

Volvo Financial Services

INFORMATION TECHNOLOGY

DMS Volvo MVP XML Batch Invoice Settlement Technical Specification

***Volvo Financial Services, North America
North American Transaction Services
(NATS)***

Version: 1.6

Issuer: Wendy Mendenhall and Bert Wilson

Date: 01/17/2013

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Document Versions:

Date	Version	Modified By	Modification Description
8/6/2012	1.0	Bert Wilson	Final document
8/31/2012	1.1	Bert Wilson	Minor grammatical edits
9/24/2012	1.2	Bert Wilson	Correction to the Settlement file schema and sample
10/04/2012	1.3	Bert Wilson	Correction to the <OEM> tag in the Settlement and Acknowledgement file. The value for Volvo Truck OEM parts should be 'VT', not 'NAT'
11/02/2012	1.4	Bert Wilson	Addition of Rentals and Mileage/Travel Time to Invoice Item types.
12/03/2012	1.5	Bert Wilson	Addition of enumeration from STL to ACK. STL and ACK sections 7 and 8.
1/17/2013	1.6	Bert Wilson	Updating the Settlement Acknowledgement File ack codes listings (Batch, Invoice, Item)

1.0 Introduction

The *MVPREFERRED* program was created to allow *NORTH AMERICAN TRANSACTION SERVICES (NATS)* and *VOLVO TRUCKS NORTH AMERICA (VTNA)* to offer customer pricing verification from within the existing *DEALER MANAGEMENT SYSTEMS (DMS)*.

This specification will provide the following details:

- Receive a *SALES ORDER INVOICE (SOI)* or a *REPAIR ORDER (RO)* request from the Dealer to obtain an authorization. *MVPREFERRED* will:
 - Validate the authorization request contents
 - Insure that the Dealer Code is valid
 - Insure that the customer account is valid
 - Insure that the client has sufficient funds (credit limit has not been exceeded) to pay for the purchase of goods and/or services from the DMS
 - Authorize against other optional parameters
 - Single Purchase Limit
 - Against a pre-defined Purchase Order
 - Against a pre-defined Purchase Order Structure
 - Driver Number
 - VIN (RO Only)
 - Vehicle Number (RO Only)
 - Return a *DECLINE* code and reason to the DMS –or-
 - Return an authorization number that insures the DMS that proper funds have been set aside to honor the invoice when it is presented for settlement at a future date
 - Return a *REFERRAL* code and require the dealer to contact NATS to obtain a Manual Authorization

NOTE: A section is included to handle manual authorization for the various scenarios which could occur during normal business processing.

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- Receive a daily DMS batch settlement file and initiate payment for invoices that have been fulfilled by the DMS. MVPREFERRED will:
 - Validate the settlement batch file
 - Insure that the Dealer Code is valid
 - Insure that the customer account is valid
 - Insure that each invoice in the settlement file contains the matching authorization number presented during the authorization process and that the authorization has not expired
 - For all Electronic Authorizations run Price Verification to insure no prices have been changed since Authorization took place. Price Verifications may be invalid if not verified the same day as the authorization code is received.
 - Convert the authorization request for each invoice into an *A/R POSTED TRANSACTION*, and mark the authorization as closed.
 - Create an *AUTOMATED CLEARING HOUSE (ACH)* record for payment to the Dealer
 - Scan the authorization file and expire any authorizations that have exceeded their lifespan
 - Process Visa/MasterCard transactions for authorization and settlement (Fleet Charge Customers) See Credit Card Specifications

This document assumes that the reader is well versed in credit/debit card transaction processing as it pertains to Authorizations, Settlements, and Processors.

1.1 Summary of Contents of Document

The following conventions are used throughout this document:

- *Capitalized Italics* words (only capitalized the first time) are defined in the Glossary.
- [NOTES: are used to further clarify the discussion or to offer additional suggestions and/or resources wherever applicable].

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1.2 Audience and Scope

This document is intended to discuss in details, the technical programming requirements to present invoices for authorizations, settlements, and accounts receivable billing.

Secondary audiences include, but are not limited to: software implementers, quality assurance personnel, and technical writers.

1.3 Related Documents

- DMS Volvo Gateway Service tech specs
- DMS Volvo Price Verification Message Protocol tech specs
- DMS Volvo Authorization Message Protocol tech specs

2.0 System Objectives

The MVPREFERRED system will provide the DMS with the means to guarantee payment for invoices from NATS. NATS will provide the necessary credit to its clients, and in case of payment defaults, the A/R system will have the means for collections and other accounting functions.

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3.0 Assumptions

- The various DMS will provide customized logic to insure that all SOI/RO have been previously presented for Price Verification.
- All changes to the DMS *GRAPHICAL USER INTERFACE (GUI)* will be the sole responsibility of the DMS vendor to affect all necessary changes to allow the Pricing Verification module to function per all the specifications.
- All SOI/RO presented at Settlement time will be audited to insure that Price Verification was performed. Any SOI/RO with pricing verification discrepancies will be rejected and presented to the Volvo Web Solution for correction. Price Verifications may be invalid if not verified the same day as the authorization code is received.
- The Authorization and Settlement modules can standalone without the Price Verification module.
- **VFS IT DMS/Dealer network SLA:** the bandwidth and/or availability of the DMS and/or dealers connection from their respective Internet Service Provider is not in scope for VFS IT support
 - VFS IT SLA support covers incoming/outgoing connections to the gateway service and SFTP server designated in the specification

4.0 Authorization

Reference the attached flowcharts for detail processing and application of the business rules. A narrative is included for the non-technical reader.

Authorizations will occur throughout a normal business day, and the Authorization system will be available for real-time authorizations as follows:

- Monday thru Saturday (22 x7 x 365)
A two (2) hour window from 12:00 AM Eastern until 2:00 AM Eastern will be reserved as required by Volvo IT for maintenance and backups.
- Sunday
A six (6) hour window from 6:00 AM Eastern until Noon Eastern will be reserved as required by Volvo IT for network maintenance.

