Specifications Document

V1.2 Financial Assistance Award Data Collection (FAADC)

Web Services API
Interface Specifications Document

Version 1.0

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DOCUMENT HISTORY

Version Number	Date	Responsible	Summary of Change
1.0	11/16/2024	IBM	New document for FAADC Version Change 1.2

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1 Introduction

Under GSA's initiative and direction, the Financial Assistance Award Data Collection (FAADC) is a real-time federal enterprise information system to collect the Assistance data across the federal government. The advent of platform, language, vendor, and tool independent standards has enabled data processing and transport to be carried out seamlessly between heterogeneous systems.

Web services based on SOAP and XML, implemented using Java technologies, are used in Financial Assistance module to provide interoperability with various financial assistance systems.

2 Service Oriented Architecture

The Financial Assistance system architecture is based on a Service-Oriented Architecture (SOA) platform. The choice of a SOA is based on the requirement of GSA to produce a web service-based application that will allow integration of the Assistance module with agency systems. All identifiable system functions are published as services that external systems invoke using open standards over a network. This architecture exposes all system functions including business logic and GUI screens making them all accessible to agency systems.

The value of a SOA-based approach is realized in the reusability of the components. Reusability offers the government tremendous savings of time and money as software development is leveraged by many systems without the need for additional development or redundant efforts.

SOA is the architectural structure underpinning web services and is developed to the J2EE standard. The technologies used to invoke web services promote interoperability. These technologies include:

- **XML,** which defines a universal way of representing data
- **SOAP**, which provides the transport mechanism for web services
- **WSDL**, which describes a web service definition

Table 2-1. Software Working Group (SAWG)

Feature Rated	J2EE/Web Services	.NET/Web Services
Cross Platform Portability/OS Independent		
Mature (not antiquated) Technology		
Loose Integration of Heterogeneous Systems		
Infrastructure Independence		
Standards-Based		
Non-proprietary Extensibility		
Ease of Development / Integration		
Application Interoperability		
Final Analysis	**22 / 24**	**17 / 24**

A standard catalog of Web services has been created across the business entities. System functions are categorized as described in the following sections.

3 Financial Assistance Service Architecture

This document introduces the web services system architecture that exposes one point of entry to Financial Assistance module. The web services APIs will act as the gateway to access all functionality on the server side. The following set of modules that belong to Financial Assistance use the web services APIs to achieve their functionality.

1. GUI services that allow creation or modification of Assistance data.
2. Business services that allow the integrators to launch the data collection screens from within the COTS/GOTS products

4 Architectural Goals and Constraints

Each Web Service API will follow the set of guidelines described below that are essential to any published set of APIs accessible from anywhere via the Internet.

1. **Simplicity:** An API addresses a simple business process and is atomic.
2. **Interoperability:** An API is platform independent. Web services have been the solution of choice throughout the industry to address heterogeneous distributed systems. They are designed to be platform independent in order to achieve maximum interoperability.
3. **Nomenclature Consistency:** An API follows a specific set of naming conventions that are used consistently.
4. **Functional Consistency:** An API behaves the same at all times for the same set of data inputs unless there are processing business logic and rules that are driven by factors like time, data history, etc.
5. **Macro Level API:** An API translates a business use case into one service that completes the business process in one transaction.
6. **Appropriate Payload Size:** List Retrieval API services limit the number of values returned, so that the payload is not exceeded beyond the limit the middle-tier can handle.
7. **Stateless:** An API service is stateless.
8. **Secure:** All API input contains the user and source data used for authentication.
9. **Error Processing:** The API returns a comprehensive and complete set of error codes and corresponding messages.
10. **Error Batching:** An API service encapsulates all errors during the service execution into a single response. This allows the service customer to send back the corrected request without running an iterative error correction process for each attribute or entity of the request.

5 WSDL Nomenclature

The following abstract from the *W3C March 2001 note 15* describes the WSDL:

WSDL is an XML format for describing network services as a set of endpoints operating on messages containing either document-oriented or procedure-oriented information. The operations and messages are described abstractly, and then bound to a concrete network protocol and message format to define an endpoint. Related concrete endpoints are combined into abstract endpoints (services). WSDL is extensible to allow description of endpoints and their messages regardless of what message formats or network protocols are used to communicate.

Table 5-1 shows the Web nomenclature.

Table 5-1. Web Service Nomenclature

WSDL Parameter	Value
PortType	<**DomainClassName**>PortType
Binding	<**DomainClassName**>Binding
Soap-binding style	rpc
TargetNameSpace	<**DomainClassName**>.wsdl

All complex types specified by the Web Services include the targetNamespace in the corresponding WSDL and are named after the complex type or the domain level object, i.e., Assistance.xsd.
The schemas are located and loadable from a public URL using the http protocol. Availability of the web services, over other protocols such as ftp and SMTP, is not supported due to security risks.

6 API Standards and Generic details

The web services APIs domain objects encompass the following standards:

- Service calls are authenticated by checking for valid User ID/Password.
- Service calls are checked for authorization before serving the request. For example, the create service will check if the user has the privilege to create an Assistance record.
- Web Services APIs include common business services such as create, get, update and delete.
- Service calls use a standard method signature. All the business classes in the system have the same method signature. Standardization involves the same set of input and output parameters and their generic structures for the web services.
- Service calls contain a logging and error mechanism. All the requests are logged in the underlying generic layer of the business classes.

