G-Invoicing
System Interface Specifications - Push

A Guide to transmit, insert, and process IGT Buy/Sell Order and Performance data in the New G-Invoicing Environment

Orders and Performance
Version 5.6

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G-Invoicing
GOVERNMENT INVOICING
BUREAU OF THE FISCAL SERVICE

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1 Introduction

1.1 Purpose

This artifact defines the interface specification to define the transmission of Order and Performance data from Federal Program Agency systems to the G-Invoicing application. It serves as an agreement between G-Invoicing, agencies with interfacing systems, their software provider development teams and Bureau of the Fiscal Service business owners, upon which the system-to-system interface will be based.

1.2 Scope

This artifact defines the G-Invoicing specifications to transmit, insert, and process IGT Buy/Sell Order and Performance data and the communication channel that carries these messages. The focus is on the specifications that must be mutually agreed upon by G-Invoicing and agencies with interfacing systems. The G-Invoicing team owns the maintenance of this document.

1.3 References

The artifacts listed below support the current Production release of this specification and may be downloaded from the provided location. Artifacts that support future enhancements and releases of this specification can be made available upon request.

1.3.1 The Federal Intragovernmental Data Standards (FIDS) Orders Data Elements
The Federal Intragovernmental Data Standards (FIDS) Performance Data Elements

https://www.fiscal.treasury.gov/fsservices/gov/acctg/g_invoice/g_invoice_home.htm

1.3.2 System Mapping and Validation Rules (SM&VR) for Orders, explains how each data element in the FIDS maps to G-Invoicing and the validation rules enforced for each change in status.

https://www.fiscal.treasury.gov/fsservices/gov/acctg/g_invoice/g_invoice_home.htm

Note: There is no SM&VR for Performance data elements because Performance transactions have only two resources available to agencies through the API: New and Delete. Subsequently, the validation rules are relatively simple and appear in the FIDS.

1.3.3 XML Schema Documentation

- Order.xsd (payload)
- Performance.xsd (payload)

The following schemas are used generically for Orders and Performance:

- Order_Attachment_Push.xsd
- Order_Attachment_Response.xsd
- Order_Error.xsd

https://www.fiscal.treasury.gov/data/

2 Assumptions/Constraints

2.1 Assumptions

1. While this artifact represents an agreement by G-Invoicing, Federal Program Agencies and their software providers, it does not imply a release schedule or project plan. Those topics are described by other artifacts for the respective projects and are not referenced here.
2. The interface is limited to the transmission of Order and Performance data and associated attachments inbound from agencies with interfacing systems to G-Invoicing.

2.2 Constraints

1. This interface will be delivered via web services, access governed by the Treasury Web Application Infrastructure (TWAI), as per agreement between FRB St Louis, the Department of the Treasury Bureau of the Fiscal Service and Defense Logistics Agency (DLA) Transaction Services, and is consistent with the Bureau of the Fiscal Service's desire to move towards delivering system-to-system interfaces via web services.
   a. Similar operating agreements may be made with other agencies, as-needed.
2. Messages will be sent over the internet utilizing the HTTPS protocol.
3. The Bureau of the Fiscal Service reference data XML Schemas will be published by the Enterprise Data Architecture group at https://www.fiscal.treasury.gov/data/. These schemas will be used to format the payload portion of the data transmission.
   a. XML namespaces may vary with each new schema version

3 Interface Mechanism

3.1 Physical Interface

The G-Invoicing to agency system interface will communicate using HTTPS with 2-way TLS (Transport Layer Security) using a client certificate through the TWAI. The TWAI will employ a web service proxy to serve as a focal route for incoming web service requests so that the web service provider is only configured to receive requests from a single point of origination. The web service response is routed back on the same stream to the initial requestor.

3.2 Protocol

The G-Invoicing to agency system interface will employ a push/pull model utilizing RESTful Services with an XML payload. All services below are referenced via URLs in the following format. https://host-name:port/base-path/resource-path

Note: *XML is the U.S. Treasury's standard data format.*

3.2.1 Host names:

Production: ws.igt.fiscal.treasury.gov
Quality Assurance Current: qa.ws.igt.fiscal.treasury.gov
Quality Assurance Future: qaf.ws.igt.fiscal.treasury.gov

Functional Test: ft.ws.igt.fiscal.treasury.gov

3.2.2 Base Path: /ginv

3.2.3 Resource: /services

Note: *G-Invoicing supports a one-to-many relationship between a Partner ID and a System ID whereby one Partner created and managed within a single disburser account can represent multiple Systems spread across many disburser accounts. Policy requires that at least one System ID must be created and managed in each disburser account to push data. The Partner ID must be assigned a client certificate to access G-Invoicing.*

Each System ID must be granted full access (by agency user administrators) to push data for all documents residing in that disburser account. Policy requires that at least one System ID is created and authorized, even in situations where the Partner is only accessing data in a single disburser account.

3.2.3.1 Resource: New Order

Component	Detail / Description
Path	/ginv/services/v1_0/order
Method	POST
Description	Creates a new Order in the System.
Example	POST /ginv/services/v1_0/order Host: ws.igt.fiscal.treasury.gov
Parameters	Name: Accept Description: Indicates the service client expects content in XML format. No other format is currently supported. Value: application/xml Required: true
	Name: Accept-Encoding Description: Allows the service client to indicate it supports compressing the response payload using gzip compression. Value: gzip, deflate Required: false (highly suggested: if not supplied, server will send back uncompressed response data resulting in a larger payload)
	Name: Transfer-Encoding Description: The type of transformation that has been applied to the message body in order to safely transfer it between the sender and the recipient. Value: chunked Required: false
	Name: Connection Description: Indicates the service client wants to use HTTP keep-alive to more efficiently make multiple requests. Value: keep-alive Required: false (highly suggested when making multiple calls. Failure to use keep-alives will slow concurrent calls and strain both the client and server).

Component	Detail / Description
	Name: SystemID Description: Identifies the system that is exchanging data with G-Invoicing. In: header Type: string [100] Required: true
	Name: Agency-Tracking-Identifier Description: Unique identifier from agency system, optionally supplied in the request. In: header Type: string [50] Required: false
Consumes	Required: application/xml Schema: Order
Produces	Status Code: 200 Description: Successful call returns Call Detail and the newly created Order data. Content Type: application/xml Schema: Call Detail, Order

3.2.3.2 Resource: Update Order

Component	Detail / Description
Path	/ginv/services/v1_0/order/<id>
Method	PUT
Description	Updates an existing Order referenced by the passed unique identifier <id>.
Example	PUT /ginv/services/v1_0/order/O1610-017-021-012345 Host: ws.igt.fiscal.treasury.gov
Parameters	Name: Accept Description: Indicates the service client expects content in XML format. No other format is currently supported. Value: application/xml Required: true
	Name: Accept-Encoding Description: Allows the service client to indicate it supports compressing the response payload using gzip compression. Value: gzip, deflate Required: false (highly suggested: if not supplied, server will send back uncompressed response data resulting in a larger payload)
	Name: Transfer-Encoding Description: The type of transformation that has been applied to the message body in order to safely transfer it between the sender and the recipient. Value: chunked Required: false

Component	Detail / Description
	Name: Connection Description: Indicates the service client wants to use HTTP keep-alive to more efficiently make multiple requests. Value: keep-alive Required: false (highly suggested when making multiple calls. Failure to use keep-alives will slow concurrent calls and strain both the client and server).
	Name: id Description: A Unique ID referencing an individual Order. In: path (required) Type: string [20] Required: true
	Name: SystemID Description: Identifies the system that is exchanging data with G-Invoicing. In: header Type: string [100] Required: true
	Name: Agency-Tracking-Identifier Description: Unique identifier from agency system, optionally supplied in the request. In: header Type: string [50] Required: false
Consumes	Required: application/xml Schema: Order
Produces	Status Code: 200 Description: Successful call returns Call Detail and the newly updated Order data. Content Type: application/xml Schema: Call Detail, Order