An Authorization will use certain parameters from within the MVPREFERRED as follows:

- Sufficient Funds for purchase of goods or services at the Fleet Customer Account Level (Individual A/R Accounts each with their own credit levels)
- Optionally at the account level, purchase restrictions for *SINGLE PURCHASE LIMITS (SPL)* (See glossary of terms).
- Driver Number

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- Optionally by requiring each SOI to draw available funds from a fleet customer's pre-defined *PURCHASE ORDER (PO)*. POs can be setup and predefined as follows:
 - *BLANKET PO* with a preset number and a spending amount.
 - One time single use PO with a preset assigned number and a spending amount.
 - A range of PO numbers
 - PO Structure (User defined format for the Purchase Order Number)
 - RO Only
 - VIN
 - Vehicle Number

4.1 **Electronic Authorizations Flow**

1. An invoice is presented by the DMS and sent to MVPREFERRED (See DMS/Volvo Preferred Pricing Messaging Technical Specification Formats for more information on the actual transmission/reception exchange).
Note: The exchange of the message validates:
 - a. Proper formatting of the message
 - b. Dealer Code is validated
 - c. Customer Account is validated
2. Retrieve the customer's account and check for sufficient funds to authorize payment for the invoice amount.
 - a. On *NON SUFFICIENT FUNDS (NSF)*, error and go to step (4).
 - b. If sufficient funds exist, go to step (3).
3. The Company specific authorization parameters are retrieved and each of the following is processed
 - a. If authorization against a PO is required, then PO Authorization is performed – else Step (3c).
 - b. If PO Authorization successful, step (c),
else
Set Error Message to “PO Number is required!” – go to error step (4).
 - c. (RO Only) If authorization against a *VEHICLE IDENTIFICATION NUMBER (VIN)* is required, then VIN Authorization is performed – else Step (3e).
 - d. (RO Only) If VIN Authorization successful, step (3e),
else
Set Error Message to “VIN Number is required!” – go to error step (4).
 - e. (RO Only) If authorization against a *VEHICLE NUMBER* is required, then Vehicle Number Authorization is performed – else Step (3g).
 - f. (RO Only) If Vehicle Number Authorization successful, step (3g),
else
Set Error Message to “Vehicle Number is required!” – go to error step (4).
 - g. If authorization against a *DRIVER NUMBER* is required, then Driver Number Authorization is performed – else Step (3i).
 - h. If Driver Number Authorization successful, step (3i),
else
Set Error Message to “Driver Number is required!” – go to error step (4).

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- i. If authorization against *VELOCITY LIMITS* is required, then Velocity Limits Authorization is performed – else Step (3k).
 - j. If Velocity Limits Authorization successful, step (3k),
else
Set Error Message to “Velocity limits have been exceeded!” – go to error step (4).
 - k. Set Invoice Authorization Successful – Step (5).
4. Declined Error Return
 - a. Return the error message
 - b. Insert the invoice into the Authorization Database Table (As Declined) and return to the DMS.
 5. Authorization Successful
 - a. Get next authorization number from the Bank Control File
 - b. Insert the invoice into the Authorization Database Table (As Authorized) and return to the DMS.

4.2 **Manual Authorizations Flow**

In those rare cases where normal authorization is unavailable, the following paragraphs outline the procedures for manual authorizations.

1. The Dealer Volvo *WIDE AREA NETWORK (WAN)* is unavailable for access by the DMS
 - Dealer calls MVPREFERRED dealer service to obtain an authorization.
 - MVPREFERRED customer service access the MVPREFERRED manual authorization screen and enters in the Customer Account Number and Amount to be authorized.
 - MVPREFERRED returns
 - Decline message if insufficient funds for the purchase of goods or services. End of Job.
 - Manual Authorization number
 - Dealer enters in the manual authorization number and validates to MVPREFERRED dealer service person and finalizes the SOI/RO
 - End of Job
2. The MVPREFERRED is unavailable and therefore not accessible by the DMS nor MVPREFERRED dealer service
 - Dealer calls MVPREFERRED dealer service to obtain an authorization.
 - MVPREFERRED customer services looks up customer account number in alternate computer system or previous business day hardcopy balance report to verify sufficient funds are available for the purchase of goods or services.
 - If insufficient funds, MVPREFERRED dealer services notifies Dealer verbally to that affect. End of Job.
 - Else, MVPREFERRED dealer service retrieves next available number from their manual set of authorization numbers and issues that number verbally to the Dealer.
 - MVPREFERRED dealer services marks the manual authorization as used.

The Authorization Number is formatted as XYMMDD12345678 – where:

X - E for electronically issued authorization number

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- M for manually issued electronic authorization by MVPREFERRED dealer service personnel
- X for manually issued authorization by Volvo customer service personnel
- YY - Two (2) digit numerical year zero filled
- MM - Two (2) digit numerical month zero filled
- DD - Two (2) digit numerical day of the month zero filled
- 12345678 - Eight (8) digit numerical sequential number.

4.3 Invoice Settlement

Reference the attached flowcharts for detail processing and business rules.

All settlement processing by MVPREFERRED will occur between 3:15 AM Eastern and 7:15 AM Eastern normal business day. Any batch settlements occurring outside the window time will be processed the next business day. The cutoff time is to insure that all ACH payments can be submitted onto the Federal Reserve Payment System in time for processing during the normal business day.

The DMS is able to submit settlement at any time of the day, but any batch received after the cutoff time will not be processed during “today’s bank settlement” processing.

NOTE: Settlement files must have a unique name and cannot be reused. The naming convention is as follows: DLRCSTL_MMDDYYVV.xml where
DLRCSTL = unique dealer code for dealer submitting the file
MMDDYY = month, day, 2 digit year
VV = version of file 01, 02, 03, per day submitted.

Example 1234D_STL_09291101.xml (for dealer 1234D, submitted on 9/29/11 version 01). If subsequent file sent on same day would be named 1234D_STL_09291102.xml, 1234D_STL_09291103.xml, etc.

Acknowledgement batch files returned back to the dealer will be available to the DMS after the settlement processing is complete.

4.4 Manual Authorization Numbers

If any manually issued authorization numbers were used by MVPREFERRED dealer service personnel, then the MVPREFERRED Authorization Table must be manually updated to reflect all of the authorization numbers. NOTE: If a manual authorization was obtained while DMS connectivity was down, then a MVPREFERRED Auto-generate utility will have updated the authorization table. Else, authorization table will have manual update. This updating must occur before the batch file settlement processing begins (Section 6.1).