6.1 Standard Method Signatures

All the methods use the following signatures:

- All the input and output parameters are in XML Format.
- The inputs to the service methods and the subsequent domain classes are encapsulated in the authentication key and the input parameters.

6.1.1 Service Input Parameters

Table 6-1 describes the service input parameter names and description.

Table 6-1. Service Input Parameters

Parameter Name	Contents
AuthenticationKey	UserID, Password, Source
InputXML	Contains an XML representation of the business object, search criteria, or key for the business object

Table 6-2 describes the contents of the input XML based on the type of data operation.

Table 6-2. Data Operation Descriptions

Operation	Input XML Data	Description
create	XML representation of the business object	XML is converted to the value object using JAXB and JDBC calls to perform DB operations
update	XML representation of the business object	Update errors, business validation errors and warning messages
correct	XML representation of the business object	Business validation errors and warning messages
get	XML representation of the key(s)	Retrieved based on the key values specified in the input
exists	XML representation of the key(s)	Retrieved based on the key values specified in the input
delete	XML representation of the key(s)	Deleted based on the key values specified in the input
getList	search criteria inputs serialized in predefined XML format	Query based on search criteria input

6.1.2 Service Output Parameters

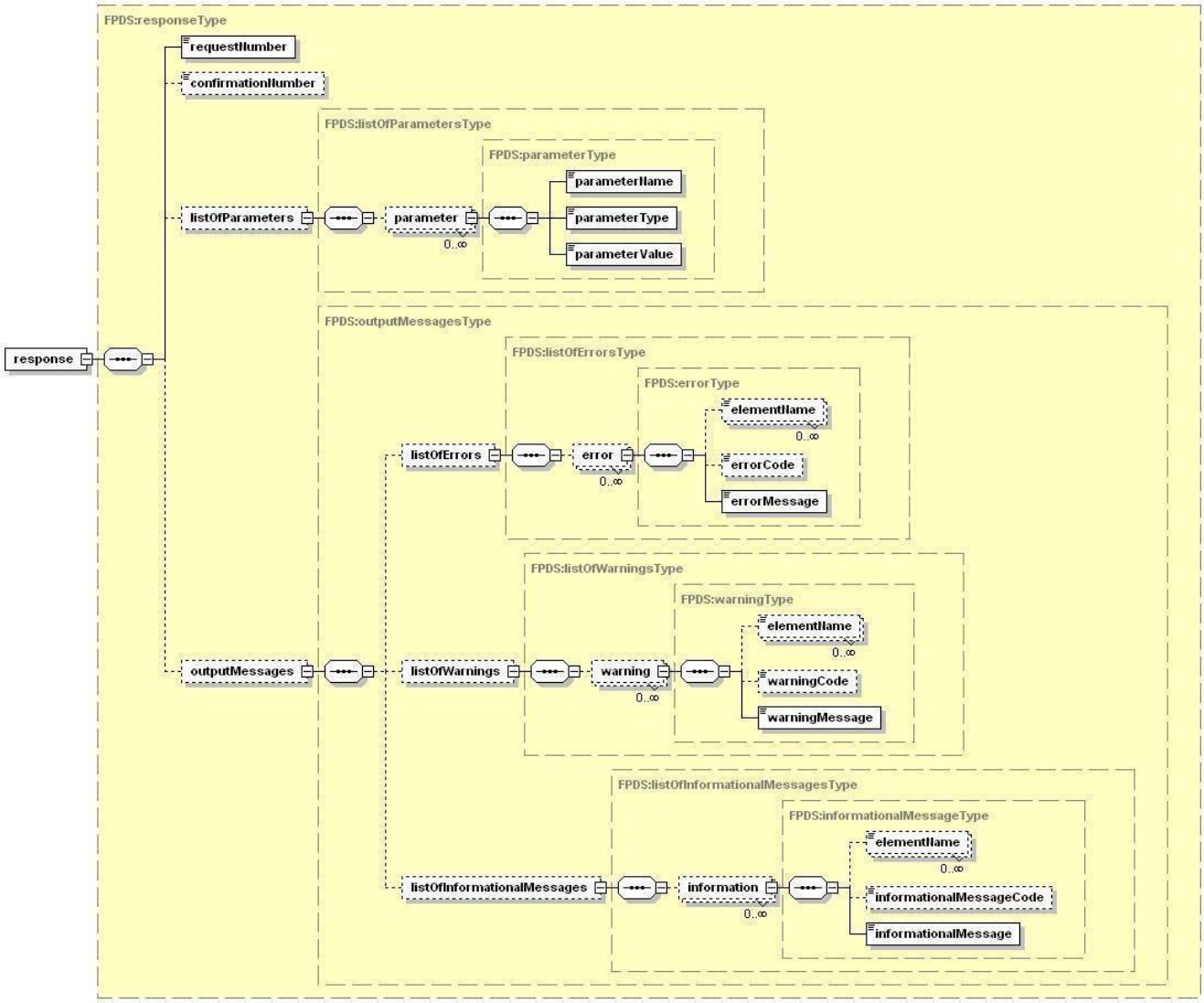
The service output parameters are represented in Meta XML strings. Table 6-3 describes the XML metaresponse.