3.2.3.3 Resource: New Attachment

Component	Detail / Description
Path	/ginv/services/v1_0/order/attachment /ginv/services/v1_0/order/performance/attachment
Method	POST
Description	Creates a new Attachment in the System.
Example	See *Multipart Form-Data* example in Appendix B below. Host: ws.igt.fiscal.treasury.gov
Parameters	Name: Accept Description: Indicates the service client expects content in XML format. No other format is currently supported. Value: application/xml Required: true

Component	Detail / Description
	Name: Accept-Encoding Description: Allows the service client to indicate it supports compressing the response payload using gzip compression. Value: gzip, deflate Required: false (highly suggested: if not supplied, server will send back uncompressed response data resulting in a larger payload)
	Name: Transfer-Encoding Description: The type of transformation that has been applied to the message body in order to safely transfer it between the sender and the recipient. Value: chunked Required: false
	Name: Content-Type Description: The MIME type of the body of the request Value: multipart/form-data; boundary= Required: true References: RFC 7578
	Name: Connection Description: Indicates the service client wants to use HTTP keep-alive to more efficiently make multiple requests. Value: keep-alive Required: false (highly suggested when making multiple calls. Failure to use keep-alives will slow concurrent calls and strain both the client and server).
	Name: SystemID Description: Identifies the system that is exchanging data with G-Invoicing. In: header Type: string [100] Required: true
	Name: Agency-Tracking-Identifier Description: Unique identifier from agency system, optionally supplied in the request. In: header Type: string [50] Required: false
Consumes	Required: application/xml Optional: application/octet-stream Schema: Order Attachment Push
Produces	Status Code: 200 Description: Successful call returns Call Detail and the Attachment Response data. Content Type: application/xml Schema: Call Detail, Order Attachment Response

3.2.3.4 Resource: Delete Attachment

Component	Detail / Description
Path	/ginv/services/v1_0/order/attachment/<id> /ginv/services/v1_0/order/performance/attachment/<id>

Component	Detail / Description
Method	DELETE
Description	Deletes an Attachment from the System.
Example	DELETE /ginv/services/v1_0/order/attachment/1234567890 Host: ws.igt.fiscal.treasury.gov
Parameters	Name: Accept Description: Indicates the service client expects content in XML format. No other format is currently supported. Value: application/xml Required: true
	Name: Accept-Encoding Description: Allows the service client to indicate it supports compressing the response payload using gzip compression. Value: gzip, deflate Required: false (highly suggested: if not supplied, server will send back uncompressed response data resulting in a larger payload)
	Name: Transfer-Encoding Description: The type of transformation that has been applied to the message body in order to safely transfer it between the sender and the recipient. Value: chunked Required: false
	Name: Connection Description: Indicates the service client wants to use HTTP keep-alive to more efficiently make multiple requests. Value: keep-alive Required: false (highly suggested when making multiple calls. Failure to use keep-alives will slow concurrent calls and strain both the client and server).
	Name: id Description: A Unique ID referencing an individual Attachment. In: path (required) Type: string [30] Required: true
	Name: SystemID Description: Identifies the system that is exchanging data with G-Invoicing. In: header Type: string [100] Required: true
	Name: Agency-Tracking-Identifier Description: Unique identifier from agency system, optionally supplied in the request. In: header Type: string [50] Required: false
Consumes	Required: application/xml

Component	Detail / Description
Produces	Status Code: 200 Description: Successful call returns Call Detail data. Content Type: application/xml Schema: Call Detail

3.2.3.5 Resource: New Performance

Component	Detail / Description
Path	/ginv/services/v1_0/order/performance
Method	POST
Description	Creates a new Performance transaction in the System.
Example	POST /ginv/services/v1_0/order/performance Host: ws.igt.fiscal.treasury.gov
Parameters	Name: Accept Description: Indicates the service client expects content in XML format. No other format is currently supported. Value: application/xml Required: true
	Name: Accept-Encoding Description: Allows the service client to indicate it supports compressing the response payload using gzip compression. Value: gzip, deflate Required: false (highly suggested: if not supplied, server will send back uncompressed response data resulting in a larger payload)
	Name: Transfer-Encoding Description: The type of transformation that has been applied to the message body to safely transfer it between the sender and the recipient. Value: chunked Required: false
	Name: Connection Description: Indicates the service client wants to use HTTP keep-alive to more efficiently make multiple requests. Value: keep-alive Required: false (highly suggested when making multiple calls. Failure to use keep-alives will slow concurrent calls and strain both the client and server).
	Name: SystemID Description: Identifies the system that is exchanging data with G-Invoicing. In: header Type: string [100] Required: true

Component	Detail / Description
	Name: Agency-Tracking-Identifier Description: Unique identifier from agency system, optionally supplied in the request. In: header Type: string [50] Required: false
Consumes	Required: application/xml Schema: Performance
Produces	Status Code: 200 Description: Successful call returns Call Detail and the newly created Payload data. Content Type: application/xml Schema: Call Detail, Performance

3.2.3.6 Resource: Delete Performance

Component	Detail / Description
Path	/ginv/services/v1_0/order/performance/<id>
Method	DELETE
Description	Deletes a future Performance transaction from the System.
Example	DELETE /ginv/services/v1_0/order/performance/P1904-123-234-000345 Host: ws.igt.fiscal.treasury.gov
Parameters	Name: Accept Description: Indicates the service client expects content in XML format. No other format is currently supported. Value: application/xml Required: true
	Name: Accept-Encoding Description: Allows the service client to indicate it supports compressing the response payload using gzip compression. Value: gzip, deflate Required: false (highly suggested: if not supplied, server will send back uncompressed response data resulting in a larger payload)
	Name: Transfer-Encoding Description: The type of transformation that has been applied to the message body in order to safely transfer it between the sender and the recipient. Value: chunked Required: false
	Name: Connection Description: Indicates the service client wants to use HTTP keep-alive to more efficiently make multiple requests. Value: keep-alive Required: false (highly suggested when making multiple calls. Failure to use keep-alives will slow concurrent calls and strain both the client and server).

Component	Detail / Description
	Name: id Description: A Unique ID referencing a Performance Number. In: path (required) Type: string [20] Required: true
	Name: SystemID Description: Identifies the system that is exchanging data with G-Invoicing. In: header Type: string [100] Required: true
	Name: Agency-Tracking-Identifier Description: Unique identifier from agency system, optionally supplied in the request. In: header Type: string [50] Required: false
Consumes	*No input is necessary aside from the DELETE request*
Produces	Status Code: 200 Description: Successful call returns Call Detail data. Content Type: application/xml Schema: Call Detail

3.3 Supported Environments

The G-Invoicing application operates within the Treasury Web Application Infrastructure (TWAI) environments. Interface testing will take place in G-Invoicing's Functional Test and Quality Assurance environments. G-Invoicing operates both Production and Contingency environments.

Fail-over by G-Invoicing from Production to Contingency environments will be transparent.

Table 1: Supported Environments

G-Invoicing TWAI	Use
Functional Test (FT)	Future view of Production (new release) – will be used on a limited basis for interface testing.
Quality Assurance - Current (QAC)	Current view of Production environment – used for agency testing.
Quality Assurance - Future (QAF)	Future view of Production (new release) – used for UAT.
Production	Production