The MVPREFERRED Authorization table must be updated with:

- Dealer ID
- Fleet Customer Account Number
- Transaction Date
- Auth Type

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- Purchase Order Number - Only entered if known
- Vehicle *UNIT NUMBER* – Only entered if known
- SOI/RO Amount
- Authorization Number that was manually issued

4.5 **Batch File Settlement Processing**

1. An encrypted settlement batch file is transmitted on demand by the DMS to the corresponding SFTP folder.
2. Settlement files must have a unique name and cannot be reused.
3. The Settlement File Processor periodically (3:15 AM – 7:15 AM Eastern) scans the SFTP folders for received files, and processes them.
 - a. Validate Batch file format. On invalid, go to step (3b).
 - b. Check for Duplicate Batch File. On duplicate, go to step (3c).
 - c. Validate Dealer Code. On invalid, go to step (3d).
 - d. Check for Dealer Code blocked. On blocked, go to step (3e).
 - e. Invoice Loop:
Check each invoice for proper authorization code. On invalid, create Acknowledgement Error Record. Process next invoice.
 - f. If manual authorization code, create Acknowledgement Record, and process next invoice. Go to step (2e).
NOTE: On manual authorizations, price verification is skipped due to a possibility of many invalid amounts. No price verification will occur on manual authorizations.
 - g. Line Item Loop:
Perform Price Validation for each line item.
 - h. If item amount is greater than price verified, create Acknowledgement Error Record. Go to step (2e) Invoice Loop.
 - i. Go to step (2g) Line Item Loop.
 - j. All line items processed this invoice, create Acknowledgement Record – go to step (2e) Invoice Loop.
 - k. All invoices processed this batch file.
If no valid auth codes were found, go to step (3g).
If Error occurred, go to step (3f).
Else, batch file processed successfully – go to step (3a).
4. Acknowledgement Error Processing
 - a. Set Entire Batch processed successfully (StatusCode = 0). Go to step (3j).
 - b. Set Invalid Batch File Format Error (StatusCode = 1). Go to step (3h).
 - c. Set Duplicate File Error (StatusCode = 2). Go to step (3h).
 - d. Set Dealer Code Invalid Error (StatusCode = 3). Go to step (3h).
 - e. Set Dealer Code Blocked Error (StatusCode = 4). Go to step (3h).
 - f. Set Partial Batch Error (StatusCode = 5) -- See Acknowledgement Records for details). Go to step (3i).
 - g. Set Rejected Batch error (StatusCode = 6). Go to step (3h).

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- h. Fatal error encountered – Unable to process the batch file. See (StatusCode) for error. Notify DMS and MVPREFERRED dealer service. Go to step (3j).
- i. Partial Batch processed. Send Acknowledgement Batch File to Web Solutions provider. Go to step (3j).
- j. Post encrypted Acknowledgment Batch File back to SFTP directory for DMS pick up. End of Batch Job.

4. Batch File Processing Complete.

The encrypted Acknowledgement File will now be moved to the corresponding dealer SFTP folder location. The DMS has the option of processing the posted Acknowledgement file. Invoices can be corrected and re-submitted for settlement via Invoice Management Pro, which is available for use within the MVPREFERRED portal.

4.6 Dealer Batch Payments

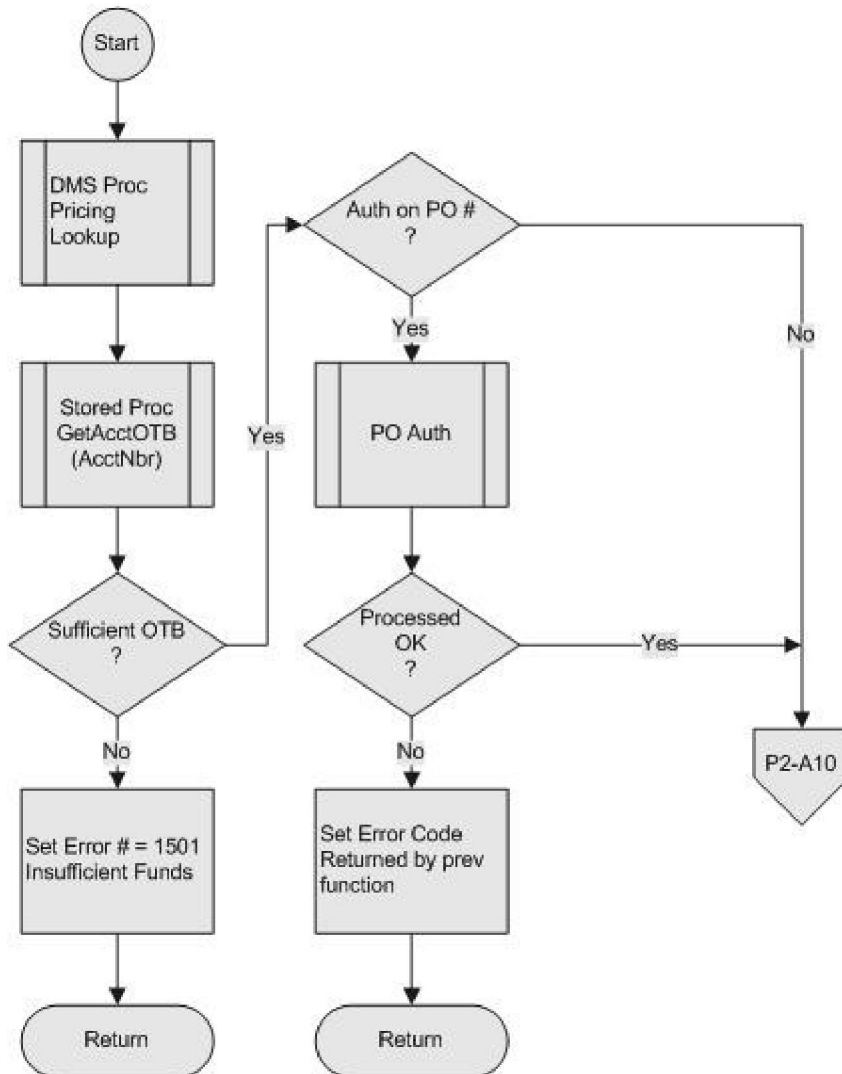
After all batch files have been processed, a Payment Processor will be executed to initiate any payments as may be necessary (if within the window of opportunity). The resulting payment files will then be sent onto the *ORIGINATING DEPOSITORY FINANCIAL INSTITUTION (ODFI)*.

