# xpedx.com Next generation

# *Order Place Interface Design Document*

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**Note**: The sign off indicates approval of all sections of the document.

Document Revision History

This chart tracks the changes introduced by the revisions to the document as the project progresses through the stages of the System Development Life Cycle (SDLC).

| Version | **Date** | **Description (Changes Made)** | **Author(s)** |
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| 1.0 | 03/1/2010 | Initial Draft | Sterling |
| 1.1 | 03/11/2010 | Updated based on feedback document DDD\_Feedback\_OrderPlace.UpdatePush\_V1.1.docx | Sterling |
| 1.2 | 3/11/2010 | Updated during review session 3/11 | Sterling |
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| 1.4 | 5/4/2010 | Updated based on feedback 4/29/2010 | Sterling |
| 1.5 | 5/4/2010 | Updated section 2.1.4 based on Cheryl’s feedback on order being placed with web hold | Sterling |

Related or Reference Documents

| Document Name | Description | Owner | Location |
| --- | --- | --- | --- |
| SCI\_Xpedx Solution Definition Document v1.5.doc | Solution Definition document | Sterling Commerce |  |
| SCI\_xpedx\_Order Status\_v2.1.xlsx | Order Status Mapping Document | Sterling Commerce/xpedx |  |
| SCI\_Order Place Interface v1.3.xlsx | Order Place Field Mapping Document | Sterling Commerce/xpedx |  |
| Xpedx Order Hold in Call Center Detailed Design v2.0.doc | Order processing business rules Document | Sterling Commerce |  |
| xcom NG Connectivity Finalized Transactions | Connectivity Document between Sterling/webMethods/Legacy | webMethods |  |

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# Introduction

## Document Purpose

This document is the governing Interface design document for the Order Place Interface. It contains the significant decisions and constructs used in developing the interfaces. Testing, builds, configuration management are not covered in this document.

The document also includes data mapping to be used by respective parties (Sterling, web Methods, Legacy) to design their systems in order to support the interface.

The document will also serve the purpose of keeping a list of assumptions that were made during design discussions.

## Document Audience

This document is intended for management and technical staff working on this project, xpedx IT and Business, Web methods, Legacy(MAX and ACCESS), HP, Industrial Wisdom, xpedx/International Paper Network Team. Sterling will use the document during design and configuration for design consideration.

# Order Place

## Overview

The order place interface is a real time, synchronous interface between Sterling and Legacy through webMethods.

It is used to update legacy with the order details when the following operations are performed in Sterling

1. New order placed using the website
2. New order placed through the Sterling Call Center
3. New order placed using the b2b interfaces
4. Existing order updated/cancelled through the website
5. Existing order updated/cancelled through the Sterling Call Center
6. Existing order updated/cancelled through the b2b interfaces – This function is not in scope for BR1

## Order Status Mapping

A common set of Order status codes have been mapped between Sterling and the Legacy systems. Sterling order rules are based on these statuses. The Legacies have more granular order statuses internally, but will roll up to these common order statuses when communicating with Sterling. See the “Order Level” tab on the attached Excel workbook.



**Order Place Triggers**

As listed in the mapping, orders are editable/cancellable only when in certain states such as Placed, Hold (Pending Approval), Hold (Not Approved), Open and Hold (Customer). Not all of these result in an interface call to Order Place.

This interface may be invoked in the Sterling system at the end of the order checkout process when creating new orders or changing existing orders.

**New Order** - In case of a new order being placed in Sterling, the Order Place interface is invoked to create the order in Legacy. Relevant Order Statuses – “Placed”.

**Change/Cancel Order** – When an order is edited or cancelled in the Open and Hold (Customer) statuses, the Order Place interface is invoked to update or cancel the order in Legacy. Any changes to any existing order in the above states, including line level changes, will result in the Order Place interface being invoked.