4 Interface Specification

4.1 Processing Logic

4.1.1 Orders

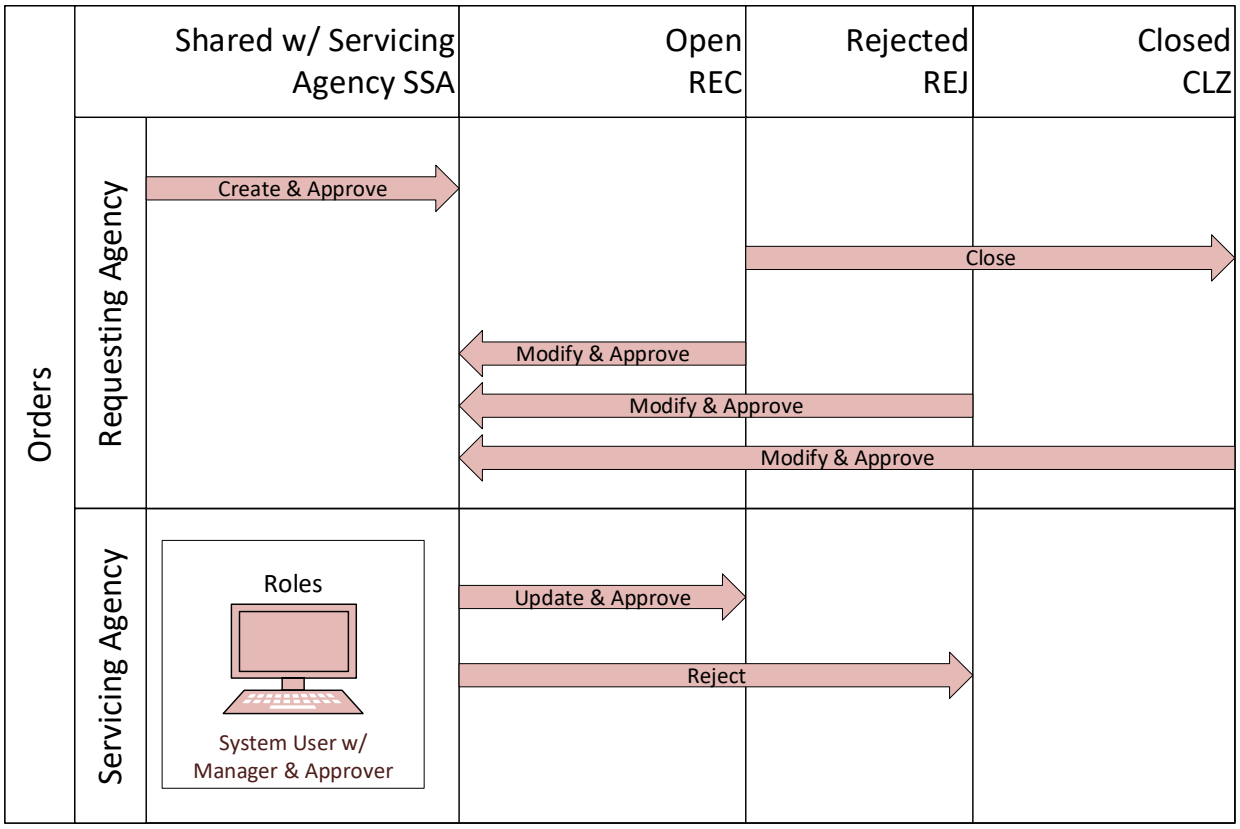
The G-Invoicing workflow determines which actions may be executed on an Order based on its current status (state). Diagram 2 (below) shows the various states that an Order may be reported through the API (i.e., states where arrow heads terminate, specifically 'Shared with Servicing Agency', 'Open', 'Rejected' and 'Closed').

Also shown are states available through the User Interface but not the API (i.e., 'Draft', 'Pending Requesting Agency Approval' and 'Pending Servicing Agency Approval').

Two swim lanes are shown, presenting the Requesting Agency and the Servicing Agency.

G-Invoicing will reject any service request which does not conform to the Order States diagram.

Diagram 2: Order States



Note: The G-Invoicing processing states are represented by vertical lines just to the right of the name of each state. Although there are seven possible states for an Order, only the four shown above are supported by the API. (Unsupported states are Draft, Pending Requesting Agency Approval and Pending Servicing Agency Approval).

Table 2: Order Processing (below) summarizes the different types of requests G-Invoicing will accept as an Order moves through its lifecycle. The Requesting and Servicing Agencies actions are limited by the old state, new state, and the permissions of the System User. Rows noted by an asterisk (*) are applicable when one system is authorized to act on behalf of both the Requesting and Servicing Agencies.

Table 2: Order Processing

Requested By	Type of Request	Method	Current State	New State	Data Validation Rules
Requesting Agency	New Order	POST	N/A	Shared with Servicing Agency	• All required Buyer data in request (see SM&VR) • All Seller data in request will be ignored
Servicing Agency	Approved Order	PUT	Shared with Servicing Agency	Open	• All required Seller data in request (see SM&VR) • All Buyer data in request will be ignored
Servicing Agency	Rejected Order	PUT	Shared with Servicing Agency	Rejected	• Required data for rejection in request (see SM&VR) • All other Seller data in request will be ignored • Buyer data not in request
Requesting Agency	Modified Order	PUT	Open, Rejected or Closed	Shared with Servicing Agency	• All required Buyer data in request (see SM&VR) • Changes detected to buyer data elements (xml) • All Seller data in request will be ignored
Requesting Agency	Closed Order	PUT	Open	Closed	• Required data for closure in request (see SM&VR) • All other Buyer data in request will be ignored • All Seller data in request will be ignored
Requesting Agency	Requesting Admin Changes	PUT	Open	Open	• All required Buyer data in request (see SM&VR) • Administrative changes detected to buyer data (xml) • Only data elements marked for 'Requesting' and 'Admin Change' in FIDS may be altered
Servicing Agency	Servicing Admin Changes	PUT	Open	Open	• All required Seller data in request (see SM&VR) • Administrative changes detected to seller data (xml) • Only data elements marked for 'Servicing' and 'Admin Change' in FIDS may be altered

Note: Specific data element and state validations may be found in the System Mapping and Data Validation Rules (SM&VR) document referenced in section 1.3.

The last two rows in Table 2 allow agencies to make *Administrative Changes* to Orders involving data elements that do not require review and approval from either partner. These changes are audited, and will be included in subsequent Pull requests for changes.

4.1.2 Performance

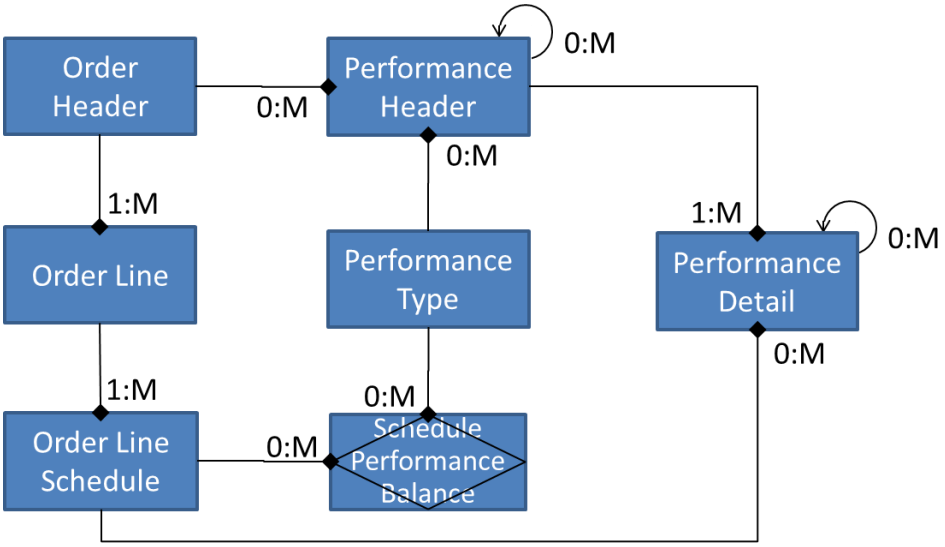
Performance transactions do not follow a prescribed workflow. They cannot be approved or changed. There are validation rules (described below in Business Rules and in the Federal Intragovernmental Data Standards), but the only options are to post a new Performance transaction, related to a specific Order, Line and Schedule, or delete a future Performance transaction.

Negative numbers are allowed for the Quantity on each performance detail, so errant transactions may be fully or partially negated by submitting a negative number for Quantity. For example, the Servicing Agency may have recorded Delivered/Performed 20 units but later realized it was only 15. The agency would submit a performance detail of -5 units, referencing the original 20, which nets down to 15.

Performance Transaction consists of two parts: **Performance Header** and **Performance Detail**(s). The header identifies the type of performance (e.g., Received/Accepted) and must reference a single Order. Each detail record within that header must reference a single Schedule on the same Order. Multiple performance transactions may be submitted against a single Order (e.g., delivered/performed 20 now, 20 later).