1. Scans the Authorizations Database Table for transactions not yet processed for payments
2. For each transaction found, creates applicable formatted file for electronic payments
3. When all processed, notifies NATS of Pending Payment Files
4. For each batch settlement received, a DMS Acknowledgement File will be made available back to the DMS.
5. End of Job

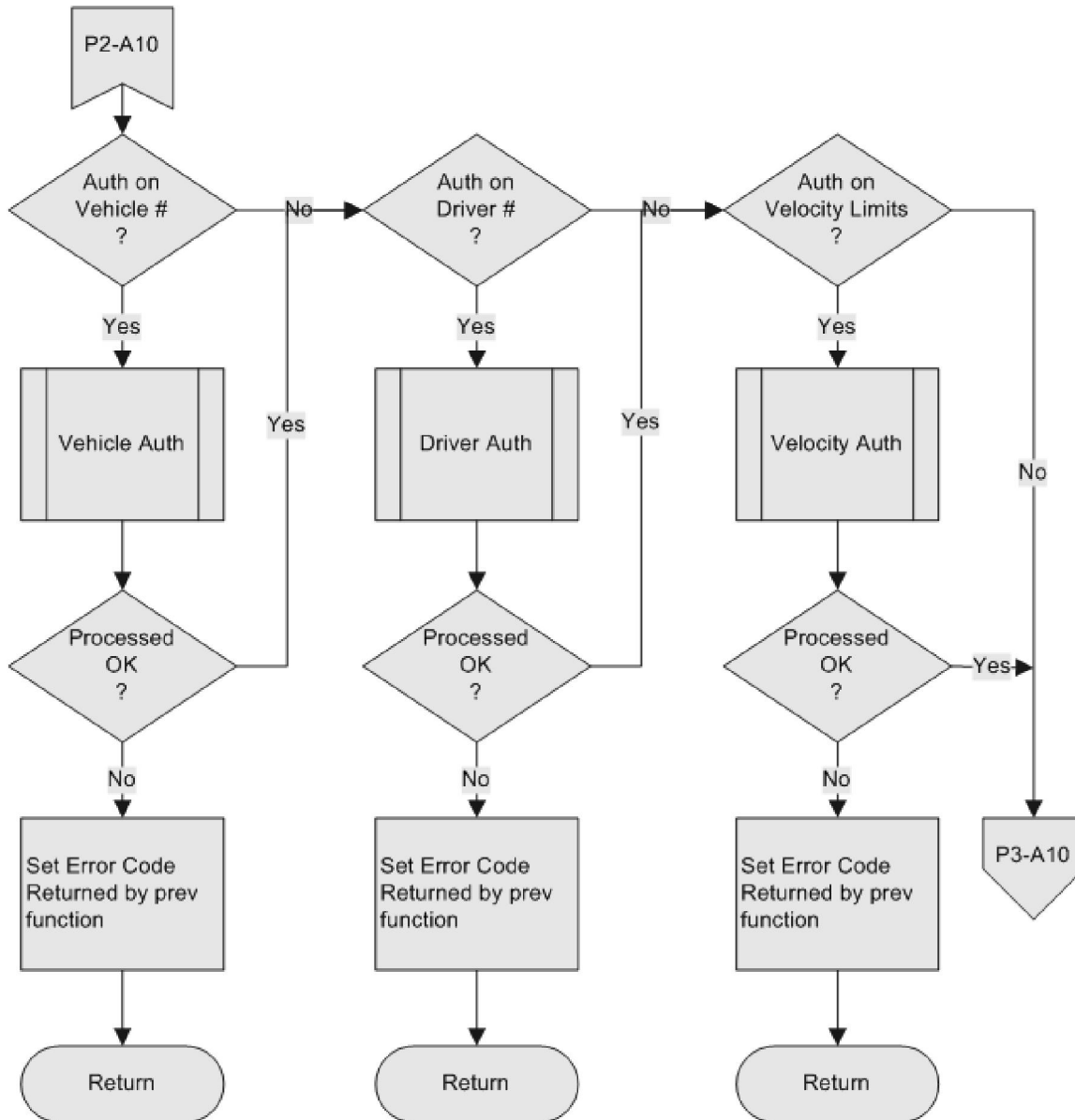
5.0 Flowcharts

5.1 Preferred Pricing Authorization

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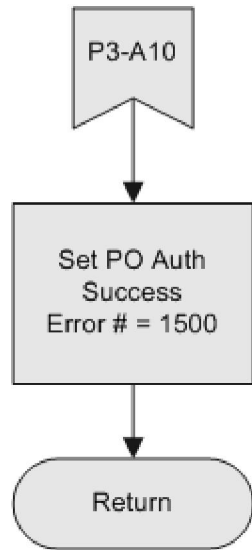


