Aeronautical Information Management	Airport Status	Closures, active runways, construction, etc.	Aeronautical Information
231	System & Services Management - National	Aeronautical Information Management	Service Status	Includes planned preventative maintenance, system outages, service degradation, etc.	Aeronautical Information
238	System & Services Management - Remote	System & Services Management - National	System Status Information	Faults, deviations from tolerances, failures, etc.	Command & Control
236	System & Services Management - National	System & Services Management - Remote	Maintenance Commands	Commands for running diagnostics, performing measurements, and performing parametric adjustments	Command & Control
37	Aircraft Flight Management	System & Services Management - National	System Status	Faults, deviations from tolerances, failures, etc.	Command & Control
44	Airlines Stakeholder Operations	Flow Contingency Management	Collaboration		Command & Control



Sample OV-3 Entries (Continued)

#	Sending Activity	Receiving Activity	Information Name	Content Description	Flow Category
66	Flight & State Data Management - Local	Aircraft Flight Management	Flight Information	Results of impact analysis of aircraft flight plans, amendments, and trajectories	Flight Data
67	Flight & State Data Management - Local	Flight & State Data Management - National	Flight Information	Aircraft characteristics, flight plans, 4-D trajectories, and amendments	Flight Data
136	Military Stakeholder Operations	Flight & State Data Management - National	Flight Information	Proposed flight plans and 4-D trajectories	Flight Data
201	Surveillance Data Collection	Surveillance Information Management - Local	Raw Surveillance Data	Surveillance data from dependent, independent, and cooperative surveillance systems	Surveillance
206	Surveillance Information Management - Local	Surveillance Information Management - National	Processed Surveillance Information	Integrated local surveillance presentation	Surveillance
214	Surveillance Information Management - National	Flow Contingency Management	Processed Surveillance Information	Integrated national surveillance presentation	Surveillance
239	Trajectory Management - Local	Aircraft Flight Management	Control Decisions	Proposed trajectories and trajectory management directives to consumers	Command & Control
242	Trajectory Management - Local	Flight & State Data Management - National	Control Information	Trajectory management directives to consumers, and delivery status	Flight Data

Sample OV-3 Entries (Continued)

#	Sending Activity	Receiving Activity	Information Name	Content Description	Flow Category
40	Aircraft Flight Management	Weather Information Management - National	PIREPS	Airborne weather observations provided by consumers	Weather
41	Aircraft Weather Sensors	Weather Data Collection	Current Weather Parameters	Raw weather data from aircraft sensors	Weather
159	NWS Weather Operations	Weather Data Collection	Current Weather Parameters	Raw weather data from NWS	Weather
271	Weather Data Collection	Weather Information Management - Local	Current Weather Parameters	Surface and airborne observations; weather data collected from NWS, and contractors; weather radar data; satellite weather data	Weather
160	NWS Weather Operations	Weather Information Management - Local	Weather Information	Current and projected weather conditions; collaboration	Weather
278	Weather Information Management - Local	Weather Information Management - National	Weather Information	Integrated local weather presentation	Weather
280	Weather Information Management - National	Aeronautical Information Management	Weather Information	Current and forecast weather conditions including hazardous advisories	Weather
288	Weather Information Management - National	Flow Contingency Management	Weather Information	Current and forecast weather conditions including hazardous advisories, DST meteorological data, shared weather situation, trajectory-based products	Weather



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