



The Division of Purchase & Contract and Statewide IT Procurement identifies State Term Contracts that should be implemented as punchout catalogs. In general, contracts are most likely to be awarded with the requirement for punchout catalogs when there are a large number of items on the contract and/or the prices change frequently and/or there are a number of highly configurable items on the contract. If you have been awarded a contract that requires a punchout catalog, guidance around the punchout implementation and technical specifications are included in this document.

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I. Functional Summary

Punchout functionality provides an alternative mechanism for suppliers to offer the State of North Carolina access to products awarded under contract. Punchout catalogs are ideal for suppliers that have products which require configuration. Punchout functionality also allows for direct communication with a supplier's ERP system, which can reflect real-time product inventory/availability information.

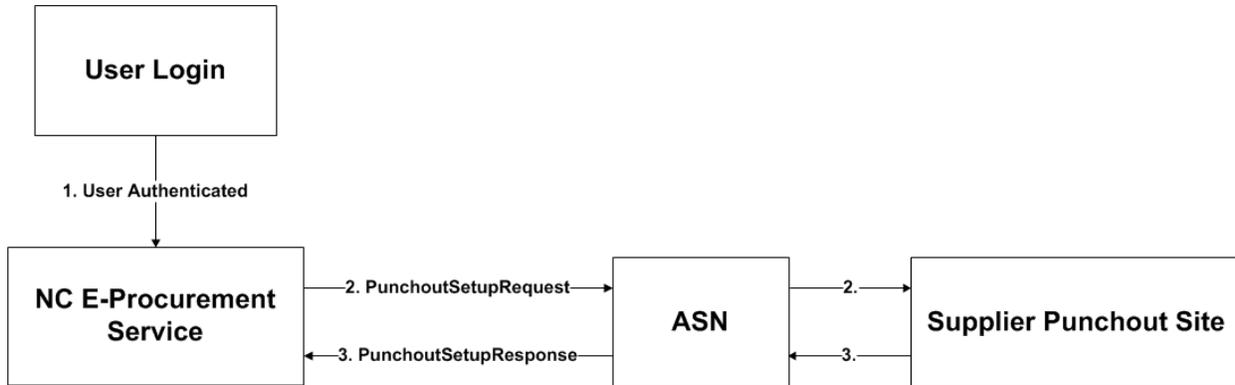
Through utilization of a punchout catalog, a State of North Carolina buyer, also referred to as a 'user,' will "punch out" to a supplier's web site. Using the searching tools of the supplier's North Carolina Punchout site, the user will select the desired products. When complete, the user will exit the supplier's punchout site, and the shopping cart containing goods applicable to the contract will be returned to the North Carolina E-Procurement purchasing application. No orders are sent to a supplier when the user exits the supplier's Punchout site. Instead, the chosen products are returned to NC E-Procurement as contract line items. The user can then proceed through the normal workflow steps, which may include adding additional items to a requisition. A purchase order is submitted to the supplier only after the user has added the necessary line item(s) to a requisition and the requisition has been fully approved.

North Carolina Punchout functionality utilizes the XML standard cXML 1.2 (which is reversely compatible to 1.0) to facilitate communication between the NC E-Procurement purchasing application (Ariba Buyer 9r1), the Ariba Supplier Network (ASN), and the supplier. For detailed information on the cXML protocol, see <http://www.cxml.org>.

II. cXML Messaging

The following section provides an overview of all messages that must be transferred between the NC E-Procurement purchasing application (Ariba Buyer 9r1), the ASN, and the supplier.

Diagram 1 – Initiating the Punchout Session



The above diagram illustrates the initial messages that must be exchanged in order to begin a Punchout session.

1. The user is required to log into the NC E-Procurement purchasing application with a username and password. The assumption is that all users accessing NC E-Procurement are qualified and knowledgeable in the application.
2. If a user chooses to access a supplier's punchout catalog, a '**PunchoutSetupRequest**' message is sent to the supplier via the ASN. Within this message are pre-established credentials (agreed by NC E-Procurement and the ASN, and the supplier and the ASN).
3. Assuming the supplier has successfully received the message, the supplier will return a '**PunchoutSetupResponse**' message through the ASN containing the URL for the punchout catalog.

Diagram 2 – Punch Out to Supplier Site



This diagram illustrates the step after a successful initial handshake between the NC E-Procurement purchasing application and the supplier.