Each positive Received/Accepted detail record submitted by the Requesting Agency must reference a (positive) Delivered/Performed detail record previously submitted by the Servicing Agency. Multiple performance details may reference the same performance detail record (e.g., received/accepted 10 now, received 10 later).

Diagram 1: Performance Logical Data Model



In essence, the Servicing Agency performs against the Order/Line/Schedule and the Requesting Agency responds to the Servicing Agency's performance with their perspective (e.g., we received/accepted the delivery in full).

Performance detail records from the requesting agency containing zero (0) for quantity are acceptable, signifying that no performance of that type has been recorded (e.g., requesting agency has not yet received/accepted a delivery).

4.2 Business Rules

4.2.1 Common Rules

4.2.1.1 The agency system must be granted permissions (aka, user role) to transmit the type of data being submitted for processing.

4.2.1.2 The Servicing Agencies are not allowed to change the data elements belonging to the Requesting Agency and vice-versa. Submission of partner's data is ignored.

4.2.1.3 All requests must comply with the appropriate XML schema. (See 1.3 References).

4.2.1.4 Attachments may be added to, and deleted from, existing Order or Performance records using the Attachment service.

4.2.1.5 For add Attachment requests, the attachment FileName in the XML payload must exactly match the filename in the Content-Disposition parameter within the multipart form-data.

4.2.2 Order Rules

4.2.2.1 The agency system must be provisioned for the Group to which the Order is assigned.

4.2.2.2 Every change made to an Order will force a new BusinessTransactionIdentifier to be assigned to that record. The BusinessTransactionIdentifier is returned for all Pull and Push Order requests.

4.2.2.3 When calling the Update Order resource, agency systems must return the BusinessTransactionIdentifier in the XML payload, thus ensuring they are updating the most recent version of the Order record.

4.2.2.4 An out of sequence or invalid BusinessTransactionIdentifier will result in error code 400 – "The transaction ID for this order does not match the latest version. Please request the latest version before updating".

4.2.2.5 Order requests may only be submitted with a DocumentStatusCode of SSA-Shared with Servicing Agency, REC-Open, REJ-Rejected, or CLZ-Closed. Requests submitted with a DocumentStatusCode other than those listed here will be rejected.

4.2.2.6 For close Order requests:

4.2.2.6.1 The Requesting Agency must send only those data identified as required in the SM&VR document. All other data will be ignored. (G-Invoicing business rules prevent the modification and closure of an Order simultaneously).

4.2.2.6.2 Orders having Performance in 'PND' (pending settlement) status cannot be closed (until the Performance has settled).

4.2.2.6.3 The net sum of certain (undeleted) performance details recorded against each Schedule in the Order by the Servicing Agency and sometimes by the Requesting Agency must be equal. Specifically:

- Advance quantity must equal the quantity Delivered/Performed.
- Deferred Payment quantity cannot exceed Delivered/Performed.
  - *For example, the servicing agency could defer 10 then deliver 20, which is acceptable.*
- Total quantity Delivered/Performed against a Schedule must equal the total quantity Received/Accepted, if FOB Point is 'Destination' or 'Other'.
- Total quantity Delivered/Performed against a Schedule must equal the total quantity Received/Accepted, if the quantity Received/Accepted is provided.
  Note: Received/Accepted is not required when FOB Point is 'Source'.

4.2.2.7 For rejected Order requests, the Servicing Agency must send only those data identified as required in the SM&VR document. All other data will be ignored. (Business rules prevent the modification and rejection of an Order simultaneously).

4.2.2.8 There are required elements that overlap (section C in Diagram 3). Those elements may be sent by both the Requesting and Servicing Agencies and they will be validated by the System (e.g., LineNumber, ScheduleNumber, OrderNumber). In cases where changes to data elements violate validation rules, the request will be rejected. (See SM&VR document for details).

4.2.2.9 Agency Systems are limited to the state changes described in Table 2 (Order Processing). Requests outside of those described in Table 2 will be rejected.

4.2.2.10 The Requesting Agency may logically delete Order Line items and Schedules by using the appropriate codes (e.g., A-Active, C-Cancelled) for OrderLineStatusCode and OrderScheduleStatusCode.

4.2.2.10.1 All lines and schedules must be pushed for an Order, even those that have been logically deleted. (See SM&VR for line and schedule requirements).

4.2.2.10.2 Physical deletion of lines or schedules is not permitted. Requests submitted with missing lines or schedules will be rejected.

4.2.2.10.3 Missing lines or schedules will result in error code 400 – "The lines and schedules provided for this order do not match existing data. Please send all lines and schedules for this order."

4.2.2.11 Values of certain "administrative" data may be changed without going through the Modification process (which involves re-approval of the Order). Administrative Changes allow Order Managers to update point of contact and other administrative data while the Order remains in Open status, and without need for re-approval.

4.2.2.11.1 The Order FIDS shows the subset of administrative data that may be changed by the requesting agency without approval and the subset for the servicing agency. Filter the "How to Update" column for 'Admin Change'.

4.2.2.11.2 Any attempt to Administratively Change the value of a data element not marked for 'Admin Change' will be ignored. In other words, G-Invoicing will only examine candidates for Admin Change.

4.2.2.11.3 Administrative Changes are only allowed when the Order is in Open status.

4.2.2.11.4 Any attempt to Administratively Change values of data elements on a Schedule against which Performance has been reported will be rejected.

4.2.2.11.5 The client must be assigned the Order Manager role to make Administrative Changes to their agency's data.

4.2.2.11.5.1 Any attempt to make Administrative Changes with neither the Requesting nor Servicing Order Manager roles will be rejected.

4.2.2.11.5.2 Any attempt to Administratively Change their trading partner's data without proper permissions will be ignored (not rejected).

4.2.2.11.5.3 System users possessing both requesting and servicing agency permissions must submit both sides of the Order for administrative changes.

4.2.2.12 Modifications of Orders (Header, Lines and Schedules), initiated by the requesting agency, are limited based on the presence of (undeleted) Performance against a Schedule.

- Data elements eligible for modification are shown in the FIDS under the "How to Update" column, filtered to contain 'Admin' or 'Modification'. Almost 70 of these data elements are marked 'N/A if Performance', meaning that they cannot be modified if Performance has been reported against a Schedule.

  Note: Data elements eligible for Administrative Changes may also be updated by Modifying the Order, which require re-approval.

- Specific rules are shown in the SM&VR, including (but not limited to):
  - An Order Line or Schedule cannot be cancelled if there has been any performance reported against it.
  - Order Schedule Quantity cannot be reduced to a point below the sum of quantity performed for any Performance Type.
    - For example, if the Schedule Quantity is 20 units and the servicing agency had already deferred, advanced or delivered 15 units, the requesting agency cannot change the quantity to below 15 units

4.2.3 Performance Rules

4.2.3.1 The Performance resource supports a POST method for new Performance transactions and a DELETE method to (logically) delete Performance transactions.

4.2.3.2 An adjustment to a Performance record is accomplished by submitting a new POST containing a negative quantity. The new POST must reference a previous Performance record. (More rules follow below).

4.2.3.3 Agencies granted data access to an Order will be allowed to access Performance related to that Order (assuming they assigned the proper role for creating performance transactions).

4.2.3.4 Each performance transaction must originate from the appropriate trading partner, as defined for Performance Type in the FIDS.

4.2.3.5 A performance transaction must reference an open Order, and each detail record within that transaction must reference an active Schedule from an active Line within that open Order.

4.2.3.6 When Advance Payment Indicator is True, Deferred Payment is not allowed.

4.2.3.7 When Advance Payment Indicator is True, the net quantity of Delivered/Performed may not exceed the net quantity of Advance.

4.2.3.8 If Advance Payment Indicator is False, performance type Advance is not allowed.

4.2.3.9 Performance Date must fall within the performance period of the Order.

4.2.3.10 Multiple performance detail records of the same type may be reported against a single Schedule.

4.2.3.11 The net quantity of any one performance type reported against a single Schedule may not exceed the Order Schedule Quantity, thus preventing balances from falling below zero.

4.2.3.12 The net quantity of any one performance type reported against a single Schedule may not fall below zero, thus preventing overcorrection resulting in balances rising above the Order Schedule Quantity.