## Web Confirmation Number and Web Line Number

The system that generates the first new order or a new line will generate the Web Confirmation # or Web Line #. Both systems need to carry over the WC# and WL# in subsequent order splits (either due to backorder or sourcing logic)

***Web Confirmation Number*** - The key characteristic of the WC# is that it is unique in the whole system for each “consolidated order” and is carried over in each split within that “consolidated order”, whether the legacy splits it or Sterling splits it.

Structure of the WC# **<Creation Date><System Identifier><7 digit number>**

Format of the WC# is **YYMMDD(A|M|E)[(0-9)]{7}**

|  |
| --- |
| **YY** – 2 digit year |
| **MM** – 2 digit month |
| **DD** -2 digit day of month |
| **A** – Access |
| **M** – Max |
| **E** – eCommerce |

**Generation:** The last 7 digit number in Sterling will be any 7 digit number. Legacy may use the Order Branch + Order Number.

***Web Line Number*** - The key characteristic of the WL# is that it will be used to track a “consolidated line” unique within a “consolidated order”. It may repeat within the context of a “consolidated order” since a split (due to a backorder etc.) may have the same WL# for a line.

Structure of the WL# **<System Identifier><8 digit number>**

Format of the WL# is **(A|M|E)[(0-9)]{8}**

**Generation:** Sterling will use up to the 8 least significant digits of the system generated line key. Legacy may use the actual order # (5 digits) + line sequence#.

## Line Notes and Comments

***Notes***

Notes are directly associated with a line. ACCESS supports line level notes, MAX handles it as comments (wMethods to convert from notes to comments and vice versa from/to Sterling).

Considering MAX limitation, notes can be added (60 characters) only before submitting to legacy. It cannot be edited/removed on order (legacy) update. Since ACCESS can handle notes, there is a possibility of receiving more than 60 characters on Order Update from legacy.

[NOTE: Revisit business rule (edit/delete) for call center after Use Case discussion.]

***Comments***

These are sent as individual lines on the order with line type = comment. The line description is used to store the text of the comment. The limit is 60 characters while entering on Sterling. When Legacy (ACCESS) sends back this comment, the length may be more (see mapping). MAX may send up to 62. The quantity and price on these types of lines is empty. The system where these are created will send WL# for these lines as well. They will be shown as regular lines on the order rather than attempting to show them as a comment linked to any particular line.

Comments can only be added and not edited or deleted in the Web channel. CSRs may however add/edit/delete comments through Call Center. This is for both new orders and change orders.

## Customer Profile – Send Update Flag

There is a flag in the customer profile that specifies whether legacy should send updates on an order for a customer. That comes on the daily customer batch, so there could be a 24 hr gap between this flag is in sync in legacy and sterling. This causes some issues when the interface is invoked for placing new orders and sending updates to legacy.

The desired behavior is that when a new order is created in Sterling and the Customer Profile Order Update flag is set to “N”, the order is placed to legacy with a web hold and an alert is raised that is handled by a CSR.



## Master System

Since orders can be created and updated on Sterling and Legacy, both are the system of record for orders. There are cases where Sterling splits the orders, e.g. for an order containing both direct and warehouse items. The order processing rules will be captured in a separate document titled “xpedx Order Hold in Call Center Detailed Design” and “xpedx Order Business Rules Detail Design”.

## Process Flow

## Sequence Diagrams for Order Place

The following sequence diagrams depict the system behavior for the Order Place Interface use case during New Order and Change/Cancel Order. Each use case has 3 flows –

1. Success - Call to webMethods and Legacy was successful
2. Error (Legacy) - Call to webMethods was successful and call to Legacy failed or timed out.
3. Error (webMethods) - Call to webMethods failed or timed out.

On the New Order Place transaction, even if Legacy splits the order, the response contains the consolidated lines by Web Confirmation Number. Also, during New Order Place, if the transaction fails, the order is captured in Sterling and put on hold.