1. The NC E-Procurement purchasing application will open the punchout catalog within the NC E-Procurement master window. This punchout catalog will contain the supplier site as indicated by the URL which was sent by the supplier as part of the 'PunchoutSetupResponse' message.

Note: As users re-punchout, items that have been previously added to the NC E-Procurement requisition from a supplier's punchout site will be included in the as part of the 'ItemOut' message details. At this time, the supplier's shopping cart should populate based on the item information included as part of this message.

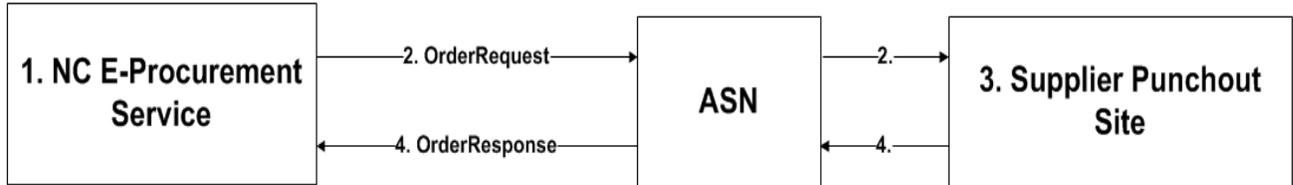
Diagram 3 – Returning the Shopping List



This diagram reflects the steps when the user is ready to complete his/her shopping experience.

1. On the supplier's punchout site, the user will see the correct product and pricing in compliance with contract terms. The user uses the supplier's site normally by adding items, as necessary, to their shopping cart.
2. Once the user is ready to checkout to return to NC E-Procurement, the supplier then issues a 'PunchoutOrderMessage' to the NC E-Procurement purchasing application containing product and pricing information. This information is captured as part of the 'ItemIn' message details.
3. NC E-Procurement receives the PunchoutOrderMessage and places all returned items into the requisition as contract line items.

Diagram 4 – ASN Order Processing



This diagram shows the messaging that occurs upon successfully sending an order to the supplier via the Ariba Supplier Network. The steps below apply to the ordering process as it relates to the Ariba Supplier Network delivery method.

Note: Suppliers are **not required** to use the Ariba Supplier Network as their preferred ordering method to receive NC E-Procurement purchase orders. The alternative ordering method is email. The supplier's ordering preference can be set (per location) by the supplier by logging into and updating their company's NC E-Procurement Vendor Registration account: <https://vendor.ncgov.com>.

1. Once the user's requisition has been filled with all necessary items from the supplier's punchout catalog, the requisition will be submitted for approval. Once the required workflow is complete within the NC E-Procurement system, the requisition will be turned into a purchase order.
2. An '**OrderRequest**' message containing relevant information (such as shipping information, item number, etc.) is sent to the supplier via the ASN.
3. Depending on how the supplier's site is set up, the incoming cXML message will undergo a validation process by the supplier.
4. After the supplier has examined and accepted the '**OrderRequest**' message, the supplier will respond with an '**OrderResponse**' message to complete the handshake.



III. Punchout Catalog Implementation & Functionality Requirements

Suppliers awarded contracts that specify punchout catalogs will be required to provide two Punchout websites. The first is used for development integration testing and the second is used for production purposes. Both sites must have the standard Punchout functionality capabilities as indicated below and both sites must remain active during the implementation period and throughout the term of the contract.

In addition, the State must approve a supplier's Punchout site prior to implementation. Since NC E-Procurement will be implementing Punchout catalog functionality via the Ariba Supplier Network, an active ASN account is required. The implementation process should take no longer than 90 days.

General Requirements

Below are the general requirements and functional criteria which each supplier's punchout catalog must meet:

- The Punchout solution must conform to cXML 1.0 or 1.1 standards.
- The state requires that suppliers who use Punchout catalogs be able to block the purchase of items that have not been awarded to the supplier as part of the State Term Contract. "Blocking" is defined as the electronic removal of product information and prices from the Punchout Catalog solution.
- The punchout site must support '**PunchOut Edit & Inspect**' functionality from Ariba Buyer (also known as re-punchout).
- Valid UNSPSC codes must be assigned to each of the items which are available on the supplier's contract-specific punchout site.
- Valid units of measurement must be assigned to each of the items which are available on the supplier's contract-specific punchout site (Common units of measurements are EA (each), CS (case), BX (box), PK (pack), and DZN (dozen)).
- The supplier must be able to accept and process change orders and cancellations.