4.2.3.13 Each performance detail record submitted by the servicing agency having a negative quantity (i.e., an adjustment) must reference a (positive) performance detail submitted previously by the servicing agency.

4.2.3.14 Each performance detail record submitted by the requesting agency having a positive quantity must reference a (positive) Delivered/Performed detail submitted by the servicing agency.

4.2.3.15 Each performance detail record submitted by the requesting agency having a negative quantity (i.e., an adjustment) must reference a (positive) performance detail submitted previously by the requesting agency.

Note: See Performance FIDS for information on how to reference a performance transaction and its detail record(s).

4.2.3.16 The requesting agency is not permitted to respond to a Delivered/Performed detail recorded by the servicing agency having a negative quantity.

- For example, if the servicing agency reports Delivered/Performed of 5 then adjusts that by -2, the requesting agency must reference the 5 (not the -2) when reporting their Received/Accepted performance.

4.2.3.17 The servicing agency is not permitted to adjust a Performance transaction which has a Performance Date in the future.

Note: This prevents refunding a collection that has not yet occurred.

4.2.3.18 The servicing agency may delete a Performance transaction, but only if the Performance Date is in the future. (See 3.2.3.1 Resource: Delete Performance).

4.2.3.19 Deleted Performance records do not count towards validation rules to determine if an Order is eligible for closure or modification.

4.2.3.20 The requesting agency is not permitted to respond to a Delivered/Performed detail recorded by the servicing agency having a Performance Date in the future.

4.2.3.21 The requesting agency (when reporting Received/Accepted) is not permitted to use a future Performance Date.

4.2.3.22 The servicing agency is not allowed to respond to a performance detail that is itself a response to a performance detail (i.e., an adjustment).

Note: This is not true for the requesting agency because any (-) adjustments to Received/Accepted performance must reference the (+) Received/Accepted performance which itself must reference the servicing agency's (+) Delivered/Received performance.

4.2.3.23 The servicing agency cannot report a positive quantity in response to a previous performance detail.

- For example, if the servicing agency reports Delivered/Performed of 5 then adjusts that by -2, the servicing cannot then readjust the -2 (net 3) back up by +1. Instead they must create a new, non-referencing Performance transaction and detail with a quantity of 1.

4.2.3.24 Performance quantity of zero is not allowed in transactions submitted by the servicing agency.

Note: Zero quantity is allowed from requesting agency for performance type Received/Accepted.

4.2.3.25 The total quantity of performance details referencing any performance type detail may not exceed the quantity of the original performance detail.

- For example, if servicing agency reports Delivered/Performed of 5, the total quantity of subsequent (-) adjustments by the servicing agency must be between 0.01 and -5 (inclusive).
- For example, if servicing agency reports Delivered/Performed of 5, the total quantity of subsequent Received/Accepted by the requesting agency must be between 0.00 and 5 (inclusive).

- For example, if requesting agency reports Received/Accepted of 5, the total quantity of subsequent (-) adjustments by the requesting agency must be between 0.01 and -5 (inclusive).

Note: This rule is more specific than 4.2.3.11-12 (which keeps the performed quantity between zero and the Scheduled quantity). The rule above keeps the net of subsequent performed quantities between zero and the original (positive) Performance quantity which was referenced.

4.2.3.26 The total quantity of Received/Accepted performance details (by the requesting agency) may not exceed the total quantity Delivered/Performed (by the servicing agency) which reference and include the original performance detail.

- For example, if servicing agency reports Delivered/Performed of 5 followed by an adjustment of -2, the total quantity of Received/Accepted by the requesting agency referencing the Delivered/Performed of 5 must be between 0 and 3 (inclusive).
- For example, if servicing agency reports Delivered/Performed of 5 and the requesting agency reports a Received/Accepted of 5, the servicing agency cannot report an adjustment of -2. This adjustment would be possible if the requesting agency reported an adjustment of -2 first.

4.2.3.27 The servicing agency is not allowed to report a single Performnace transaction of Type 035 (Delivered/Perfomed) against a mixture of Advance and non-Advance Schedules.

Note: This rule is needed because Performance Status is tracked at the header level, and this "mixture" would result in one or more detail records of Status 'PND' (pending settlement) with other detail records of Status 'INF' (informational only), which cannot be supported.

4.2.4 Settlement Rules

4.2.4.1 Settlement Status for each Performance transaction will be set as follows:

4.2.4.1.1 Performance reported to G-Invoicing release 2.3 will be set to 'PRE' (Pre-Settlement) status because the settlement feature is not yet enabled.

Note: There are no plans to convert PRE-Settlement performance to any other status once Settlement is possible through G-Invoicing.

4.2.4.1.2 Performance which does not trigger settlement will be set to 'INF' (informational only) status.

4.2.4.1.3 Performance which will trigger settlement will be set to 'PND' (pending) status.

4.2.4.1.3.1 Performance Type 548 (Advance) always triggers settlement and is the only way to trigger settlement when the Advance Payment Indicator is True on the Schedule.

4.2.4.1.3.2 Performance requiring settlement but having a future Performance Date will be settled when that Performance Date occurs.

4.2.4.1.3.3 Performance Type 035 (Delivered/Performed) triggers settlement when the Advance Payment Indicator is False on the Schedule and FOB Point is Source/Origin on the Order.

4.2.4.1.3.4 Performance Type 050 (Received/Accepted) triggers settlement when the Advance Payment Indicator is False on the Schedule and FOB Point is not 'S' (i.e., Destination or Other) on the Order.

4.2.4.1.3.4.1 Exception: Performance details having a Quantity of zero (0) are not sent for settlement. Status is set to:

- 'INF' (informational) if all Quantities are 0
- 'STL' (settled) if Quantity 0 mixed in with other details having Quantity greater than 0.

4.2.4.1.3.5 Performance Type 014 (Deferred Payment) never triggers settlement.

Note: Adjustments to settlement (i.e., Performance having a negative Quantity) follow the same triggering rules as stated above.

4.2.4.1.4 Performance for which settlement has occurred will be set to 'STL' (settled) status.

4.2.4.1.5 Performance for which settlement has failed will be set to 'ERR' (error) status.

Note: Errors will be corrected by G-Invoicing Production Support (if possible), not by the agencies.

4.2.4.1.6 Future dated Performance transactions that have been logically deleted will be set to 'XXX' (deleted) status.

4.3 File Naming Convention

N/A – The only files involved in this interface are the optional attachments which are streamed in the request to G-Invoicing and described by data elements (e.g., file name) in the XML of the request. There is no naming convention for attachments.

4.4 Interface Timing

The web services are generally available 24 hours per day, 7 days per week. G-Invoicing may have scheduled outages for maintenance as noted below.

- Monday – Saturday 3:45 AM - 4:15 AM EST
- Sunday 11:00 AM - 11:30 AM EST

Agency systems are in full control of the frequency and the timing of this interface.

4.5 Retransmissions

N/A – Retransmissions are not needed because the G-Invoicing web services provide for synchronous operation in that the agencies with interfacing systems will be waiting for the response from G-Invoicing before continuing.

Should the web service connection somehow fail in the middle of a series of client requests to G-Invoicing (e.g., multiple Order requests, multiple attachment requests) the client (i.e., interfacing agency system) is responsible for continuing the requests when services are restored.

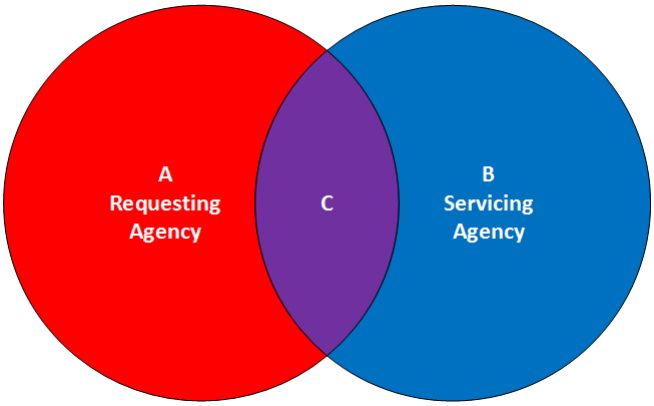
4.6 Interface Data Details

The documents referenced below, along with the details contained in this interface specification, show the required data for the request type and state of an Order transaction via these web services. For additional documentation, refer to the XML schemas published on the Fiscal Service Data Registry.

