# NEMSIS v3 Compliance

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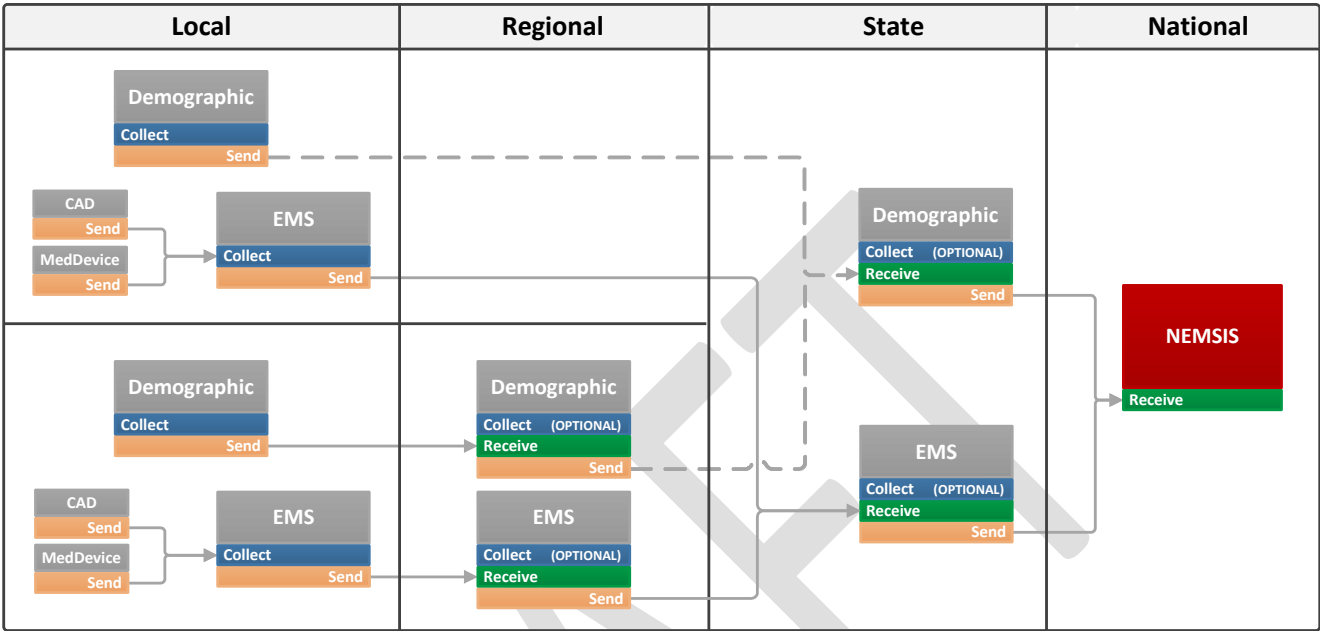
## Testing Prerequisites

All software seeking NEMSIS V3 compliance must first submit a Demographic and EMS dataset to the NEMSIS v3 web service and pass both the XSD and Schematron validation.

## Overview

Products seeking NEMSIS v3 compliance must be in final form, ready-for-market, installation ready, and versioned.  The NEMSIS TAC will install a product on a test server, request administrative rights to a web application, or (if necessary) travel to test a more complex application. The NEMSIS v3 compliance process will be tailored to address the following requirements:

1. Collect Data
2. Receive and Process Data
3. Send Data
4. Web Service Communication
5. Software Upgrade/Updates
6. Demographic Submission
   a. Products that **Collect Data**
   b. Products that **Receive and Process Data**

## Data Flow Diagram

| Local | Regional | State | National |
|---|---|---|---|

**Demographic**
- Collect
- Send

**CAD**
- Send

**MedDevice**
- Send

**EMS**
- Collect
- Send

**Demographic** (State)
- Collect (OPTIONAL)
- Receive
- Send

**Demographic** (Local)
- Collect
- Send

**Demographic** (Regional)
- Collect (OPTIONAL)
- Receive
- Send

**CAD**
- Send

**MedDevice**
- Send

**EMS** (Local)
- Collect
- Send

**EMS** (Regional)
- Collect (OPTIONAL)
- Receive
- Send

**EMS** (State)
- Collect (OPTIONAL)
- Receive
- Send

**NEMSIS**
- Receive

# Collect Data

Products that **Collect Data** must demonstrate the implementation of all NEMSIS v3 Demographic and EMS dataset elements, processing a CAD and MedDevice dataset, implementation of custom elements, application of business logic at record finalization, and XML representation of the Demographic and EMS dataset. A sample test package will be provided prior to testing.