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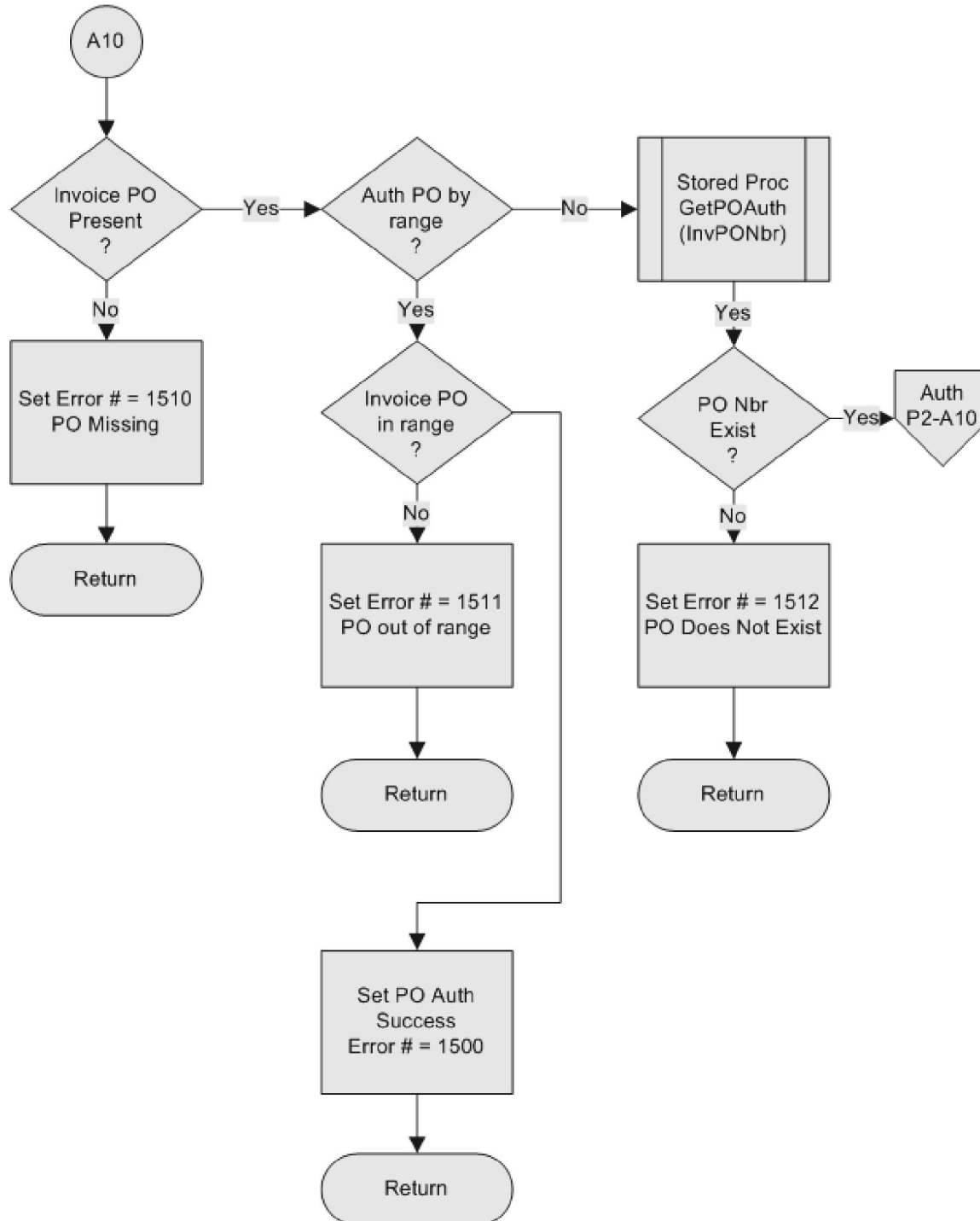
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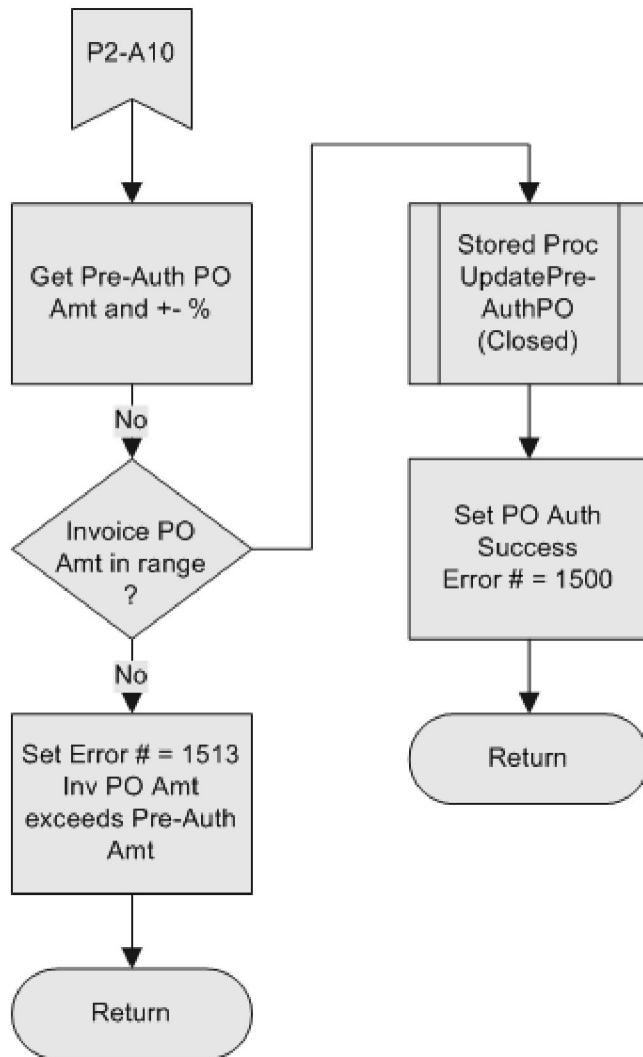


5.2 Purchase Order Authorization

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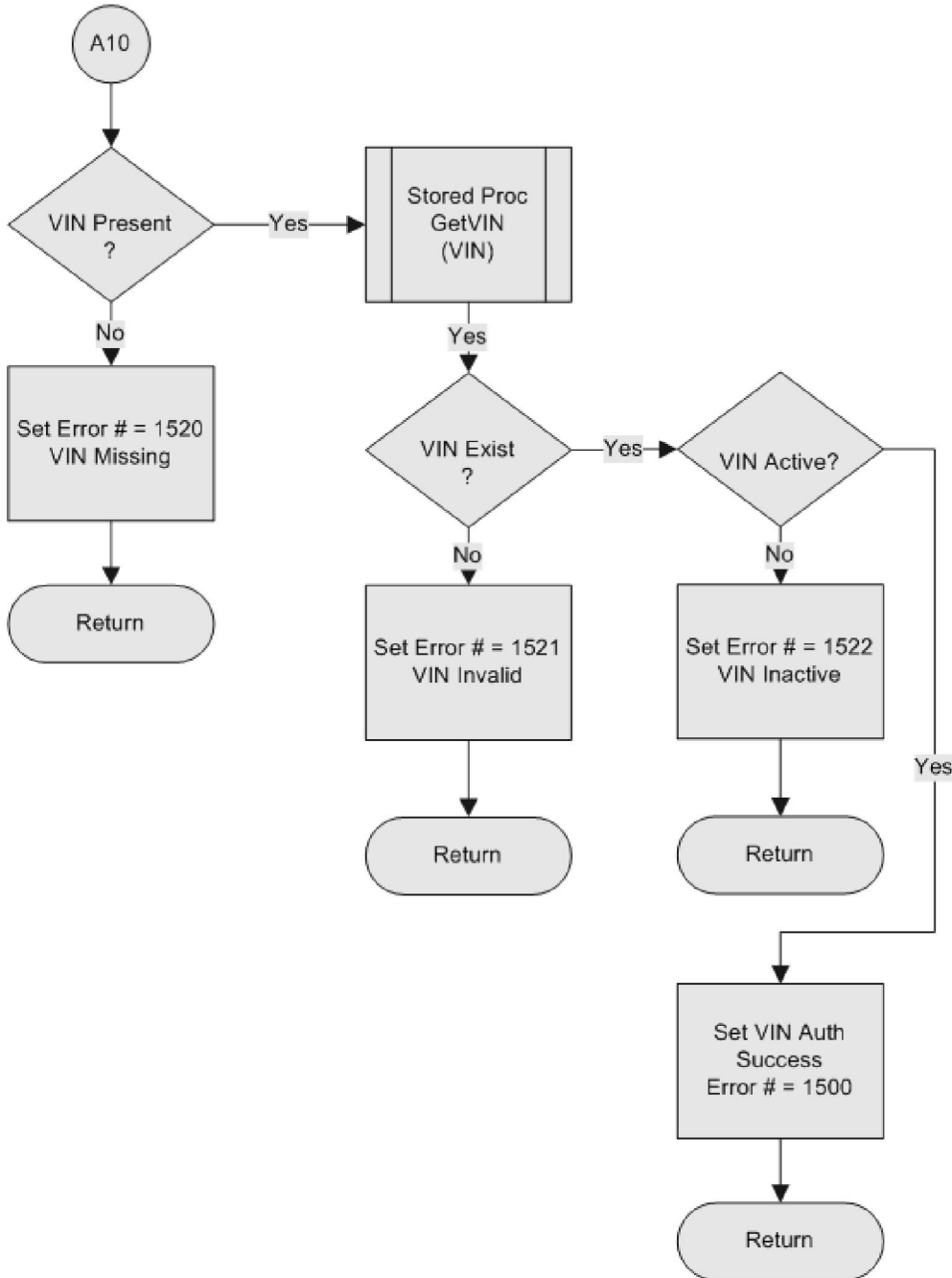