Diagram 3 (below) depicts how an Order requires data from both trading partners, and some of that Order data may be provided by either partner (section C). The “Provided By” column of the System Mapping and Validation Rules (SM&VR) document (referenced in section 1.3 above) indicates which partner contributes each data element. Table 2 (above) and the SM&VR can be used together to determine the required data elements for type of request and state of a transaction. The SM&VR also contains the business rules for each type of request and state at the data element level.

The Order FIDS (also referenced in section 1.3 above) is the source for all data element specifications (e.g., data type, size, etc.) for this interface and is the system agnostic standard for all IGT Buy/Sell data. The FIDS does contain data elements that can be derived from other data (i.e., calculated values). Generally, these derived data elements do not appear in the XML schema.

Diagram 3: Data Exchange Participants



4.6.1 Business – Data Elements

The business data for Orders may be accessed from the Bureau of the Fiscal Service G-Invoicing website then clicking the Data Elements – Orders link.

Table 3: Attachment Push Data Elements

Familiar Name	XML Tag	Definition	Constraints	Optionality
Attachment File Name	<FileName>	The actual name of the attachment file.	String [1, 132] Maximum length = 132 String UTF-8	Required
Attachment File Alias	<FileNameAlias>	Descriptive name for an attachment. Different from the name assigned to the file itself.	String [0,132] Maximum length = 132 String UTF-8	Optional
Document Number	<DocumentNumber>	Unique identifier for a document to which the attachment will be associated.	String [1, 20] Maximum length = 20 String UTF-8	Required
Buy Sell Indicator	<BuySellIndicator>	Indicates whether the submitter of the attachment is the buyer (Requesting) or seller (Servicing).	String [1,1] Maximum length = 1 String UTF-8 Values: “R” – Requesting, “S” – Servicing **Note:** G-Invoicing will verify that the user has update privileges based on the submitted Buy Sell Indicator and will reject the request if they do not.	Required

Note: The attachment service and supporting schema is generic, but the path name differentiates the type of document targeted for the attachment.

4.6.2 Response – Data Elements

The data elements in Table 4 below will be returned in the body of every response generated by G-Invoicing.

Table 4: Call Detail Response Data Elements

Familiar Name	XML Tag	Definition	Constraints	Optionality
Agency Partner ID	<PartnerID>	Identifies the intended recipient of the transmission.	String [100] Minimum length = 0 Maximum length = 100 String UTF-8	Required
Agency System ID	<SystemID>	Identifies the system that is exchanging data with G-Invoicing.	String [100] Minimum length = 1 Maximum length = 100 String UTF-8	Required

Familiar Name	XML Tag	Definition	Constraints	Optionality
Agency Tracking Identifier	<RequestID>	Unique identifier optionally supplied in the request and echoed back in the response.	String [50] Minimum length = 0 Maximum length = 50 String UTF-8	Optional
G-Invoicing Tracking Identifier	<GINVTrackingID>	Unique tracking identifier, generated by G-Invoicing.	String [50] Minimum length = 0 Maximum length = 50 String UTF-8	Required
Environment	<Environment>	Describes the environment in which the system interface resides.	String [30] Minimum length = 0 Maximum length = 30 String UTF-8	Required
Request Type	<RequestType>	Type of request that was submitted to G-Invoicing by the agency system.	String [30] Minimum length = 0 Maximum length = 30 String UTF-8 Values: New Order, Update Order, New Attachment, Delete Attachment, New Performance, Delete Performance. ***Note:*** *Values are derived from the service that is being accessed.*	Required
Record Count	<RecordCount>	The total number of records in the payload.	Integer	Required

Table 5: Attachment Response Data Elements

Familiar Name	XML Tag	Definition	Constraints	Optionality
Attachment File Name	<FileName>	The actual name of the attachment file.	String [1, 132] Maximum length = 132 String UTF-8	Required
Attachment File Alias	<FileNameAlias>	Descriptive name for an attachment. Different from the name assigned to the file itself.	String [0,132] Maximum length = 132 String UTF-8	Optional
Attachment ID	<AttachmentID>	Unique identifier for an attachment.	Integer Maximum length = 30	Required
Attachment Updated By	<FullName>	The user name or partner (Buyer or Seller) that uploaded the attachment	String [0,100] Maximum length = 100 String UTF-8	Required
Attachment Date Time	<UploadDateTime>	The time and date the file was uploaded into G-Invoicing.	DateTime Format: YYYY-MM-DDThh:mm:ss.SSS+|-00:00 All time should be specified in local time zone with time zone offset from UTC in hours and minutes ahead (+) or behind (-) UTC.	Required

Familiar Name	XML Tag	Definition	Constraints	Optionality
File Size	<FileSize>	The size of the attachment expressed in kilobytes (kB).	Integer Minimum length = 1 Maximum length = 8	Required
Document URL	<URL>	The URL that will be used in a subsequent request by the agency system to retrieve the document.	String [0, 4000] Maximum length = 4000 String UTF-8	Required

5 Error Specifications

Standard web service faults are generated for exceptions that can cause the request to not be processed. If the agency system cannot be authenticated or authorized, then a fault is returned. If the requested resource is unavailable then a fault will be thrown. All services may return the following HTTP status codes along with variable error message text describing the error(s) in the response.

Error ID	HTTP Status Code	Example

1	400 – Bad Request
	ValidationFailedException
	Note: *Message text included in the <ErrorDesc> element will vary depending on the error condition.*
		`<ns0:ErrorDetail>`
		`  <ns0:ErrorDesc>ValidationFailedException message = Requesting agency Point Of Contact Full Name is required.</ns0:ErrorDesc>`
		`  <ns0:ErrorTitle>400 ValidationFailedException</ns0:ErrorTitle>`
		`  <ns0:RequestDateTime>2018-05-24T15:43:27.578-04:00</ns0:RequestDateTime>`
		`  <ns0:RequestTypeIdentifier>Order Create</ns0:RequestTypeIdentifier>`
		`  <ns0:Status>400</ns0:Status>`
		`</ns0:ErrorDetail>`

2	403 – Unauthorized
	AccessDeniedException
	Note: *Message text included in the <ErrorDesc> element will vary depending on the error condition.*
		`<ns0:ErrorDetail>`
		`  <ns0:ErrorDesc>AccessDeniedException message = User is not authorized to the system.</ns0:ErrorDesc>`
		`  <ns0:ErrorTitle>403 AccessDeniedException</ns0:ErrorTitle>`
		`  <ns0:RequestDateTime>2018-05-23T08:33:04.426-04:00</ns0:RequestDateTime>`
		`  <ns0:RequestTypeIdentifier>Order Create</ns0:RequestTypeIdentifier>`
		`  <ns0:Status>403</ns0:Status>`
		`  </ns0:ErrorDetail>`
		`</Ginv_Error>`

3	500 – Internal Server Error
	ServerException
	Note: *Message text included in the <ErrorDesc> element will vary depending on the error condition.*
		`<ns0:ErrorDetail>`
		`  <ns0:ErrorDesc>ServerException message = Multiple users found.</ns0:ErrorDesc>`
		`  <ns0:ErrorTitle>500 ServerException</ns0:ErrorTitle>`
		`  <ns0:RequestDateTime>2018-05-23T08:29:07.566-04:00</ns0:RequestDateTime>`
		`  <ns0:RequestTypeIdentifier>Order Create</ns0:RequestTypeIdentifier>`
		`  <ns0:Status>500</ns0:Status>`
		`</ns0:ErrorDetail>`

6 Security

The TWAI will accept web service traffic, perform certificate-based authentication against security policies, and route the requests to G-Invoicing. Separate certificates are needed for test and production environments.

No Personal Identifying Information (PII) is being transported by this system interface. There is no risk that this interface will allow additional access to G-Invoicing data.