Table 6-3. Service Output Parameters

Response XML Elements	Description
Request Number	Number returned to uniquely identify the request from the log store
Confirmation Number	Confirmation number for DML Transactions
Messages	List of error, warning and informational messages.
listOfParameters	List of return parameters

The schematic representation of the output is shown in Figure 6–1.

Figure 6–1. Data Collection Business Services



6.1.2.1 Output Parameter Types

All unauthorized transaction operations are returned with Authentication Errors. Error messages are returned when the operation fails. Only a sample list of errors is provided for each operation. The output parameter types are described in Table 6-4.

Table 6-4. Output Parameter Types

Operations	Confirmation Number		Specific API Output Parameters	Example Errors and Warnings
	Success	Failure		
get	Positive Integer	-1	XML representation of the Business object	Not Found, mode errors
getList	Positive Integer	-1	XML representation of the queried business objects in a list	Not Found, insufficient query information errors, query too broad warnings
create	Positive Integer	-1	Data created in the table	Data completion errors and warning messages
update	Positive Integer	-1	Updated version of the business object	Update errors, business validation errors and warning messages
delete	Positive Integer	-1	Boolean true / false response	Not Found, insufficient query information errors, business restriction errors.
isComplete	Positive Integer	-1	Boolean true / false response	Business validation errors and warning messages
approve	Positive Integer	-1	Boolean true / false response	Business validation errors and warning messages
exists	Positive Integer	-1	Boolean true / false response	Not Found, insufficient query information errors
correct	Positive Integer	-1	Corrected record	Business validation errors and warning messages
isExistingAssistanceComplete	Positive Integer	-1	Boolean true / false response	Business validation errors and warning messages

6.1.2.2 Sample Response Error Messages

```
<response>
<listOfErrors>
    <error>
        <elementName>searchCriteriaXML</elementName>
        <errorCode>10141</errorCode>
                <errorMessage>Service Unavailable Please try again
later</errorMessage>    </error>
    <error>
        <elementName>FAIN</elementName>
        <errorCode>10200</errorCode>
                <errorMessage>Cannot create assistance record. FAIN already exists in the
database</errorMessage>
    </error>
```

```
</listOfErrors>
<listOfWarnings>
    <warning>
        <elementName>countyCode</elementName>
        <warningCode>30501</warningCode>
  <warningMessage>countyCode is not required for when record type is 'Aggregate'. Ignoring the value</warningMessage>
    </warning>
</listOfWarnings>
<listOfInformationalMessages>
    <informationalMessage>
        <elementName>None</elementName>
        <InformationalCode>73210</InformationalCode>
                <InformationalMessage>Congressional district code has been derived based on the zip code information provided</InformationalMessage>
    </informationalMessage>
</listOfInformationalMessages>
</response>
```

7 Service API Details

The sections below list the available integration services for the Financial Assistance module in FPDS to collect assistance data.

7.1 Business Services

7.1.1 Assistance Data Collection

The Business Services WSDL specification lists all the available services, schema definitions, transport endpoints and name spaces to integrate and collect assistance data.

7.1.1.1 Assistance

7.1.1.1.1 Service meta-specifications in WSDL

The table below lists the parameter names used in the Assistance WSDL file.

WSDL Parameter	Value
PortType	**Assistance**PortType
Binding	**Assistance**Binding
Soap-binding style	rpc
TargetNameSpace	**Assistance.**wsdl

7.1.1.1.2 Assistance Service Methods

Service Type/Name	Service Description
get	The Assistance.get service finds an existing assistance record using the FAIN or URI information and then composes and returns the XML representation of the record.
getList	The Assistance.getList service finds assistance records, which match the input selection criteria. Matching records are returned in the XML format declared in the Schema.
create	The Assistance.create service creates a new assistance record. This service utilizes the validate service to check record validity before inserting into the database.
update	The Assistance.update service updates an existing assistance record. This service utilizes the validate service to check record validity before updating the database.
delete	The Assistance.delete service deletes an existing assistance in the system. This service utilizes the exists service to check record existence before marking the record as deleted from the database.
isComplete	The Assistance.isComplete service does data validation and business rule validation.
approve	Assistance.approve approves the document after checking for validity and completeness of the document by using the isComplete service. If no error is returned, the status of the given record is changed from DRAFT mode to FINAL (approved) mode. If the record is not complete or a value is not valid, an error is returned.

exists	The Assistance.exists service checks for the existence of a given record.
correct	The Assistance.correct service changes an existing assistance without creating a new record.
isExistingAssistanceComplete	The Assistance.isExistingAssistanceComplete does the data validation and business rule validation for an already existing record.

7.1.1.1.3 get

- The get service retrieves the existing Assistance information and returns the record in the XML format specified by the schema. If multiple records or no records are found for the given assistance Id, an error message is returned to the user.
- All users of the system are allowed to access the get service.