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5.3 VIN Authorization (Repair Order Processing Only – Optional)

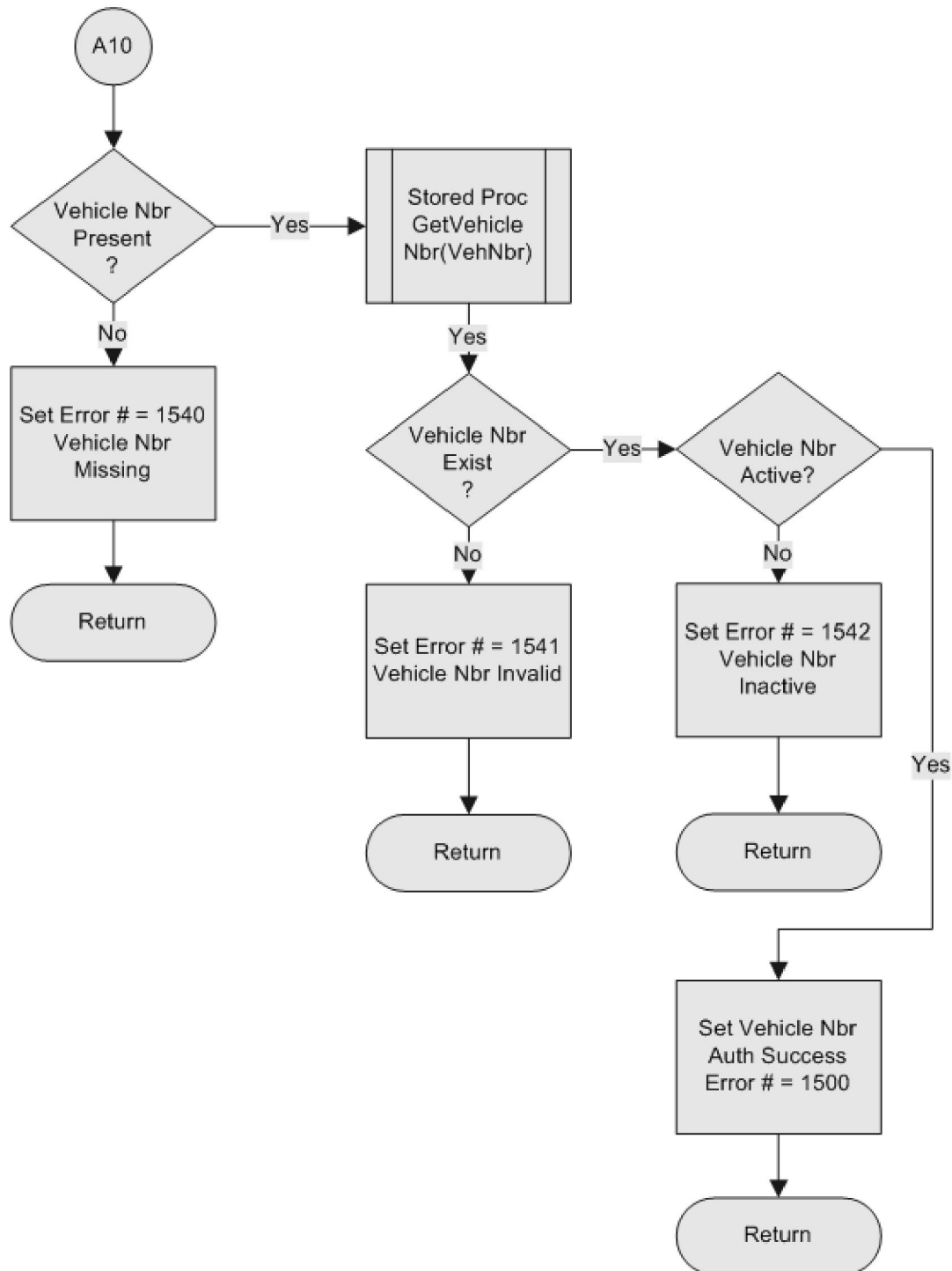
VIN Authorization Page 1 of 1



5.4 Vehicle Authorization (Repair Order Only – Optional)

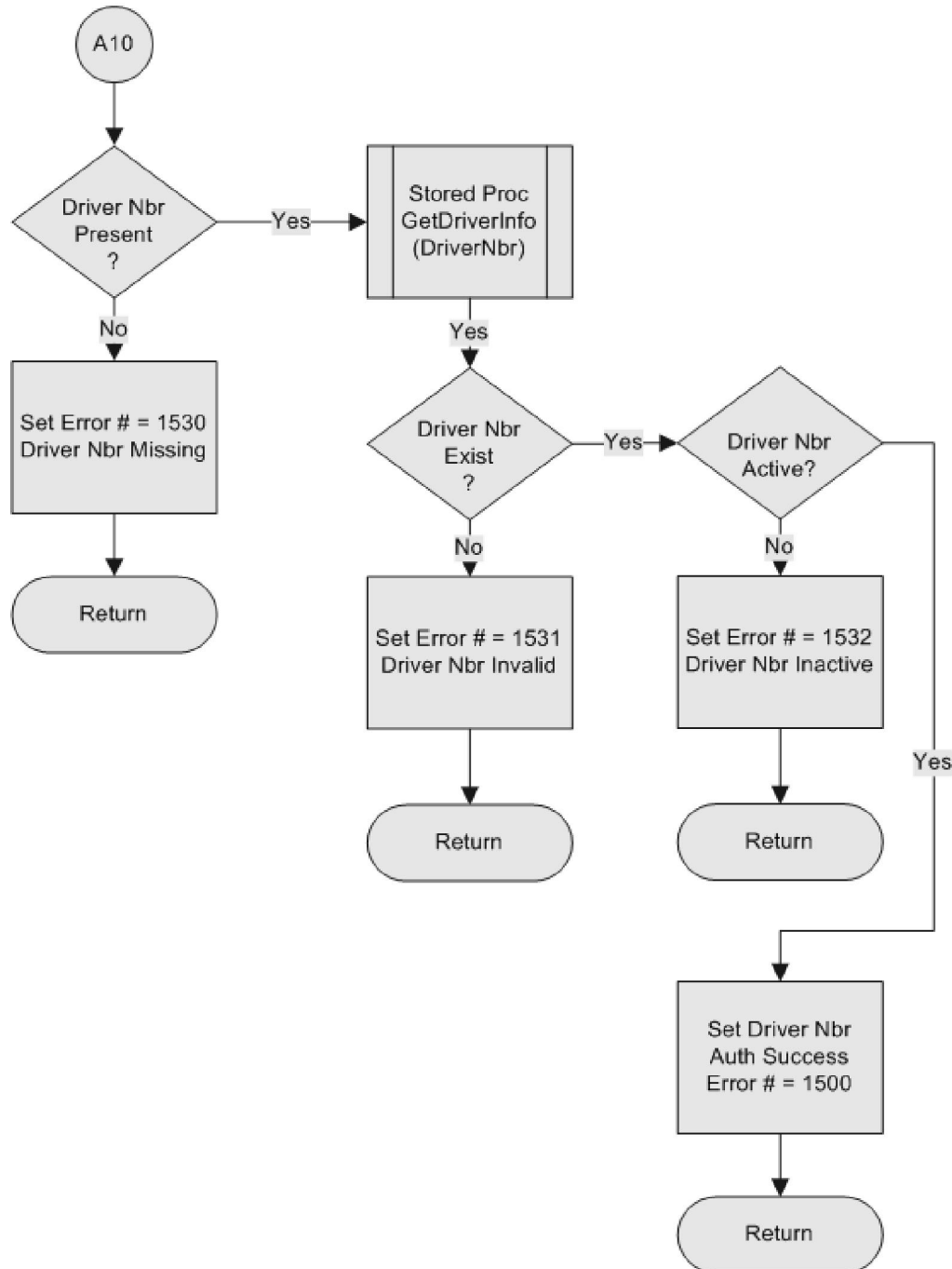
Vehicle Number Authorization

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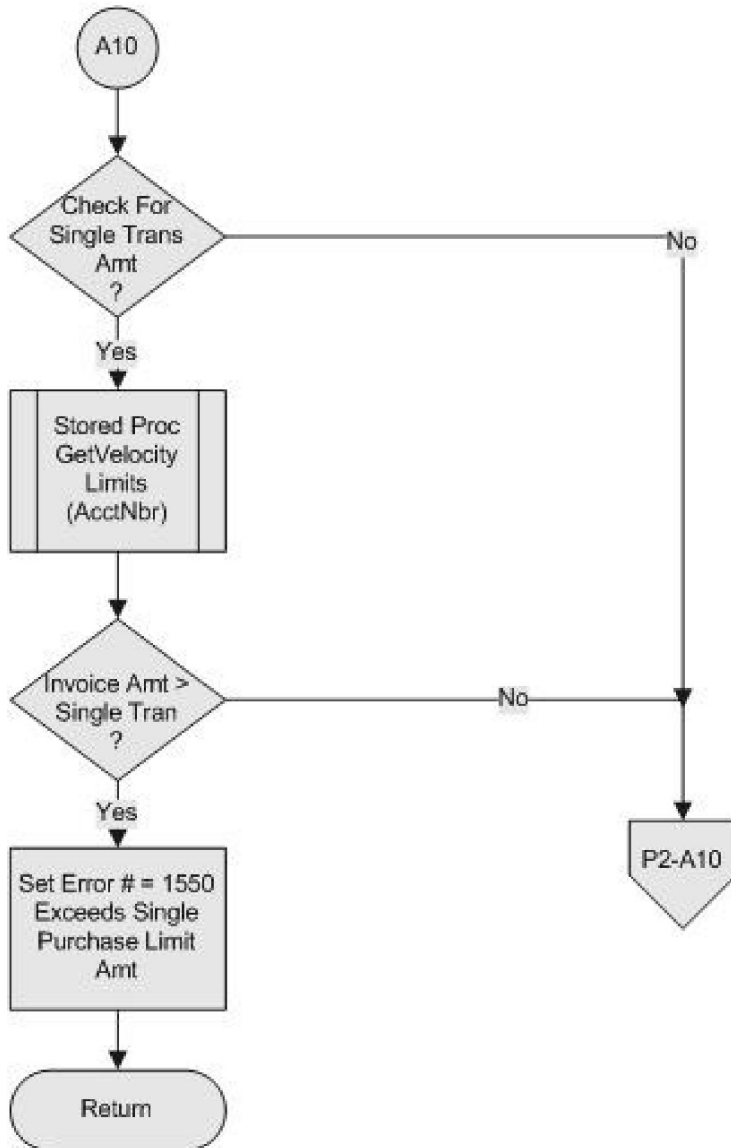
5.5 Driver Number Authorization

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5.6 Velocity Limits Authorization

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6.0 Batch File Settlement Layout

See the attached XML Schemas for formatting of the data (Strings, Monetary data, dates and others).

NOTE: All of the XML tags will be required; however, certain tags are optional and can be empty. That is, if no data is present, then provide the tags with no data (I.E. <VIN></VIN>). See the following tables for more detail on the optional tags.

6.1 Batch

This section identifies the information for this batch run and occurs only once.