NC E-Procurement cXML information

- At the time an NC E-Procurement user accesses a supplier's punchout site, the cXML '**PunchoutSetupRequest**' message details include the Extrinsic attribute "Contract." The value contained in this attribute is equal to Contract ID of the awarded State Term Contract (e.g., 123A). This information is sent to the supplier each time a user punches out to the punchout site and it should be recognized by the supplier in order to "block" non-contract items for NC E-Procurement users.
- Because the supplier must recognize re-punchout functionality, the Operation attribute which appears as part of the PunchoutSetupRequest node can be used to identify whether a requisition is new or existing at the time the NC E-Procurement user accesses the punchout site. The attribute will reflect one of three values: '**create**', '**edit**', or '**inspect**.' If the value=create, this means that the requisition is new, and there will be no '**ItemOut**' information included as part of the cXML message. The shopping cart should not be populated with any items at this time; it should remain empty. If the value=edit or inspect, this means that the cXML message from NC E-Procurement will contain previously added punchout item data in the '**ItemOut**' details (i.e., Quantity, Line Number, Supplier Part ID, and Supplier Part Auxiliary ID). Hence, the shopping cart should populate at that time according to the '**ItemOut**' data.



IV. Punchout Catalog Support Requirements

Contacts

The supplier must assign a person from each of the following departments to serve as the contact for any questions from the NC E-Procurement Content Enablement team or North Carolina buyers.

- Business Contact (for project facilitation and relationship management)
- Technical Contact (for functionality questions)
- Customer Service Support Contact (for site usage and order questions)

Site Availability

The availability of the supplier's punchout catalog must adhere to the terms specified on the State Term Contract. If not specified in the contract, a 95% uptime is expected. All regular maintenance windows should be communicated in advance to the designated Contract Administrator and the NC E-Procurement Content Enablement team. Any unexpected maintenance, such as product or code changes, need to be communicated to the Contract Administrator and the NC E-Procurement Content Enablement team at least one hour prior to maintenance. All communications should be sent to eprocurementdata@its.nc.gov.

Training Manual

The supplier may be asked to provide NC E-Procurement with a training manual for the supplier's site functionality.

Contract Pricing

The supplier's punchout site must display the most accurate, up-to-date contract prices available. All pricing and product updates must be approved by the designated State Contract Administrator prior to making updates on the punchout site. The punchout site should permit only those products covered under the specific North Carolina State Term Contract to be added to the user's shopping cart and returned to the NC E-Procurement purchasing application.

In some cases, suppliers are awarded more than one North Carolina State Term Contract that require a punchout catalog. At this time, the supplier must be able to provide separate punchout catalog views for each unique contract.

Issues Handling

The supplier is responsible for responding to any issues, either supplier process or site related, within two business days or as otherwise specified in the contract terms.

Internal Exception Handling

The supplier must have a process in place to support any internal order failure (exception) that occurs after order transmittal and acceptance, and which prevents order processing. In the case of an exception, the supplier must be able to comply with the following NC E-Procurement requirements.

1. The order exception must be identified by the supplier within one hour.
2. The supplier must send an email, which references the order number, to eprocurementdata@its.nc.gov alerting NC E-Procurement of the exception.
3. The order resolution must occur within 24 hours.
4. The supplier must contact the buyer if there will be a delay in order processing.
5. The supplier must send an email to eprocurementdata@its.nc.gov referencing the order number and documenting the cause and resolution of the exception within 24 hours.

Customer Service Availability and Sales Support



The supplier's punchout site should prominently display a customer service phone number. The customer service department should be able to assist buyers with order tracking, shipping support, and general customer service support. All orders should be able to be referenced via the buyer's NC E-Procurement purchase order number.

The supplier should communicate the launch of the punchout site for NC E-Procurement to both the sales force and customer support divisions. Both divisions should have a clear understanding of the process to ensure that they can support any user questions.



V. Punchout Evaluation Questions for Your Organization

The following information can be used to determine capabilities related to punchout implementation.