**New Order - Success**



**New Order – Error (Legacy)**



**New Order – Error (webMethods)**



**Change/Cancel Order – Success**



**Change/Cancel Order – Error (Legacy)**



**Change/Cancel Order – Error (webMethods)**



## Flow Details

1. Order Place Interface is invoked by Sterling in response to either a “New Order” operation or a “Change/Cancel Order” operation. As it happens behind the scenes, the user is not aware of invoking this call.
2. User exits within the Sterling system will need to be implemented to call the Order Place web service exposed by webMethods. The call is a real time synchronous call and Sterling will wait for a response.
3. The response could either come back with successful results. Or the transaction as a whole may fail. At the header level, the “transaction status” field will return these success/failure codes. There is no line level error on this transaction.
4. In case no response is received before a time-out, the order place transaction flow will be similar to the other error cases outlined above.
5. The behavior of the system is different during New Order and Change/Cancel Order.
   * For new orders - the Sterling system accepts the order (on hold, per business rules) even if there is an error during the call to Order Place interface.
   * For Change/Cancel orders - if the call to the Order Place interface fails the user is notified that the Order Place (change/cancel) action was unsuccessful and there are no changes made to the existing order.

## Field Mapping

The attached file contains the mapping at a field level, between the Sterling and Legacy systems.



## Schema

The schema defines the structure of the XML messages exchanged between Sterling and webMethods. Since the method of communication is a web service, the schema will be described in a Web Service Definition Language document and attached here.

NOTE: Am attaching a rough draft of the xml structure that Sterling expects the interface to have. But the final version of the WSDL will be provided by webMethods to replace the sections below

## Input and Output Xml (from Sterling to webMethods Request and webMethods to Sterling Response)

<?xml version="1.0" encoding="utf-8"?>

<Order>

<SourceIndicator/>

<EnvironmentId/>

<Company/>

<WebConfirmationNumber/>

<OrderingDivision/>

<LegacyOrderNumber/>

<GenerationNumber/>

<LegacyOrderType/>

<Update Flag/>

<ShipFromDivision/>

<CustomerDivision/>

<CustomerNumber/>

<ShipToSuffix/>

<ShipToName/>

<AttentionName/>

<ShipToAddress1/>

<ShipToAddress2/>

<ShipToAddress3/>

<ShipToCity/>

<ShipToState/>

<ShipToZIP/>

<ShipToCountryCode/>

<BillToSuffix/>

<BillToAddress1/>

<BillToAddress2/>

<BillToAddress3/>

<BillToCity/>

<BillToState/>

<BillToZIP/>

<BillToCountryCode/>

<CustomerPO/>

<OrderCode/>

<ShipComplete/>

<WillCall/>

<ShipDate/>

<HeaderComments/>

<OrderedByName/>

<OrderCreateDate/>

<OrderSource/>

<HeaderProcessCode/>

<OrderStatus/>

<OrderStatusComment/>

<CurrencyCode/>

<TotalShippableValue/>

<TotalOrderValue/>

<OrderSpecialCharges/>

<OrderFreight/>

<OrderTax/>

<HeaderStatusCode/>

<LineItems>

<LineItem>

<WebLineNumber/>

<LegacyLineNumber/>

<LineDistributionNumber/>

<LineProcessCode/>

<LineType/>

<LegacyProductCode/>

<CustomerProductCode/>

<BaseUnitOfMeasure/>

<OrderedQtyInBase/>

<PriceUnitOfMeasure/>

<UnitPrice/>

<LineDescription/>

<PriceOverrideFlag/>

<RequestedUnitOfMeasure/>

<RequestedOrderQuantity/>

<ShippedQty/>

<BackOrderQty/>

<CustomerLineNumber/>

<CustomerLinePONumber/>

<CustomerUserField1/>

<CustomerUserField2/>

<CustomerUserField3/>

<ShipFromBranch/>

<LineNotes/>

<LineSpecialCharges/>

<LineFreight/>

<LineTax/>

<LineTotal/>

<LineStatusCode/>

</LineItem>

</LineItems>

</Order>

[TBD] Insert WSDL once it is agreed upon with webMethods.

## Screen Shot

Not Applicable.

