

Web Service HTTP Specifications

1. Production URL = <https://aps.ais.ucla.edu/sws-webservice/supplier/invoice>
Staging URL = <https://aps.ais.ucla.edu/lab-sws-webservice/supplier/invoice>
2. HttpMethod = "POST"
3. HttpRequest header keys and values:
 - a. Content-Length = Length of the message (without the headers) according to RFC 2616.
 - b. Content-Type = "application/xml; charset=UTF-8" or "text/xml; charset=UTF-8"
 - c. Accept = "application/xml" or "text/xml"
 - d. Date = Sender's current date and time using format "EEE, d MMM yyyy HH:mm:ss Z"
 - e. Authorization = Please refer to "XML Invoice Authentication" section of this document for details.

XML Invoice Authentication

"Authorization" = AuthenticationCode + " " + AccessId + ":" + Signature

1. AuthenticationCode = Use "AHS"
2. AccessId = Obtain this value from your UCLA AP contact
3. AccessKey = Obtain this value from your UCLA AP contact
4. HMAC-SHA1 = Encoding algorithm defined by RFC 2104 (<http://www.ietf.org/rfc/rfc2104.txt>).
5. Token = HttpMethod + ContentLength + ContentType + Date + URL
6. Signature = Base64(HMAC-SHA1.init(AccessKey).create(Token)); Initiate the encryption object with the AccessKey. Pass the Token to create a signature for every request or XML sent.

Example:

Authentication: AHS

AccessId: ABCDEFGHIJ

AccessKey: 1234567890

Token: "POST" + "1467" + "text/xml; charset=UTF-8" + "Fri, 31 Jul 2009 21:07:14 +0000" +
"https://aps.ais.ucla.edu/sws-webservice/supplier/invoice"

Signature: PD7ixD4kCRJzXOXV4PUQIuvWQRs=

Authorization: AHS ABCDEFGHIJ:PD7ixD4kCRJzXOXV4PUQIuvWQRs=

XML Invoice Format

<Invoice> Element (Header)

Element Name	Format	Notes
DocumentSource	Text Required	<ul style="list-style-type: none"> Use "Supplier"
DocumentType	Text Required	<ul style="list-style-type: none"> Use "Invoice"
DocumentVersion	Text Required	<ul style="list-style-type: none"> Current version: 1.0.0
DocumentProcessCode	Text Optional	<ul style="list-style-type: none"> Example: New
DocumentRef	Text Required	<ul style="list-style-type: none"> Maximum of 50 characters A unique identifier supplied by the sender
TransmitLoginId	Text Required	<ul style="list-style-type: none"> Access Id Obtain this Id from your UCLA AP contact
TransmitDate	Date Required	<ul style="list-style-type: none"> Format: <i>MM/DD/YYYY</i> Example: 8/8/2008
Organization	Text Required	<ul style="list-style-type: none"> Campus code Example: UCLA / UCM
SupplierNum	Text Required	<ul style="list-style-type: none"> 9 digits Valid Supplier Number Obtain this number from your UCLA AP contact
InvoiceNum	Text Required	<ul style="list-style-type: none"> Supplier Invoice number Maximum of 21 characters
PONum	Text Required	<ul style="list-style-type: none"> 10 or 12 characters Valid UCLA Purchase Order number
InvoiceDate	Date Required	<ul style="list-style-type: none"> Format: <i>MM/DD/YYYY</i> Example: 8/8/2008
TotalInvoiceAmount	Number Required	<ul style="list-style-type: none"> Maximum of 15 digits including 2 decimal digits Example: 10.25 Tax included
TotalSalesTaxAmount	Number Required	<ul style="list-style-type: none"> Maximum of 15 digits including 2 decimal digits Example: 10.25, 0.00
DiscountAmount	Number Optional	<ul style="list-style-type: none"> Maximum of 15 digits including 2 decimal digits Example: 10.25 <i>Discount Amount will be automatically calculated only if there is no Discount Amount value and there is a Discount Percent value. The formula will be</i> <i>Discount Amount = (Total Invoice Amount - Total Sales Tax Amount) * Discount Percent</i>