## Test Package

| Test Cases | Format |
|---|---|
| Demographic dataset | Hand Written |
| EMS dataset | Hand Written |
| CAD dataset | XML |
| MedDevice dataset | XML |
| Business Logic | Schematron |
| Custom Element | Hand Written |

## Check List

1. Ensure the full NEMSIS v3 Demographic standard is implemented in the user interface
2. Ensure the full NEMSIS v3 EMS standard is implemented in the user interface
3. Ensure the implementation of custom elements as provided in the test cases
4. Ensure the implementation of Schematron for business logic
5. Ensure the ability to process multiple Schematron files
6. Ensure the use of Schematron for business rules when a Demographic record is finalized
7. Ensure the use of Schematron for business rules when a EMS record is finalized
8. Ensure the processing of a NEMSIS v3 MedDevice dataset populates the EMS event
9. Ensure the processing of a NEMSIS v3 CAD dataset populates the EMS event

## Process

1. The NEMSIS TAC will verify the Product's implementation of the full NEMSIS v3 Demographic standard in the user interface
2. The NEMSIS TAC will verify the Product's implementation of the full NEMSIS v3 EMS standard in the user interface
3. The NEMSIS TAC will verify the Product 's implementation of custom element test cases in the user interface
4. The NEMSIS TAC will configure the Product with business logic from the Schematron test file
5. The NEMSIS TAC will configue the Product with multiple Schematron files
6. The NEMSIS TAC will enter the Demographic test cases into the Product and verify that business logic is applied
7. The NEMSIS TAC will enter the EMS test cases into the Product and verify that business logic is applied
8. The NEMSIS TAC will use the Product's MedDevice dataset processing mechanism to verify the population in the EMS event
9. The NEMSIS TAC will use the Product's CAD dataset processing mechanism to verify the population in the EMS event

# Receive and Process Data

Products that **Receive and Process Data** must demonstrate the capability of receiving and processing the NEMSIS v3 Demographic and EMS dataset. Processing a dataset includes structure validation and business rules validation of a dataset received. A sample test package will be provided prior to testing.

## Test Package

| Test Cases | Format |
|---|---|
| Demographic dataset | Hand Written |
| EMS dataset | Hand Written |
| Business Logic | Schematron |

## Check List

1. Ensure that the NEMSIS v3 Web Service standard is implemented. Reference the **Web Service Communication** section for details
2. Ensure the implementation of Schematron for business logic
3. Ensure the ability to process multiple  Schematron files

## Process

1. The NEMSIS TAC will request that the Product's business logic be configured with the business logic test cases
2. The NEMSIS TAC will request the Product be configured with multiple Schematron files from the test cases
3. The NEMSIS TAC will request the Product's web service URL
4. The NEMSIS TAC will verify the Product's implementation of receiving and processing the NEMSIS v3 Demographic dataset by submitting Demographic test cases
5. The NEMSIS TAC will verify the Product's implementation of receiving and processing the NEMSIS v3 EMS dataset by submitting EMS test cases

# Send Data

Products that **Send Data** must demonstrate the capability of sending the NEMSIS v3 Demographic and EMS dataset. State level products must also demonstrate the capability of submitting a NEMSIS v3 Demographic and EMS dataset that contains National elements only.

## Test Package

1. The export from the Demographic and EMS dataset test cases from the **Collect Data** or **Receive and Process Data** process will be utilized

## Check List

1. Ensure the Demographic export from **Collect Data** or **Receive and Process Data** process submits to the NEMSIS v3 web service
2. Ensure the EMS export from **Collect Data** or **Receive and Process Data** process submits to the NEMSIS v3 web service
3. If the Product functions at the state level, ensure that submission of National only elements is also implemented for the Demographic and EMS dataset
4. Ensure the client is able to properly interoperate the status codes in NEMSIS v3 Web Service standard is implemented. Reference the **Web Service Communication** section for details

## Process

1. The NEMSIS TAC will complete the **Collect Data** or **Receive and Process Data** process and use the export for submitting to the NEMSIS v3 web service
2. If the Product functions at the state level, the NEMSIS TAC will also verify the Product's implementation for submitting the Demographic and EMS dataset that contains National elements only