Input Parameters

Parameter Name	Parameter Type	Name Space
authenticationKey	userAuthenticationKeyType	Service.xsd
assistanceID	complexType assistanceIDType	Assistance.xsd

Output Parameters

Parameter Name	Parameter Type	Name Space
getAssistanceResponse	complexType getAssistanceResponseType	Assistance.wsdl

The output parameters in the response contain the following:

Success Output

Parameter Name	Parameter Type	Contents
assistance	complexType assistanceType	XML representation of the assistance record

Example:

```
<getAssistanceResponse>
    <requestNumber>549212</requestNumber>
     <confirmationNumber>329743</confirmationNumber>
     <outputMessages>
       …
     </outputMessages>
     <assistance>
       …
    </assistance>
</getAssistanceResponse>
```

Failure Output

Parameter Name	Parameter Type	Sample Error Contents
ListOfErrors	complexType listOfErrorsType	1. Assistance record does not exist 2. Multiple records exist for the given assistance Id. Please provide required information to retrieve the record.

7.1.1.1.4 getList

- The getList service retrieves the existing Assistance information that satisfies the specified criteria in the request.
- On successful retrieval, it returns the record in the XML format specified by the schema.

Input Parameters

Parameter Name	Parameter Type	Name Space
AuthenticationKey	userAuthenticationKeyType	Service.xsd
assistanceSearchCriteria	complexType assistanceSearchCriteriaType	Assistance.xsd

Output Parameters

Parameter Name	Parameter Type	Name Space
getListAssistanceResponse	complexType getListAssistanceResponseType	Assistance.wsdl

The output parameters in the response contain the following:

Success Output

Parameter Name	Parameter Type	Contents
listOfAssistanceSummaries	complexType listOfAssistanceSummariesType	List of Assistance Summaries XML

Example:

```
<getListAssistanceResponse>
    <requestNumber>549212</requestNumber>
    <confirmationNumber>329743</confirmationNumber>
    <listOfAssistanceSummaries>
    <outputMessages>
        …
     </outputMessages>
     <assistance>
        …
    </assistance>
    </ listOfAssistanceSummaries>
</getListAssistanceResponse>
```

Failure Output

Parameter Name	Parameter Type	Sample Error Contents
ListOfErrors	complexType listOfErrorsType	1. Service unavailable 2. No records found
ListOfWarnings	complexType listOfWarningsType	1. Search Criteria too broad; enter specific values to search on
ListOfInformationalMessages	complexType listOfInformationalMessagesType	1. No assistance records available for search criteria

7.1.1.1.5 create

- The Assistance.create service creates a new assistance record in DRAFT status. The service is authenticated before creating the record.
- The document will be created if the user has 'create' privileges on Assistance module.

Input Parameters

Parameter Name	Parameter Type	Name Space
authenticationKey	userAuthenticationKeyType	Service.xsd
assistanceXML	complexType assistanceType	Assistance.xsd

Output Parameters

Parameter Name	Parameter Type	Name Space
createAssistanceResponse	complexType createAssistanceResponse	Assistance.wsdl

The output parameter in the response is wrapped as follows:

Success Output

Parameter Name	Parameter Type	Contents
Assistance	complexType assistanceType	XML representation of the created assistance record

Example:

```
<createAssistanceResponse>
    <requestNumber>549212</requestNumber>
     <confirmationNumber>329743</confirmationNumber>
     <outputMessages>
       …
     </outputMessages>
     <assistance>
       …
    </assistance>
</createAssistanceResponse >
```

Failure Output

Parameter Name	Parameter Type	Sample Error Contents
ListOfErrors	complexType listOfErrorsType	1. An Assistance record with the FAIN already exists 2. Agency code is required

7.1.1.1.6 update

- The Assistance.update service is the API to update and perform modifications to the existing assistance in draft mode.
- The Assistance.update method expects only the assistance ID and the required information to update the assistance information pertaining to the user.
- Any Awarding officer from the same awarding office is allowed to update the assistance record.

Input Parameters

Parameter Name	Parameter Type	Name Space
AuthenticationKey	userAuthenticationKeyType	Service.xsd
Assistance	complexType assistanceType	Assistance.xsd

Output Parameters

Parameter Name	Parameter Type	Name Space
updateAssistanceResponse	complexType updateAssistanceResponse	Assistance.wsdl

The output parameters in the response contain the following:

Success Output

Parameter Name	Parameter Type	Contents
assistance	complexType assistanceType	XML representation of the updated assistance record

Example:

```
<updateAssistanceResponse>
  <requestNumber>549212</requestNumber>
  <confirmationNumber>329743</confirmationNumber>
    <outputMessages>
        …
    </outputMessages>
    <assistance>
        …
    </assistance>
</updateAssistanceResponse>
```

Failure Output

Parameter Name	Parameter Type	Sample Error Contents

ListOfErrors	complexType listOfErrorsType	1. Assistance for the FAIN not found 2. User not authorized to update this contract

7.1.1.1.7 delete

- This service deletes the document
- This keeps track of an audit entry for all the FINAL deleted records

Input Parameters

Parameter Name	Parameter Type	Name Space
AuthenticationKey	userAuthenticationKeyType	Service.xsd
AssistanceID	complexType assistanceIDType	Assistance.xsd