## Open Questions

1. Legacy to provide all the possible codes for Header Status Code along with the legacy description. **[Tracked on mapping document – SCI\_Order Place Interface.xls]**
2. Customer holds – since we are editing open legacy orders, how do we handle “customer side holds”. E.g. after placing an order, we go edit an open order to have higher than allowed limit on spending. (or) edit one of the splits such that the total goes above spending limit. **[XCNG-172]**
3. Does spending limit include tax/freight ? [We cant possibly determine this at time of order place] **[XCNG-173] – Answer – Should use only product lines**
4. When are validations rerun on orders in Sterling. E.g. what happens if order placed in legacy, comes to sterling and fails some validation. **[XCNG-174]**
5. Web Conf # purging orders to history required due to reuse of legacy order number very fast. **[XCNG-176] Answer - CLOSED in JIRA with no resolution comments, even though it appears to be resolved.**
6. Add the field “Shipment code” = standard, default to order place? (different from “will call” or not) **[XCNG-177] - Answer: No. One and the same. ‘Will Call’ if checked, ‘Standard’ if unchecked.**
7. Promo codes are line level. How does this affect the mapping? **[XCNG-178] CLOSED in JIRA; Pawan – “** Promo code is always added as a line item. However that does not mean they cannot adjust price on the header level. We have talked about this with Legacy during mapping and it has been decided to send that as a promo line on the order. So, this issue can be closed.
8. In back ordered status, can we edit/cancel the order? (See Order status mapping). **[XCNG-179]. Answer – A customer cannot edit/cancel an order in backordered status, a CSR can.**
9. **Need to review mapping and close out the questions in the document.**

## Assumptions

1. Sterling will invoke the Order Place interface for orders even when the # of order lines >150 **[Open Item – JIRA – XCNG-175] Answer – “** The order will be treated as any other order. Web Methods will fail the order during order placement (TBD as part of error handling discussion).   
     
   One option would be... CSR to delete lines in COM and create a new order in COM or re-key (current process) those lines in legacy.**”**
2. Sterling will get all the UoM related conversion data from the Price and Availability call. There will be no requirement to convert between any of the following – Pricing UoM, Base UoM and Requested UoM
3. On order place and response – both systems will send snapshots of the entire order, not just the changes on the order.
4. When the order snapshot is received by Sterling, all order data will be refreshed.
5. Requested Qty, Shipped Qty & Backordered Qty can be decimal values up to 3 decimal places
6. Order Quantity check needs to be performed against the minimum order qty and order multiple rules. The min order qty and order multiple information will be loaded in Sterling system as part of the batch loads.

# Connectivity Diagram

## Order Place Connectivity Diagram

Refer to Visio attachment tabs FC-OP-S2M (Order Place – Sterling to MAX) and FC-OP-S2A (Order Place – Sterling to ACCESS).



## Connectivity Process

1. webMethods to expose Order Place as a web service and provide WSDL to Sterling.
2. WSDL endpoint URL will have the service name to distinguish it from other services/ transactions.
3. Input / output parameters defined in the WSDL to conform to the Request / Response XML provided by Sterling in the Schema section.
4. webMethods will not point to the services across environments based on the Environment Id. Separate web services address will be given to Sterling to point to a specific environment.
5. Sterling will call the web service when creating or updating an order.
6. webMethods will, based on the header fields in the XML, convert the request to a Legacy specific format and call Legacy Order Place service.
7. Once Legacy processes the request, it will synchronously send back the response for order place with the complete order details. In the case of new orders, it is a pre-split snapshot. In case of order update, this will contain the snapshot of the order after the update.
8. webMethods will convert this response from the Legacy specific format to the XML format defined in the Schema section and pass it back to Sterling.
9. Sterling will process the response and update the order in its database with details such as legacy order#, legacy line#, etc.

# Glossary of Terms

|  |  |  |
| --- | --- | --- |
| S. No. | Term | Definition |
| 1. | WSDL | Web Services Definition Language |
| 2. | UE (User Exit) | Hooks to write custom code in Sterling |
| 3. | BR1 | Business Release 1 |
|  |  |  |