Question	Answer
What is a punchout catalog?	A punchout catalog links a procurement application (Ariba Buyer) to a supplier's eCommerce site allowing users to shop, place items into a shopping cart, and return the cart to the procurement application to continue purchasing within a designated workflow.
Does your organization have an eCommerce site?	An eCommerce site is a web site that allows users to shop through a catalog and purchase directly online through the site.
What is cXML?	cXML (commerce eXtensible Markup Language) is a standard, open language that allows data to pass between applications. cXML documents provide a way for buyers, suppliers, and Ariba CSN to communicate with each other. cXML documents are constructed based on Document Type Definition (DTD) files which are used to define a content model for a cXML document.
Can your organization support Punchout in the form of cXML?	A 'Yes' means that your organization may be capable of supporting Punchout. Next, it is important to explore if your organization has a live implementation in place.
Does your organization currently have live Punchout functionality enabled for the Ariba Buyer purchasing application?	A 'Yes' means that your organization is capable of supporting Punchout. Ariba Buyer 9r1 is the purchasing application that is utilized by NC E-Procurement.
During a Punchout session, can your Punchout site display only contract-specific products and pricing based on who the buyer is?	A 'Yes' means that your Punchout site supports blocking. Suppliers must have the ability to reflect only those items applicable to the specific contract for NC E-Procurement users.
Does your Punchout site have a mechanism to control pricing so that content applicable to the State Term Contract is not updated unless approval has been granted to make such updates?	A 'Yes' means that your Punchout site may be able to control pricing. The state of North Carolina requires approval from the designated Contract Administrator before the content on a supplier's punchout site can be updated.



VI. Next Steps for Supplier Punchout Implementation

1. The supplier must review each item within the '**Punchout Catalog Implementation & Functionality Requirements**' section to ensure that the organization is able to comply with the specified requirements.
2. The supplier must ensure that the organization has an active account with the Ariba Supplier Network. Punchout configuration and order processing settings should also be verified at this time.
3. The supplier must ensure that the organization's NC E-Procurement Vendor Registration account (<https://vendor.ncgov.com>) is active and reflects accurate information, including the organization's DUNS and Ariba Supplier Network ID. The preferred ordering method must also be verified and updated, as necessary, at this time.

Note: Although functional testing will utilize the Ariba Supplier Network for delivery of test orders, the supplier is **not required** to use the Ariba Supplier Network as their preferred ordering method to receive NC E-Procurement purchase orders. The alternative method of purchase order delivery is email.

4. The supplier must provide the NC E-Procurement Content Enablement Specialist (eprocurementdata@its.nc.gov) with the following information:
 - DUNS number
 - Ariba Supplier Network ID
 - Test PunchoutSetupRequest URL
 - Production PunchoutSetupRequest URL
 - Supplier Contact Information (Business, Technical, & Customer Service)
5. The NC E-Procurement Content Enablement Specialist may need to request a trading relationship with your organization within the Ariba Supplier Network (test and production site). This request must be accepted by the supplier.
6. In order for the supplier to establish a relationship, the following information specific to NC E-Procurement may be necessary.
 - Testing Information:
 - Ariba Network ID: AN01000078605-T
 - DUNS Number: 947713418-T
 - Production Information:
 - Ariba Network ID: AN01000078605
 - DUNS Number: 947713418
7. The supplier must restrict items for the NC E-Procurement catalog so that only valid contract items appear on the Test and Production Punchout sites (contact your North Carolina Contract Administrator to confirm the content which should be available on the contract-specific punchout catalog).
8. Once the test punchout site has been created, the NC E-Procurement Content Enablement Specialist will initiate testing for connectivity and functionality. The testing process will verify the requirements listed in the '**Punchout Catalog Implementation & Functionality Requirements**' section of this document. During the testing process, the supplier will be expected to verify each test order was successfully delivered to the test Ariba Supplier Network account. All details of the test orders will be confirmed at this time (including content, comments, and attachments). The following items will be tested by the NC E-Procurement Content Enablement Specialist:



- Access the punchout site while logged into the purchasing application as several different users to ensure that the appearance of supplier's punchout site remains consistent regardless of the user.
 - Verify that items can be added to the shopping cart and appear as expected based on the initial description/price/part ID/etc.
 - Verify the ability to re-punchout during the creation of an initial purchase order and a change order.
 - Include comments and attachments as part of the initial purchase orders and change orders (this is done to verify functionality for those suppliers who will receive orders via the ASN).
 - Submit initial purchase orders and change orders via the test Ariba Supplier Network.
 - Include both punchout catalog items and non-catalog items on a single purchase order to ensure both types of items are delivered to the supplier.
 - Verify that necessary data is consistently returned from the punchout site for each item, such as Part ID, Item Description, Price, Quantity, Unit of Measure, and UNSPSC Classification Code.
 - Submit a cancellation to the supplier via the test Ariba Supplier Network.
9. The designated Contract Administrator will review the appearance and content on the test punchout site to ensure the catalog is in compliance with contract terms before the catalog is activated for our end users. If any content errors are found, the supplier is responsible for correcting the content, as requested by the Contract Administrator, to meet contract terms.
10. The designated Contract Administrator will review the appearance and content on the production punchout site to ensure the catalog is in compliance with contract terms. Once the Contract Administrator has reviewed and approved all content on the supplier's production punchout catalog, the NC E-Procurement Content Enablement Specialist will activate the punchout catalog for NC E-Procurement users.

Note: The activation date is dependent on the effective start date of the State Term Contract.



VII. Helpful Resources

Websites and Contact Information: The following URLs provide additional information related to NC E-Procurement. Contact information for the Content Enablement team and the NC E-Procurement Help Desk have also been provided.

NC E-Procurement Website: <http://eprocurement.nc.gov>

Department of Purchase and Contract Website (P&C): <http://www.doa.nc.gov/pandc/Default.aspx>

Statewide IT Procurement Website:

<http://www.its.state.nc.us/ITProcurement/TermContracts/TContracts.asp>

Ariba Supplier Network: 888-892-7422 or <http://service.ariba.com>

NC E-Procurement Vendor Registration: <https://vendor.ncgov.com>

UNSPSC Classification Code Website: www.UNSPSC.org

NC E-Procurement Content Enablement Team: eprocurementdata@its.nc.gov

NC E-Procurement Vendor Help Desk: epservice@its.nc.gov or 888-211-7440, option 2



VIII. cXML Examples

Below are portions of a sample cXML communication which can be used as a reference point during development.

1. **Initial request from NC E-PROCUREMENT to the supplier's punchout site:** This displays the connection to the supplier's punchout site following the successful '**PunchoutSetupResponse**' message.

```
<From>
<Credential domain="AribaNetworkUserId">
<Identity>sample@sample.com</Identity>
</Credential>

</From>
<To>
<Credential domain="buyersystemid">
<Identity>*****1234</Identity>
</Credential>
<Credential domain="federaltaxid">
<Identity>*****1234</Identity>
</Credential>
<Credential domain="internalsupplierid">
<Identity>*****1234</Identity>
</Credential>
<Credential domain="duns">
<Identity>*****4321</Identity>
</Credential>

</To>
<Sender>
<Credential domain="AribaNetworkUserId">
<Identity>sample@sample.com</Identity>
<SharedSecret>*****</SharedSecret>
</Credential>
<UserAgent>Buyer 9r1</UserAgent>

</Sender>
</Header>
<Request>
  <PunchoutSetupRequest operation="create">
    <BuyerCookie>1212ABAB</BuyerCookie>
    <Extrinsic name="UserEmail">user@ncep.com</Extrinsic>
    <Extrinsic name="UniqueName">jsmith</Extrinsic>
    <Extrinsic name="Contract">123A</Extrinsic>
    <BrowserFormPost>
      <URL>https://qa9r1.ncgov.com/Buyer/punchout?client</URL>
    </BrowserFormPost>
    <Contact role="enduser">
      <Name xml:lang="en">John Smith</Name>
      <Email>user@ncep.com</Email>
    </Contact>
    <SupplierSetup>
      <URL>https://www.supplierabc.com/receiveNCPunchoutSetupRequest.php</URL>
    </SupplierSetup>
    <ShipTo>
      <Address addressID="123">
        <Name xml:lang="en">123</Name>
        <PostalAddress>
          <DeliverTo>John Smith</DeliverTo>
          <Street>123 Main St.</Street>
          <City>Anytown</City>
          <State>NC</State>
          <PostalCode>54321</PostalCode>
          <Country isoCountryCode="US">United states</Country>
        </PostalAddress>
      </Address>
    </ShipTo>
    <SelectedItem>
      <ItemID>
        <SupplierPartID>Supplier ABC</SupplierPartID>
        <SupplierPartAuxiliaryID></SupplierPartAuxiliaryID>
      </ItemID>
    </SelectedItem>
  </PunchoutSetupRequest>
</Request>
</cXML>
```