The Department of Defense has rated information contained in G-Invoicing as Mission Assurance Category III. The MAC III rating is for systems handling information that is necessary to conduct day-to-day business, but does not materially affect support to deployed or

contingency forces in the short-term. The consequences of loss of integrity or availability can be tolerated or overcome without significant impacts on mission effectiveness or operational readiness. The consequences could include the delay or degradation of services or commodities enabling routine activities. Mission Assurance Category III systems require protective measures, techniques or procedures generally commensurate with commercial best practices.

7 Interface Integrity

7.1 TWAI

TWAI security infrastructure, policies and procedures guarantee that only authenticated and authorized entities are permitted access to the G-Invoicing application and its assets. Virus detection, intrusion detection, and network and infrastructure monitoring software and hardware are provided by and operated in the TWAI (see TWAI Security Architecture document).

7.2 Communication Channel

Adhere to the Guidelines for protecting sensitive data during electronic dissemination across networks as stated in the NIST Special Publication (SP) 800-52 (rev 1), Selection, Configuration, and Use of Transport Layer Security (TLS) Implementations.

Meet security requirements for NIST Special Publication (SP) 800-53 (rev 4), Recommended Security Controls for Federal Information Systems, and other applicable guidance, such as Treasury Directive Publication (TDP) 85-01.

8 Revision History

Vers. Num.	Date of Change	G-Inv Rel.	Change/Revision Description	Page/Section Affected
0.1	04/26/2017	2.2	Initial Draft	All
0.2	06/01/2017	2.2	Additional document updates	All
0.3	06/09/2017	2.2	Added attachments to Order schema	3.2.3, 4.6.2, B
0.4	06/23/2017	2.2	Updates after peer review.	All
0.5	06/29/2017	2.2	Updates after internal review.	All
1.0	07/06/2017	2.2	Baselined for Fiscal Service approval.	All
1.1	07/11/2017	2.2	Added Data Act elements (PIID, PAID).	4.6.2, 2.1
1.2	07/17/2017	2.2	Incr. System & Partner ID to 100 chars	3.2.3, 4.6.1
1.3	07/21/2017	2.2	Added references to FIDS and SM&VR	1.3.2, 4.6
1.4	07/27/2017	2.2	Updated external references	1.3, Table 2
1.5	08/02/2017	2.2	Updated processing logic, business rules, XML schema info.	4.1, 4.2, Appx B
1.6	08/08/2017	2.2	Removed Order data table.	4.6.1
1.7	08/21/2017	2.2	Updates after peer review.	All
1.8	12/18/2017	2.2	Updated schema and XML information	Appendix B
1.9	01/19/2018	2.2	Updates based on data standards.	All
1.10	02/01/2018	2.2	Updated schema and XML information	Appendix B
1.11	04/03/2018	2.2	Updates after internal review.	3, 4.2
1.12	04/10/2018	2.2	Updates after peer review.	4
1.13	04/10/2018	2.2	Final wording and drop yellow highlights	4
1.14	04/13/2018	2.2	Updated date/time format Added new Order state	4.1, 4.2.4, 5, Tbl 2, 5, Dgm 1
1.15	05/21/2018	2.2	1787 move Org Ref data to Header	Appx B
1.16	5/30/2018	2.2	Updated HTTP error status codes	5
1.17	6/6/2018	2.2	Updated Multipart Form-Data, Updated Resource infor	Appx B, 3.2.3
2.0	6/8/2018	2.2	Baseline	All
2.0.1	6/27/2018	2.2	Updated Header	App B
2.1	7/30/2018	2.3	Added Performance Transaction	1, 2, 3, 4, Appx B
2.2	8/6/2018	2.3	Updated following internal review	1, 2, 3, 4, Appx B
2.3	8/28/2018	2.3	Updated following Treasury review: (1) updated Partner/ System note, (2) removed GTC and Order XML samples	3.2.3 Appx B
3.0	9/04/2018	2.3	Approved – see GINV-1933	N/A
3.1	10/18/2018	2.3	Clarified permissions for Performance	4.2.3
3.1.1	10/21/2018	2.3	Added note regarding IPAC adjustments	4.1.1
3.1.2	10/24/2018	2.3	Minor corrections after internal review	
3.2	11/2/2018	2.3	Removed ability to send Buyer/Seller data at once (not supported by user role)	Table 2
3.3	12/17/2018	2.3	Revised to reflect Dec 4-6 decisions	4.1.2, 4.2.2, 4.2.3
3.4	12/18/2018	2.3	Updated after internal review. Added new Appendix A, pushing old A down to B.	4.2.3, Appx A
3.5	12/20/2018	2.3	(a) Updated after DB review. (b) GINV-174: Allow “admin” changes to Orders.	4.1.2, Table 2, 4.2.2.12

3.6	1/9/2019	2.3	Reuse summary, attachment and error "order" schemas for Performance. Updated Treasury system owner name. Update order state diagram.	1.3.3, 2.3.3.3, 2.3.3.4-5, 3.2.3.3-4, Diagram 2
3.6.1	1/28/2019	2.3	Clarified some text and fixed typos.	Appx A
3.7	2/6/2019	2.3	Zero quantity Performance not allowed by seller	4.2.3
4.0	2/25/19	2.3	Baseline for Performance Txn	All
4.1	3/20/19	2.3	Deferred Pay cannot exceed Delivered/Performed to close Order. Prohibit future performance by Buyer.	4.2.2.6 4.2.3.7
4.2	4/5/19	2.3	Clarified some Performance validations.	4.2.3
4.3	4/10/19	2.3	Buyer adjustments must reference the initial (positive) received/accepted performance.	4.2.3
4.4	4/15/19	3.0	Clarified performance examples as being inclusive (e.g., 0 to 5 inclusive). Added settlement rules to performance.	4.2.3
4.5	4/18/19	3.0	Disallowed future adjustments. Allow deletion of future Performance. Referenced FIDS and SM&VR for Mods. Distributed for Settlement approval.	4.2.3 3.2.3.1, 4.2.3 4.2.2.11
5.0	4/29/19	3.0	Baselined for Settlement.	History
5.0.1	5/14/2019	3.0	Clarified rules triggering settlement	4.2.4.1.3
5.0.2	5/14/2019	3.0	Delete attachment consumes XML, dis-tinguish buyer vs seller, reversing 1/2/19.	3.2.3.4
5.1	6/6/2019	3.0	Dropped 'FUT' status for Performance. Status Code 'DEL' changed to 'XXX'.	4.2.4.1.3.2 4.2.4.1.6
5.2	6/24/2019	3.0	Performance details having Quantity 0 are not settled. Deleted Performance is treated as if it never existed.	4.2.4.1.3.4.1 4.2.3.19
5.3	7/29/2019	3.0	1. Can't close Order in PND status. 2. Can't deliver against Adv and non-Adv 3. Status ERR is not typically corrected	4.2.2.6.2 4.2.3.27 4.2.4.1.5
5.3.1	8/6/2019	N/A	Clarify policy requiring at least one System ID per Partner ID.	3.2.3
5.4	9/13/2019	3.0	DO Symbol and Document Reference Nunber are not set by G-Invoicing for Constructive Receipts	Appendix A
5.4.1	3/20/2020	N/A	XML namespaces may vary with each new schema version	2.2.3a
5.5	5/15/2020	4.0	Org Group controls data access	4.2.2.1
5.6	6/23/2020	4.0	SystemID is now required	Every resource

Appendix A: Constructive Receipt

Under certain conditions the G-Invoicing system will generate a *Constructive Receipt* to guarantee timely reimbursement for goods delivered or services performed by the servicing agency:

- Conditions:
  - FOB Point is Destination (or Other) for the Order.
  - The number of Constructive Receipt Days (CRD) for the Order have elapsed since the Performance Date of the Delivered/Performed transaction.
  - The number of CRDs for the Order have elapsed since the Transaction Date of the Delivered/Performed transaction.
  - The Quantity of the unanswered Delivered/Performed detail record is greater than zero because: (a) the Requesting Agency does not respond to negative Performance by the Servicing Agency and (b) the Servicing Agency cannot report quantity of zero.
  - The requesting agency has not submitted a Received/Accepted performance detail record which references a positive Delivered/Performed detail record submitted by the servicing agency.