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Element Name	Format	Notes
DiscountPercent	Number Optional	<ul style="list-style-type: none"> Maximum of 99.999 Example: 8.25
DiscountDueDate	Date Optional/Required	<ul style="list-style-type: none"> Format: <i>MM/DD/YYYY</i> Example: 8/8/2008 <i>Required only if Discount Amount or Discount Percent has a value</i>
ShipTo	Custom Element Optional	<ul style="list-style-type: none"> Refer to <ShipTo> Element for additional ShipTo details
InvoiceLineItems	Custom Element Optional	<ul style="list-style-type: none"> Refer to <InvoiceLineItems> Element Child element <LineItem> recurs for multiple invoice line items.

<ShipTo> Element (Header)

Element Name	Format	Notes
Name	Text Optional	<ul style="list-style-type: none"> Maximum of 40 characters
AddressLine1	Text Optional	<ul style="list-style-type: none"> Maximum of 40 characters
AddressLine2	Text Optional	<ul style="list-style-type: none"> Maximum of 40 characters
City	Text Optional	<ul style="list-style-type: none"> Maximum of 25 characters
State	Text Optional	<ul style="list-style-type: none"> 2 characters
Zip	Text Optional	<ul style="list-style-type: none"> Maximum of 10 characters
Country	Text Optional	<ul style="list-style-type: none"> Maximum of 40 characters

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<InvoiceLineItems> Element

<LineItem> Element (Detail)

Element Name	Format	Notes
InvoiceLineNum	Integer Required	<ul style="list-style-type: none"> Maximum of 4 digits Example: 8 (8.5 is invalid)
POLineNum	Integer Required	<ul style="list-style-type: none"> Maximum of 4 digits Example: 8 (8.5 is invalid) <i>Required – for debit line (positive Line Amount)</i> <i>Optional - for credit line (negative Line Amount)</i>
Quantity	Number Optional	<ul style="list-style-type: none"> Maximum of 15 digits including 4 decimal digits Examples: 5 or 5.1234 (5.12345 is invalid) <i>Quantity is required if Unit Price has a value</i> <i>Credit line - Quantity will be negative if Unit Price has a value</i>
UOM	Text Optional	<ul style="list-style-type: none"> Appendix A for valid unit of measure codes
UnitPrice	Number Optional	<ul style="list-style-type: none"> Maximum of 15 digits including 5 decimal digits Examples: 10, 10.25 or 10.55555 (10.123456 is invalid) <i>Unit Price is required if Quantity has a value</i> <i>Unit Price must be positive either credit or debit. Use negative quantity for credit.</i>
LineAmount	Number Required	<ul style="list-style-type: none"> Maximum of 15 digits including 2 decimal digits Example: 10 or 10.25 <i>Positive amount for debit</i> <i>Negative amount for credit</i>
SalesTaxPercent	Number Optional	<ul style="list-style-type: none"> Maximum of 99.999 Example: 8.25
SupplierPartNum	Text Optional	<ul style="list-style-type: none"> Maximum of 30 characters
ShortDescription	Text Required	<ul style="list-style-type: none"> Maximum of 55 characters
LongDescription	Text Optional	<ul style="list-style-type: none"> Maximum of 1000 characters
DeliveryChargeCode	Text Optional	<ul style="list-style-type: none"> Appendix B for valid delivery charge codes

XML HTTP Response Status Codes

1. Created (201) – Invoice successfully submitted. URI of the new invoice will be returned (This is still in development).
2. Bad Request (400) – Invoice validation failed. Please check response XML for details.
3. Unauthorized (401) – Authentication failed
4. Internal Server Error (500) – Unexpected system error occurred

XML Response Format

<Response> Element (Header)

Element Name	Format	Notes
DocumentRef	Text	<ul style="list-style-type: none">• A unique identifier supplied by the sender
StatusCodes	Text	<ul style="list-style-type: none">• Refer to <StatusCodes> Element• Child element <Status> recurs for multiple status items.