2. **Return to NC E-PROCUREMENT from supplier site:** This displays the **'PunchoutOrderMessage'** to the NC E-Procurement purchasing application containing product and pricing information which is captured as part of the **'ItemIn'** message details.

```
<Header>
  <From>
    <Credential domain='buyersystemid'>
      <Identity>*****1234</Identity>
    </Credential>
  </From>
  <To>
    <Credential domain='NetworkId'>
      <Identity>AN01000078605</Identity>
    </Credential>
  </To>
  <Sender>
    <Credential domain='buyersystemid'>
      <Identity>*****1234</Identity>
      <SharedSecret>--DELETED--</SharedSecret>
    </Credential>
    <UserAgent>Buyer 9r1</UserAgent>
  </Sender>
</Header>
<Message>
  <PunchOutOrderMessage>
    <BuyerCookie>1212ABAB</BuyerCookie>
    <PunchOutOrderMessageHeader operationAllowed='edit'>
      <Total>
        <Money currency='USD'>100.00</Money>
      </Total>
    </PunchOutOrderMessageHeader>
    <ItemIn quantity='1'>
      <ItemID>
        <SupplierPartID>1234ABCD</SupplierPartID>
        <SupplierPartAuxiliaryID>Cookie=true|UserName=State of NC - TEST</SupplierPartAuxiliaryID>
      </ItemID>
      <ItemDetail>
        <UnitPrice>
          <Money currency='USD'>100.00</Money>
        </UnitPrice>
        <Description xml:lang='en-us'>Blue folder, 2 pockets, triple clasp, pack of 1000</Description>
        <UnitOfMeasure>EA</UnitOfMeasure>
        <Classification domain='UNSPSC'>44122011</Classification>
      </ItemDetail>
    </ItemIn>
  </PunchOutOrderMessage>
</Message>
</CXML>
```



3. **Re-Punchout from NC E-PROCUREMENT to supplier's punchout site:** This displays the details captured as the user returns to the supplier's punchout site to edit a shopping cart which was created during a prior punchout session.

```
<From>
<Credential domain="AribaNetworkUserId">
<Identity>sample@sample.com</Identity>
</Credential>

</From>
<To>
<Credential domain="federaltaxid">
<Identity>*****1234</Identity>
</Credential>
<Credential domain="duns">
<Identity>*****4321</Identity>
</Credential>
<Credential domain="buyersystemid">
<Identity>*****1234</Identity>
</Credential>
<Credential domain="internalsupplierid">
<Identity>*****1234</Identity>
</Credential>

</To>
<Sender>
<Credential domain="AribaNetworkUserId">
<Identity>sample@sample.com</Identity>
<SharedSecret>*****</SharedSecret>
</Credential>
<UserAgent>Buyer 9r1</UserAgent>

</Sender>
</Header>
<Request>
  <PunchOutSetupRequest operation="edit">
    <BuyerCookie>1212ABAB</BuyerCookie>
    <Extrinsic name="UserEmail">user@ncep.com</Extrinsic>
    <Extrinsic name="UniqueName">jsmith</Extrinsic>
    <Extrinsic name="Contract">123A</Extrinsic>
    <BrowserFormPost>
      <URL>https://qa9r1.ncgov.com/Buyer/punchout?client</URL>
    </BrowserFormPost>
    <Contact role="endUser">
      <Name xml:lang="en">John Smith</Name>
      <Email>user@ncep.com</Email>
    </Contact>
    <SupplierSetup>
      <URL>https://www.supplierabc.com/receiveNCEPPunchoutSetupRequest.php</URL>
    </SupplierSetup>
    <ShipTo>
      <Address addressID="123">
        <Name xml:lang="en">123</Name>
        <PostalAddress>
          <DeliverTo>John Smith</DeliverTo>
          <Street>123 Main St.</Street>
          <City>Anytown</City>
          <State>NC</State>
          <PostalCode>54321</PostalCode>
          <Country isoCountryCode="US">United States</Country>
        </PostalAddress>
      </Address>
    </ShipTo>
    <ItemOut quantity="1" lineNumber="1">
      <ItemID>
        <SupplierPartID>1234ABCD</SupplierPartID>
        <SupplierPartAuxiliaryID></SupplierPartAuxiliaryID>
      </ItemID>
    </ItemOut>
  </PunchOutSetupRequest>
</Request>
</cXML>
```