Output Parameters

Parameter Name	Parameter Type	Name Space
deleteAssistanceResponse	complexType deleteAssistanceResponse Type	Assistance.wsdl

The output parameters in the response contain the following:

Success Output

Parameter Name	Parameter Type	Contents
isDeleted	xsd:boolean	True or false, representing whether the assistance is deleted or not

Example:

```
<deleteAssistanceResponse>
    <requestNumber>549212</requestNumber>
    <confirmationNumber>329743</confirmationNumber>
    <outputMessages>
        …
    </outputMessages>
    <isDeleted>true </isDeleted>
</deleteAssistanceResponse>
```

Failure Output

Parameter Name	Parameter Type	Sample Error Contents
ListOfErrors	complexType listOfErrorsType	1. FAIN/URI does not exist

7.1.1.1.8 isComplete

- The isComplete service checks for the completeness of the assistance data.
- It checks for the existence of all mandatory fields in the Assistance, does data validation, applies business validations and returns success or failure to the user.

- In case of failure, the error information lists all the messages, codes and the data elements involved with the error.

Input Parameters

Parameter Name	Parameter Type	Name Space
AuthenticationKey	userAuthenticationKeyType	User.xsd
assistance	complexType assistanceType	Assistance.xsd

Output Parameters

Parameter Name	Parameter Type	Name Space
isCompleteAssistanceResponse	complexType isCompleteAssistanceResponse Type	Assistance.wsdl

The output parameters in the response contain the following:

Success Output

Parameter Name	Parameter Type	Contents
isCompleted	xsd:boolean	True or false, representing whether the assistance is complete or otherwise

Example:

```
<isCompleteAssistanceResponse>
    <requestNumber>549212</requestNumber>
     <confirmationNumber>329743</confirmationNumber>
     <outputMessages>
       …
    </outputMessages>
     <isCompleted>true </isCompleted>
</isCompleteAssistanceResponse>
```

Failure Output

Parameter Name	Parameter Type	Sample Error Contents
ListOfErrors	complexType listOfErrorsType	1. <FAIN> must not contain special characters 2. Assistance Listing must be valid value 3. The Unique Entity ID (UEI) entered does not exist in SAM 4. Record for Assistance Listing does not exist

7.1.1.1.9 approve

- This service approves the document, after doing a completeness check by using the isComplete service.
- Document must be in DRAFT status.
- In case of failure, the error response contains fields that were not filled in with values as well as fields that contain invalid data and business rule violations.

Input Parameters

Parameter Name	Parameter Type	Name Space
AuthenticationKey	userAuthenticationKeyType	Service.xsd
AssistanceID	complexType assistanceIDType	Assistance.xsd

Output Parameters

Parameter Name	Parameter Type	Name Space
approveAssistanceResponse	complexType approveAssistanceResponse Type	Assistance.wsdl

The output parameters in the response contain the following:

Success Output

Parameter Name	Parameter Type	Contents
isApproved	xsd:boolean	True or false, representing whether the assistance is approved or not

Example:

```
<approveAssistanceResponse>
    <requestNumber>549212</requestNumber>
     <confirmationNumber>329743</confirmationNumber>
     <outputMessages>
       …
    </outputMessages>
     <isApproved>    true </isApproved>
</approveAssistanceResponse>
```

Failure Output

Parameter Name	Parameter Type	Sample Error Contents
ListOfErrors	complexType listOfErrorsType	1. FAIN must not contain special characters 2. Action Date cannot be later than tomorrow's date

7.1.1.1.10 exists

- This service checks whether an assistance record, as per the criteria in the request, exists in the system and returns a success or failure response.
- The service also checks for valid authorization of the requesting user before sending back the response.

Input Parameters

Parameter Name	Parameter Type	Name Space

AuthenticationKey	userAuthenticationKeyType	Service.xsd
AssistanceID	complexType assistanceIDType	Assistance.xsd

Output Parameters

Parameter Name	Parameter Type	Name Space
existsAssistanceResponse	complexType existsAssistanceResponse Type	Assistance.wsdl

The output parameters in the response contain the following:

Success Output

Parameter Name	Parameter Type	Contents
isExists	xsd:boolean	True or false, representing whether the assistance exists or not

Example:

```
<existsAssistanceResponse>
    <requestNumber>549212</requestNumber>
    <confirmationNumber>329743</confirmationNumber>
    <outputMessages>
        …
    </outputMessages>
     <isExists>
            true
    </isExists>
</existsAssistanceResponse>
```

Failure Output

Parameter Name	Parameter Type	Sample Error Contents
ListOfErrors	complexType listOfErrorsType	1. Service Unavailable 2. No records found

7.1.1.1.11 correct

- Assistance.correct service modifies the document, after doing a completeness check by using the isComplete service.
- Document must be in FINAL status.
- In case of failure, the error response contains fields that were not filled in with values as well as fields that contain invalid data and business rule violations. No changes to the document are performed.
- This service should be used to correct any typographical errors or incorrect data in the system.