<StatusCodes> Element

<Status> Element (Detail)

Element Name	Format	Notes
Code	Integer	<ul style="list-style-type: none">• Error code number
Category	Integer	<ul style="list-style-type: none">• Type of error that occurred
Description	Text	<ul style="list-style-type: none">• Error message
LineNum	Text	<ul style="list-style-type: none">• This is the line number on the invoice where the error occurred
ParentElementName	Text	<ul style="list-style-type: none">• XML parent element name where error occurred
ElementName	Text	<ul style="list-style-type: none">• XML element name where error occurred

Appendix A

Unit of measure valid codes in PAC as of 2/4/2009

Code	Description
	blank for items with no quantity and unit price
AC	ACRE
BD	BAND – PAPER
BG	BAG
BL	BARRELS
BN	BUNDLE
BO	BOARD
BT	BOTTLE
BU	BUSHEL
BX	BOXES
CA	CASE (EDI ONLY)
CC	CUBIC CMS
CD	CYLINDER
CF	CUBIC FOOT
CI	CUBIC INCHES
CL	COIL
CM	CENTIMETER
CN	CAN
CP	CELLO PACKAGE
CR	CARD
CS	CASE
CT	CARTON
CW	HUNDRED WEIGHT
CY	CUBIC YARD
DL	DECILITER
DM	DRUM
DW	DWT
DZ	DOZEN
EA	EACH
FT	FEET
GA	GALLON
GI	GRAM PER LITRE
GL	GALLON
GM	GRAM
GR	GRAM
GS	GROSS
GU	GALLON USA
HG	HALF GALLON
HO	HALFPINT
HP	HALFPINT

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Code	Description
HR	HOURLY RATE
IN	INCH
JR	JAR
KE	KEG
KG	KILOGRAM
KM	KILOMETER
KT	KIT
LB	POUND
LE	LENGTH
LI	LITER
LT	LOT
MC	CUBIC METER
MG	MILLIGRAM
MI	MILE
ML	MILLILITER
MM	MILLIMETER
MO	MONTH
MR	METER
MT	THOUSAND
NA	NOT APPLICABLE
OC	PER HUNDRED
OK	PER THOUSAND
OP	TWO PACK (EDI ONLY)
OZ	OUNCE
P3	THREE PACK (EDI ONLY)
P4	FOUR PACK (EDI ONLY)
P5	FIVE PACK (EDI ONLY)
P6	SIX PACK (EDI ONLY)
P7	SEVEN PACK (EDI ONLY)
P8	EIGHT PACK (EDI ONLY)
P9	NINE PACK (EDI ONLY)
PA	PACK
PC	PER HUNDRED
PD	PAD
PI	PIECES
PK	PER THOUSAND
PL	PAIL
PR	PAIR
PT	PINT
QT	QUART
RE	REEL
RL	ROLL
RM	REAM
SC	SQUARE CMS

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Code	Description
SF	SQUARE FOOT
SH	SHEET
SI	SQUARE INCH
SM	SQUARE METER
SP	SPOOL
ST	SET
SY	SQUARE YARD
TB	TUBE
TE	TONNE
TN	TON
TP	TEN PACK (EDI ONLY)
TU	TUBE
VI	VIALS
XX	EDI DEFAULT UOM (EDI ONLY)
YD	YARDS
YR	YEAR

Appendix B

Delivery charge valid codes as of 6/18/2009

Code	Description	Taxable
FSE	Fuel Surcharge, Tax Exempt	Tax Exempt
FST	Fuel Surcharge, Taxable	Taxable
FT	Freight, Tax Exempt	Tax Exempt
HAN	Handling, Taxable	Taxable
IN	Insurance, Tax Exempt	Tax Exempt
IZE	Ice or Dry Ice, Tax Exempt	Tax Exempt
IZT	Ice or Dry Ice, Taxable	Taxable
PK	Packaging, Taxable	Taxable
RC	Recycling of screens, Tax Exempt	Tax Exempt
RS	Recycling of everything (other than screen), Tax Exempt	Tax Exempt