# Web Service Communication

Products receiving and processing data must implement the NEMSIS v3 Web Service standard. The web service must implement HTTPS communication channel, SOAP protocol, and status codes listed in the table below. A sample test package will be provided prior to testing. The

| Category | Status Code | Meaning |
|---|---|---|
| PrivilegeErrorCodes | -1 | Invalid username and/or password |
| | -2 | Permission denied to the client for the operation |
| | -3 | Permission denied to the client for that organization |
| SubmitDataProcessCodes | -12 | XML file failed XML Schema validation |
| | -13 | XML file failed schematron rule(s) validation |
| | 1 | XML file passed XML Schema and Schematron validation |
| ResultPendingCode | 0 | Process is not finished for an attempted operation |
| QueryLimitCodes | 51 | Successful operation of QueryLimit |

## Test Package

| Test Cases | Format |
|---|---|
| Demographic dataset | XML |
| EMS dataset | XML |

## Check List

1. Ensure HTTPS communication channel and SOAP protocol is implemented
2. Ensure a "PrivilegeErrorCode" is returned when the account (username, password, and organization) is not allowed access to the service and the "requestHandle" is null
3. Ensure the "SubmitData" function is implemented
   a. The server responds with a unique "requestHandle" and "statusCode"=0
4. Ensure the "RetrieveStatus" function is implemented
   a. The server echos the "requestHandle" and a "statusCode" of -12, -13, 1, or 0
5. Ensure the "QueryLimit" function is implemented
   a. The server returns the "limit" in kilobytes and a "statusCode" of 51 or 0

## Process

1. The Product will provide the NEMSIS TAC with the URL of their web service
2. The NEMSIS TAC will submit a "QueryLimit" request to the Product's web servce
3. The NEMSIS TAC will submit the Demographic test case to the Product's web service
4. The NEMSIS TAC will submit the EMS test cases to the Product's web service
5. The NEMSIS TAC will submit a "RetrieveStatus" request to the Product's web service

# Demographic Submission

Demographic submission will be tested for submission of demographic data anytime there is a modification. Products are tested as **Collect Data** or **Receive and Process Data.**

## Collect Data

Products that **Collect Data** must demonstrate submission, within 24 hours, of the Demographic dataset when a new demographic record is entered or when an element listed as "mandatory" or "required" is modified.

### Test Package

| Test Cases | Format |
|---|---|
| Demographic dataset | Hand Written |

### Check List

1. Ensure a process is triggered for submitting the Demographic dataset when a demographic element is entered or updated
2. Ensure this process occurs for elements listed as "mandatory" or "required"
3. Ensure the process exports the Demographic dataset within 24 hours of being triggered
4. Ensure the attribute "timestamp" is populated with the date and time the demographic dataset was generated

### Process

1. The NEMSIS TAC will complete the **Collect Data** process
2. The NEMSIS TAC will update a demographic element that is "mandatory" or "required" and verify the submission of the Demographic dataset to the NEMSIS v3 Web Service

## Receive and Process Data

Products **Receive and Process Data** must demonstrate submission, within 24 hours, of the Demographic dataset when receiving demographic dataset when record or update to an element listed as "mandatory" or "required" modified.

### Test Package

| Test Cases | Format |
|---|---|
| Demographic dataset | XML |

### Check List

1. If the Product is able to **Receive and Process Data**, ensure a process is triggered for submitting the Demographic dataset when a demographic dataset is received with new demographic records or changes to a demographic current record
2. Ensure this process occurs for elements listed as "mandatory" or "required"
3. Ensure the process exports the Demographic dataset within 24 hours of being triggered

## Process

1. The NEMSIS TAC will complete the **Receive and Process Data** process
2. The NEMSIS TAC will submit a Demographic dataset with changes of an element that is "mandatory" or "required" and verify the submission of the Demographic dataset to the NEMSIS v3 Web Service
3. The NEMSIS TAC will submit a Demographic dataset with changes of an element that is "mandatory" or "required" and verify the submission of the Demographic dataset to the NEMSIS v3 Web Service

# Custom Elements

| Usage | Extend & map to NEMSIS code | Extend & NOT map to NEMSIS code | Allows for NOT values | Recurrence |
|---|---|---|---|---|
| Mandatory | Yes | No | No | 1 : * |
| Required | Yes | Yes | Yes | 1 : * |
| Recommended | Yes | Yes | Yes | 0 : * |
| Optional | Yes | No | No | 0 : * |

## Software Updates/Upgrades

Software is considered compliant only for the version being tested.  Any version changes require re-evaluation by the NEMSIS TAC. All software changes (e.g. release notes, bug fixes, etc) must be provided to the NEMSIS TAC to determine what components need testing to certify the new release of software as compliant.