Input Parameters

Parameter Name	Parameter Type	Name Space
AuthenticationKey	userAuthenticationKeyType	Service.xsd
Assistance	complexType assistanceType	Assistance.xsd

Output Parameters

Parameter Name	Parameter Type	Name Space
correctAssistanceResponse	complexType correctAssistanceResponse Type	Assistance.wsdl

The output parameter in the response contains the following:

Success Output

Parameter Name	Parameter Type	Contents
assistance	complexType assistanceType	XML representation of the updated assistance record

Example:

```
<correctAssistanceResponse>
    <requestNumber>549212</requestNumber>
     <confirmationNumber>329743</confirmationNumber>
     <outputMessages>
        …
     </outputMessages>
     <assistance>
            ....
    </assistance>
</correctAssistanceResponse>
```

Failure Output

Parameter Name	Parameter Type	Sample Error Contents
ListOfErrors	complexType listOfErrorsType	1. Assistance record not found in the System 2. Action Date cannot be later than today's date

7.1.1.1.12 isExistingAssistanceComplete

- The Assistance.isExistingAssistanceComplete service checks for the completeness of an already saved assistance.
- It checks for the existence of all mandatory fields in the Assistance record, does data validation, applies business rules validations and returns success or failure to the user.
- In case of failure, the error information would list all the messages, codes and the data elements involved with the error.

Input Parameters

Parameter Name	Parameter Type	Sample Error Contents
AuthenticationKey	userAuthenticationKeyType	Service.xsd
AssistanceID	ComplexType assistanceIDType	Assistance.xsd

Output Parameters

Parameter Name	Parameter Type	Name Space
isExistingAssistanceCompleteResponse	complexType isExistingAssistanceCompleteResponse Type	Assistance.wsdl

The output parameters in the response contain the following:

Success Output

Parameter Name	Parameter Type	Contents
isCompleted	xsd:boolean	True or false, representing whether the existing assistance is complete or not

Example:

```
<isExistingAssistanceCompleteResponse>
    <requestNumber>549212</requestNumber>
     <confirmationNumber>329743</confirmationNumber>
     <outputMessages>
       …
    </outputMessages>
     <isCompleted>
            true
    </isCompleted>
</isExistingAssistanceCompleteResponse>
```

Failure Output

Parameter Name	Parameter Type	Sample Error Contents
ListOfErrors	complexType listOfErrorsType	1. Action Date cannot be later than tomorrow's date 2. Assistance Listing must be valid value

7.1.1.2 Assistance Close

7.1.1.2.1 Service meta-specifications in WSDL

The table below lists the parameter names used in the Assistance Close WSDL file.

WSDL Parameter	Value
PortType	**AssistanceClose**PortType
Binding	**AssistanceClose**Binding
Soap-binding style	rpc
TargetNameSpace	**AssistanceClose.**wsdl

7.1.1.2.2 Assistance Service methods

Service Type/Name	Service Description
close	The AssistanceClose.close service closes the contract family.

7.1.1.2.3 close

- This service closes the document, utilizing the provided input in close service.
- The document must be in FINAL status.
- In case of failure, the error response displays fields that were not filled in with values, as well as fields that contain invalid data and business rule violations.
- The document will be closed if the user has 'close' privileges on Assistance module. Any Awarding officer with 'close' privileges from the same awarding office is allowed to close the assistance record.

Input Parameters

Parameter Name	Parameter Type	Name Space
AuthenticationKey	userAuthenticationKeyType	User.xsd
closeAssistanceCloseRequest	complexType closeAssistanceCloseRequestType	AssistanceClose.xsd

Output Parameters

Parameter Name	Parameter Type	Name Space
closeAssistanceCloseResponse	complexType closeAssistanceCloseResponseType	AssistanceClose.wsdl

The output parameters in the response contain the following:

Success Output

Parameter Name	Parameter Type	Contents
isClosed	xsd:boolean	True or false, representing whether the assistance is closed or not
closedDate	Xsd:DateType	Date when the record is closed.

Example:

```
<closeAssistanceCloseResponse>
    <requestNumber>967780019</requestNumber>
     <confirmationNumber>700710014</confirmationNumber>
     <outputMessages>
       …
    </outputMessages>
    <isClosed>true</isClosed>
    <closedDate>2021-04-20 15:05:45</closedDate>
</closeAssistanceCloseResponse>
```

Failure Output

Parameter Name	Parameter Type	Sample Error Contents
ListOfErrors	complexType listOfErrorsType	1. Assistance Award is already closed 2. Record to close does not exist 3. User is not authorized to perform the Close action to this assistance family as the Awarding SubTier Agency "<awardingSubTierAgencyID>" on the latest Modification belongs to a Department different from the Department of the Agency Code on the user profile.

7.2 GUI Services

7.2.1 Assistance Data Collection

The GUI services WSDL specification lists all the available services, schema definitions, transport endpoints and name spaces to integrate and collect assistance data.

7.2.1.1 Service meta-specifications in WSDL

The table below lists the parameter names used in the Assistance WSDL file:

WSDL Parameter	Value
PortType	**Assistance**PortType
Binding	**Assistance**Binding
Soap-binding style	rpc
TargetNameSpace	**Assistance.**wsdl

7.2.1.2 Assistance Service methods

The table below lists all the services provided in the GUI services module.