Sample XML Invoice

```
<Invoice>
  <DocumentSource>Supplier</DocumentSource>
  <DocumentType>Invoice</DocumentType>
  <DocumentVersion>1.0.0</DocumentVersion>
  <DocumentProcessCode />
  <DocumentRef>Ref-123456789</DocumentRef>
  <TransmitLoginId>ABCDE12345</TransmitLoginId>
  <TransmitDate>7/21/2009</TransmitDate>
  <Organization>UCLA</Organization>
  <SupplierNum>1234567890</SupplierNum>
  <InvoiceNum>INV-1234567890</InvoiceNum>
  <PONum>4100ABC12300</PONum>
  <InvoiceDate>7/21/2009</InvoiceDate>
  <TotalInvoiceAmount>99.75</TotalInvoiceAmount>
  <TotalSalesTaxAmount>9.75</TotalSalesTaxAmount>
  <DiscountAmount />
  <DiscountPercent>1.5</DiscountPercent>
  <DiscountDueDate>9/1/2009</DiscountDueDate>
  <ShipTo>
    <Name>Joe</Name>
    <AddressLine1>100 Westwood</AddressLine1>
    <AddressLine2 />
    <City>Los Angeles</City>
    <State>CA</State>
    <Zip>90000</Zip>
    <Country>USA</Country>
  </ShipTo>
  <InvoiceLineItems>
    <LineItem>
      <InvoiceLineNum>1</InvoiceLineNum>
      <POLineNum>1</POLineNum>
      <Quantity>2</Quantity>
      <UOM>EA</UOM>
      <UnitPrice>50.00</UnitPrice>
      <LineAmount>100.00</LineAmount>
      <SalesTaxPercent>9.75</SalesTaxPercent>
      <SupplierPartNum />
      <ShortDescription>Marley & Me</ShortDescription>
      <LongDescription>Marley & Me</LongDescription>
      <DeliveryChargeCode/>
    </LineItem>
    <LineItem>
      <InvoiceLineNum>2</InvoiceLineNum>
      <LineAmount>-10.00</LineAmount>
    </LineItem>
  </InvoiceLineItems>
</Invoice>
```

Sample Response

1. Invoice successfully submitted
 - a. Http status code: 201
 - b. Http status message: Created
 - c. Http body: no body
 - d. Http location: URI of the submitted invoice
2. Duplicate Invoice
 - a. Http status code: 400
 - b. Http status message: Bad Request
 - c. Http body:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<Response>
  <StatusCodes>
    <Status>
      <Category>100</Category>
      <Code>300</Code>
      <Description>
        Duplicate invoice. An invoice had been
        previously submitted in the system.
      </Description>
      <ElementName>InvoiceNum</ElementName>
      <ParentElementName>Invoice</ParentElementName>
    </Status>
  </StatusCodes>
</Response>
```

3. Invoice contains invalid values
 - a. Http status code: 400
 - b. Http status message: Bad Request
 - c. Http body:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<Response>
  <StatusCodes>
    <Status>
      <Category>100</Category>
      <Code>300</Code>
      <Description>SupplierNum is invalid.</Description>
      <ElementName>SupplierNum</ElementName>
      <ParentElementName>Invoice</ParentElementName>
    </Status>
    <Status>
      <Category>100</Category>
      <Code>100</Code>
      <Description>
        UnitPrice is an invalid number.
      </Description>
      <ElementName>UnitPrice</ElementName>
      <LineNum>1</LineNum>
      <ParentElementName>LineItem</ParentElementName>
    </Status>
  </StatusCodes>
</Response>
```

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4. Access authentication failed
 - a. Http status code: 401
 - b. Http status message: Unauthorized
 - c. Http body: generic unauthorized message
5. UCLA server error
 - a. Http status code: 500
 - b. Http status message: Internal Server Error
 - c. Http body: may return an error message