  Note: The constructive receipt will be generated the morning after the Constructive Receipt Days period elapses.
- The system-generated performance transactions will have the following characteristics:
  - Prepared By Name will be set to 'System'.
  - Performance Date and Transaction Date will be set to the current date.
  - Comments will be set to 'Constructive Receipt generated because requesting agency did not respond to servicing agency's Delivered/Performed detail record within the agreed upon timeframe'.
  - Status will be set to 'PND' (pending).
  - Performance Type will be set to 'Received/Accepted'.
  - Quantity will be set to the Quantity of the Delivered/Performed detail record which went unanswered by the requesting agency.
  - All other optional data elements will be omitted.
  - If more than one Schedule in the Order went unanswered on the same day, multiple performance detail records will be grouped within a single performance transaction.

    Note: Settlement requests are not being generated at this time. Performance transactions (including Constructive Receipts) are informational only.

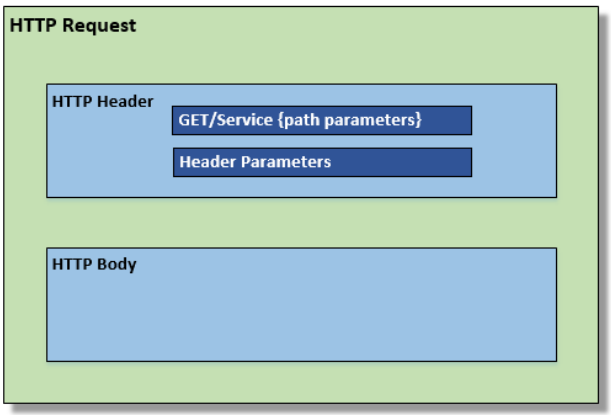
Appendix B: Messaging Protocol & Data Encapsulation

1 G-Invoicing Message Encapsulation

Transmissions into and out of G-Invoicing will utilize RESTful web-services over the internet with an XML payload. The HTTP Request and Response will have the structure depicted in diagrams in 1.1 and 1.2 below.

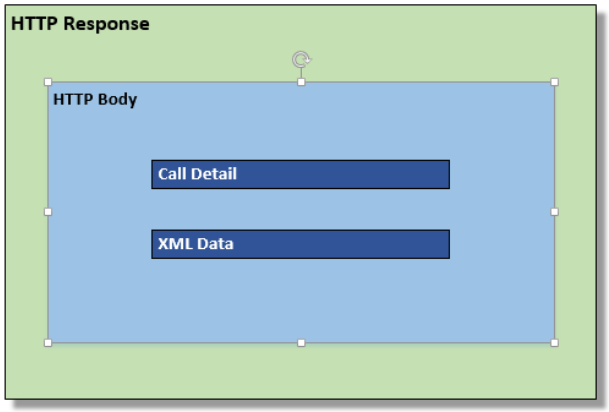
The HTTP Request will have an empty Body when the Header contains a “GET” command. When the Request contains a “POST” or “PUT” command the Body will contain an XML payload.

1.1 HTTP Request

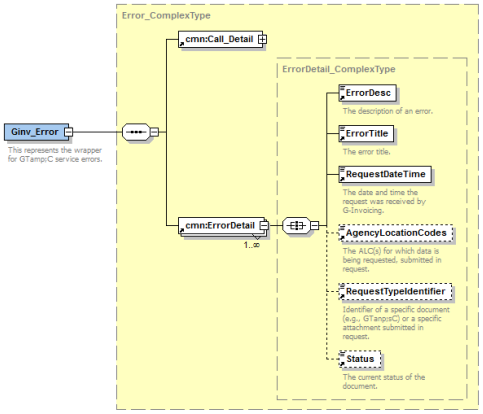


1.2 HTTP Response

Call Detail data will be returned in every response generated by G-Invoicing. Call Detail contains metadata about the Request/Response. The Call Detail data will be part of the HTTP Body and precede any data included in the response that satisfies the initial request.



2 Error

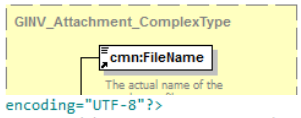


Error Sample XML

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2017 sp2 (x64)
(http://www.altova.com)-->
<cmn:ErrorDetail xmlns:cmn="urn:us:gov:treasury"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:us:gov:treasury:ginv:error Error.xsd">
    <cmn:ErrorDesc/>
    <cmn:ErrorTitle/>
    <cmn:RequestDateTime>2017-05-
09T17:30:00.000Z</cmn:RequestDateTime>
    <cmn:AgencyLocationCodes>a</cmn:AgencyLocationCodes>
    <cmn:RequestTypeIdentifier>a</cmn:RequestTypeIdentifier>
    <cmn:Status>a</cmn:Status>
</cmn:ErrorDetail>
```

3 Attachment

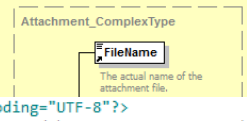
3.1 Attachment Push



Attachment Push Sample XML

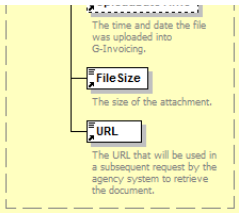
```
<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2017 sp2 (x64) (http://www.altova.com)-->
<n1:GINV_Attachment xmlns:cmn="urn:us:gov:treasury"
xmlns:n1="urn:us:gov:treasury:ginv:AttachmentPush"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:us:gov:treasury:ginv:AttachmentPush Attachment_Push.xsd">
    <cmn:FileName>My File</cmn:FileName>
    <cmn:FileNameAlias/>
    <cmn:DocumentNumber>A1610-017-017-000170</cmn:DocumentNumber>
    <n1
</n1:G
```

3.2 Attachment Response



Attachment Response Sample XML

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2017 sp2 (x64) (http://www.altova.com)-->
<cmn:AttachmentSummary xmlns:cmn="urn:us:gov:treasury"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:us:gov:treasury:ginv:Order Order.xsd">
    <cmn:FileName/>
    <cmn:FileNameAlias/>
    <cmn:AttachmentID>20795621</cmn:AttachmentID>
    <cmn:FullName/>
    <cmn:UploadDateTime>2018-03-24T09:30:00.000-04:00</cmn:UploadDateTime>
    <cmn:FileSize>10</cmn:FileSize>
    <cmn:URL/>
</cmn:AttachmentSummary>
```



4 Multipart Form-Data

The following is an <u>example</u> of the multipart form-data when submitting an attachment. The method for submitting an attachment is POST and the DocumentNumber is required in the XML body of the attachment request in order to add the attachment to the appropriate document.

POST /ginv/services/v1_0/order/attachment
Host: www.igt.fiscal.treasury.gov

Accept: application/xml
Accept-Encoding: gzip,deflate
Transfer-Encoding: chunked
Content-Type: multipart/form-data; boundary=wyh0b_2-92vSvGKh-nHe7HA3qyIggPjPG
Connection: Keep-Alive

--wyh0b_2-92vSvGKh-nHe7HA3qyIggPjPG
Content-Disposition: form-data; name="attachment-meta-data"
Content-Type: application/xml
Content-Transfer-Encoding: binary

```
<?xml version="1.0" encoding="UTF-8"?>
<!--Sample XML file generated by XMLSpy v2017 sp2 (x64) (http://www.altova.com)-->
<n1:GINV_Attachment xmlns:cmn="urn:us:gov:treasury"
xmlns:n1="urn:us:gov:treasury:ginv:OrderAttachmentPush"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:us:gov:treasury:ginv:OrderAttachmentPush Order_Attachment_Push.xsd">
    <cmn:FileName>testfile1</cmn:FileName>
    <cmn:FileNameAlias>my first test file</cmn:FileNameAlias>
    <cmn:DocumentNumber>O1702-3060-3060-0032</cmn:DocumentNumber>
    <n1:BuySellIndicator>R</n1:BuySellIndicator>
</n1:GINV_Attachment>
```

--wyh0b_2-92vSvGKh-nHe7HA3qyIggPjPG
Content-Disposition: form-data; name="attachment-file"; filename="testfile1.txt"
Content-Type: application/octet-stream
Content-Transfer-Encoding: binary

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