Service Type/Name	Service Description
getExistingAssistanceURL	Assistance.getExistingAssistanceURL service returns the FPDS web page URL to be invoked for updating an existing assistance record from any external application.
getNewAssistanceURL	Assistance.getNewAssistanceURL service returns the FPDS web page URL to be invoked from any external application.

7.2.1.2.1 getExistingAssistanceURL

- The Assistance.getExistingAssistanceURL service gets the URL to launch the Assistance web page with the Assistance data existing in the database, identified by the ID provided in the request.
- When accessed by a web browser, the web page is pre-populated with the Assistance data fetched from the database using the assistance ID sent in the request.
- This is used by external systems that might want to perform assistance related transactions using the FPDS system directly.

Input Parameters

Parameter Name	Parameter Type	Name Space
AuthenticationKey	userAuthenticationKeyType	Service.xsd
assistanceID	complexType assistanceIDType	Assistance.xsd

Output Parameters

Parameter Name	Parameter Type	Name Space
AssistanceURL	complexType getExistingAssistanceURLResponse Type	Assistance.wsdl

The output parameters in the response contain the following:

Success Output

Parameter Name	Parameter Type	Contents
assistance	complexType assistanceType	XML representation of the assistance record

Example:

```
<getExistingAssistanceURLResponse>
    <requestNumber>549212</requestNumber>
    <confirmationNumber>329743</confirmationNumber>
    <outputMessages>
        …
    </outputMessages>
    <assistanceURL>
        …
    </assistanceURL>
</getExistingAssistanceURLResponse>
```

Failure Output

Parameter Name	Parameter Type	Sample Error Contents
ListOfErrors	complexType listOfErrorsType	User does not have authority for this function

7.2.1.2.2 getNewAssistanceURL

- The Assistance.getNewAssistanceURL service gets the URL to launch Assistance web page screen with the Assistance data provide in the request. The service is authenticated before sending the URL.
- When accessed from a browser, the web page shows up pre-populated with the Assistance data sent in the request.

Input Parameters

Parameter Name	Parameter Type	Name Space
AuthenticationKey	userAuthenticationKeyType	Service.xsd
Assistance	complexType assistanceType	Assistance.xsd

Output Parameters

Parameter Name	Parameter Type	Name Space
assistanceURL	complexType getNewAssistanceURLResponse Type	Assistance.wsdl

The output parameters in the response contain the following:

Success Output

Parameter Name	Parameter Type	Contents

Assistance	complexType assistanceType	URL to invoke Assistance web page with contents filled in from the request.

Example:

```
<getNewAssistanceURLResponse>
    <requestNumber>549212</requestNumber>
    <confirmationNumber>329743</confirmationNumber>
    <outputMessages>
        …
    </outputMessages>
   <assistanceURL>
        …
    </assistanceURL>
</getNewAssistanceURLResponse>
```

Failure Output

Parameter Name	Parameter Type	Sample Error Contents
ListOfErrors	complexType listOfErrorsType	1. User does not have authority for this function

7.3 Reporting Services

7.3.1 Assistance Extract

The Reporting Service Assistance Extract WSDL specification lists all the available services, schema definitions, transport endpoints and name spaces to generate and delete assistance extracts.

7.3.1.1 Service meta-specifications in WSDL

The table below lists the parameter names used in the Assistance Extract WSDL file

WSDL Parameter	Value
PortType	**AssistanceExtract**PortType
Binding	**AssistanceExtract**Binding
Soap-binding style	rpc
TargetNameSpace	**AssistanceExtract.**wsdl

7.3.1.2 Assistance Extract Service methods

The table below lists all the services provided in the Reporting Services module.

Service Type/Name	Service Description
generateAssistanceExtract	AssistanceExtract.generateAssistanceExtract service generates an assistance extract and returns the FPDS web page URL to be invoked for downloading the assistance extract csv file.
deleteAssistanceExtract	The AssistanceExtract.deleteAssistanceExtract service deletes an existing assistance extract csv file in the system.

7.3.1.2.1 generateAssistanceExtract

- The AssistanceExtract.generateAssistanceExtract service generates an assistance extract csv file from the assistanceExtractSearchCriteria provided in the request and returns the assistanceExtractSummary including the URL to download the assistance extract csv file.
- When the returned URL is accessed by a web browser with an authenticated FPDS session, the assistance extract csv file may be downloaded.
- The service also checks for valid authorization of the requesting user before sending back the response.

Input Parameters

Parameter Name	Parameter Type	Name Space
authenticationKey	userAuthenticationKeyType	Service.xsd
assistanceExtractSearchCriteria	complexType assistanceExtractSearchCriteriaType	AssistanceExtract.xsd

Output Parameters

Parameter Name	Parameter Type	Name Space
generateAssistanceExtractResponse	complexType generateAssistanceExtractResponseType	AssistanceExtract.wsdl

The output parameters in the response contain the following:

Success Output

Parameter Name	Parameter Type	Contents
assistanceExtractSummary	complexType AssistanceExtractSummaryType	Assistance Extract Summary including file name, download URL, total record count, and warning message if applicable

Example:

```
<generateAssistanceExtractResponse>
    <requestNumber>549212</requestNumber>
    <confirmationNumber>329743</confirmationNumber>
    <outputMessages>
        …
    </outputMessages>
    <assistanceExtractSummary>
        …
    </assistanceExtractSummary>
</generateAssistanceExtractResponse>
```

Failure Output

Parameter Name	Parameter Type	Sample Error Contents
ListOfErrors	complexType listOfErrorsType	User does not have authority for this function

7.3.1.2.2 deleteAssistanceExtract

- The AssistanceExtract.deleteAssistanceExtract service deletes an existing assistance extract csv file in the system corresponding to the file name provided in the request.
- The service also checks for valid authorization of the requesting user before sending back the response.

Input Parameters

Parameter Name	Parameter Type	Name Space
authenticationKey	userAuthenticationKeyType	Service.xsd
assistanceExtractFileName	complexType AssistanceExtractNameType	AssistanceExtract.xsd

Output Parameters

Parameter Name	Parameter Type	Name Space
deleteAssistanceExtractResponse	complexType deleteAssistanceExtractResponseType	AssistanceExtract.wsdl

The output parameters in the response contain the following:

Success Output

Parameter Name	Parameter Type	Contents
isDeleted	xsd:boolean	True or false, representing whether the assistance extract csv file is deleted or not

Example:

```
<deleteAssistanceExtractResponse>
    <requestNumber>549212</requestNumber>
    <confirmationNumber>329743</confirmationNumber>
    <outputMessages>
        …
    </outputMessages>
    <isDeleted>true</isDeleted>
</deleteAssistanceExtractResponse>
```

Failure Output

Parameter Name	Parameter Type	Sample Error Contents
ListOfErrors	complexType listOfErrorsType	User does not have authority for this function

APPENDIX A Definition and Acronyms

All standard and non-standard terms and abbreviations used in this specifications document are explained in the following table.

Acronyms

Acronym	Definition
API	Application Programming Interface
CRU	Create, Read, Update
CRUD	Create, Read, Update, Delete
EJB	Enterprise Java Beans
FPDS	Federal Procurement Data System
FTP	File Transfer Protocol
GUI	Graphical User Interface
HTTP	HyperText Transfer Protocol
HTTPS	Secure HyperText Transfer Protocol
MIME	Multipurpose Internet Mail Extensions
OLAP	On-Line Analytical Processing
PSC	Product Service Codes
RPC or rpc	Remote Process Call
SOAP	Simple Object Access Protocol
URL	Uniform Resource Locator
WSDL	Web Services Definition Language
XML	eXtensible Markup Language
XSD	XML Schema Definition
XSL	eXtensible Stylesheet Language

Definitions

The following list contains definitions of the terms used in this document:

- **Port Type** – A Port type is an abstract set of operations supported by one or more web service providers (i.e., all of the web services available for an award).
- **Binding –** A concrete protocol and data format specification for a particular port type.
- **Types –** A container for data type definitions using some type system (such as XSD).
- **Service** – A collection of related endpoints.
- **Target Name Space**. The target namespace serves to identify the namespace within which the association between the component and its name exists.

Appendix B References

Normative References

[RFC 2119]

IETF "RFC 2119: Keywords for use in RFCs to Indicate Requirement Levels", S. Bradner, March 1997. (See http://www.ietf.org/rfc/rfc2119.txt.)

[RFC 2396]

IETF "RFC 2396: Uniform Resource Identifiers (URI): Generic Syntax", T. Berners-Lee, R. Fielding, L. Masinter, August 1998. (See http://www.ietf.org/rfc/rfc2396.txt.)

[RFC 2616]

IETF "RFC 2616: Hypertext Transfer Protocol -- HTTP/1.1", R. Fielding, J. Gettys, J. C. Mogul, H. Frystyk Nielsen, T. Berners-Lee, January 1997. (See http://www.ietf.org/rfc/rfc2616.txt.)

[XML Schema Part 1]

W3C Recommendation "XML Schema Part 1: Structures", Henry S. Thompson, David Beech, Murray Maloney, Noah Mendelsohn, 2 May 2001. (See http://www.w3.org/TR/2001/RECxmlschema-1-20010502/.)

[XML Schema Part 2]

W3C Recommendation "XML Schema Part 2: Datatypes", Paul V. Biron, Ashok Malhotra, 2 May 2001. (See http://www.w3.org/TR/2001/REC-xmlschema-2-20010502/.)

[SOAP Part 0]

W3C Proposed Recommendation "SOAP Version 1.2 Part 0: Primer", Nilo Mitra, (see http://www.w3.org/TR/soap12-part1.)

Informative References

[WSDL 1.1]

Web Services Description Language (WSDL) 1.1 W3C Note 15 March 2001 (See http://www.w3.org/TR/2001/NOTE-wsdl-20010315).

[XML Schema Part 1]

W3C Recommendation "XML Schema Part 1: Structures", Henry S. Thompson, David Beech, Murray Maloney, Noah Mendelsohn, 2 May 2001. (See http://www.w3.org/TR/2001/RECxmlschema-1-20010502/.)

[XML Schema Part 2]

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[SOAP Part 0]

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