Tag Identifier	Description / See XML Schema for formatting	Optional
BatchInfo	Information about the batch	
DealerCode	Dealer Identification Code as stored at MVPREFERRED	
BatchNumber	A unique identifier which identifies this batch (Used to check for duplicates)	
BatchInvoiceCount	Number of invoices within this batch	
BatchAmount	Total dollar amount for this batch	
SettlementDate	Date of this batch	
CurrencyType	USD (United States Dollar) or CAD (Canadian Dollar)	

6.2 Invoice

This section identifies the information for each sales invoice or work order and occurs once for each invoice or work order. There must be at least one Invoice record, but there can be many invoice records for a single batch.

Tag Identifier	Description / See XML Schema for formatting	Optional
InvoiceInfo	Invoice Information	
InvoiceID	Invoice/Repair Order Unique Identification (Alphanumeric Only; Maximum Length - 11 characters) <i>NOTE: Duplicate Invoices per Dealer can be presented, however the invoice number will have a A, B, etc appended each time it is presented at the same dealership. Therefore these invoices can only be maximum length = 9 characters.</i>	
InvoiceType	Type of Invoice - Parts Sales, Repair Order, Credit Memo, Other ***NOTE*** This field is converted to P, R, C, or O in the Acknowledgment file based on the values listed in section 8.5.	
InvoiceDate	Invoice Date (When Purchase Was Actually Made)	
CustomerID	Customer Identification per NATS Records	
CustomerPO	Purchase Order Number if required by the Fleet Company Note: max length = 20 characters	Yes
OEM	Price Verification source indicator: VT or VCE	
AuthorizationCode	Authorization Code as received from the MVPREFERRED Authorization Module	
SaleAmount	Total amount for all the line items	

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LocalSalesTax	Municipality taxes	Yes
StateSalesTax	State or Province Taxes	
FederalSalesTax	Federal or Government Taxes	
TotalSalesTax	All combined taxes for Invoice	YES
FreightAmount	Freight Amount if applicable	Yes
InvoiceAmount	Total invoice amount (SaleAmount + TotalSalesTax + FreightAmount)	
InvoiceNarrative	General narrative text about the invoice	Yes
CustomerCode	Dealer's assigned customer number	Yes
PurchaseOrderReference	Dealer's assigned purchase order number	Yes
ShipToName	Applies to Part invoice only	Yes
ShipToAddress	Part Invoice only	Yes
ShipToCityStateZip	Part Invoice only	Yes
NumberOfJobs	Number of jobs on a repair order	Yes

6.3 Invoiceltems

This section identifies all of the individual line items that make up the entire invoice. This section may have multiple occurrences.

Tag Identifier	Description / See XML Schema for formatting	Optional
Invoiceltems	Invoice Line Item Information	
ItemSequence	For each invoice, begins with 1 and increment for each individual line item; must be sequential	
ItemType	Part, Labor, Rentals, Mileage/Travel Time, Other ***NOTE*** This field is converted to P, L, R, M, or O in the Acknowledgment file based on the values listed in section 8.5.	
PartNumber	Part Number	
JobNumber	Job Number Note: If Invoice is Repair, must match corresponding RepairInfo.JobInfo.JobID below in section 8.4, else default to '1'	
Mfg	Part manufacturer. V = Volvo, M = Mack, C = VCE, O = Other. ***NOTE*** This field is converted to V, M, C, or O. in the Acknowledgment file based on the values listed in section 8.5.	
PartDescription	Part Text Description	
UnitMeasure	Unit Of Measure - EA, HR, LB, FT, etc. ***NOTE*** This field is converted to EA, HR, or Other in the Acknowledgment file based on the values listed in section 8.5.	
Quantity	Number of Items (5, 5.5, 2.50) – no more than 2 decimal places	
UnitPrice	Price Per Item (5, 5.5, 2.50) – no more than 2 decimal places	
ItemAmount	Total Item Amount (Quantity * UnitPrice) – (25, 30.35, 6.25) – no more than 2 decimal places	

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6.4 RepairInfo

This section is required for Repair Orders and occurs only if the invoice type is a Repair Order. The RepairInfo element occurs only once for each invoice. However, the RepairInfo element can have multiple JobID elements within it.

Tag Identifier	Description / See XML Schema for formatting	Optional
RepairInfo	Repair Order Information	Yes
JobInfo	Job Information	
JobID	Job Identification Begins with '1', increments for each individual InvoiceItem element above (8.3) and must be sequential; also must match corresponding JobNumber in the InvoiceItems Element (8.3) above.	
JobNarrative	Narrative Text about the job	
VehicleInfo	Vehicle Information	
VIN	Vehicle Identification Number	
CustomerUnitID	Vehicle Unit Number	
Year	Year of the Vehicle	
Make	OEM Designator (Mack, Volvo, Other)	
Model	OEM Model Designator	
Mileage	Current Mileage Reading	
LaborInfo	Labor Information	
LaborID	Labor Identification	
LaborNarrative	Mechanic Notes	

7.0 XML

7.1 Sample

```
<?xml version="1.0" encoding="utf-8" ?>
<sf:SettlementXML xmlns:sf="http://Volvo.Com/SettlementFile.xsd">
  <sf:BatchInfo>
    <sf:DealerCode>D1234</sf:DealerCode>
    <sf:BatchNumber>001</sf:BatchNumber>
    <sf:BatchInvoiceCount>1</sf:BatchInvoiceCount>
    <sf:BatchAmount>100.00</sf:BatchAmount>
    <sf:SettlementDate>2009-12-25</sf:SettlementDate>
    <sf:CurrencyType>USD</sf:CurrencyType>
    <sf:InvoiceInfo>
      <sf:InvoiceID>12345678AAA</sf:InvoiceID>
      <sf:InvoiceType>Repair Order</sf:InvoiceType>
      <sf:InvoiceDate>2009-12-25</sf:InvoiceDate>
      <sf:CustomerID>A12345678912345</sf:CustomerID>
      <sf:CustomerPO>PO123456781234567890</sf:CustomerPO>
      <sf:Oem>VT</sf:OEM>
      <sf:AuthorizationCode>E12345678901234</sf:AuthorizationCode>
      <sf:SaleAmount>80.00</sf:SaleAmount>
      <sf:LocalSalesTax>15.00</sf:LocalSalesTax>
      <sf:StateSalesTax>0.00</sf:StateSalesTax>
      <sf:FederalSalesTax>0.00</sf:FederalSalesTax>
      <sf:TotalSalesTax>22.00</sf:TotalSalesTax>
      <sf:FreightAmount>5.00</sf:FreightAmount>
      <sf:InvoiceAmount>100.00</sf:InvoiceAmount>
      <sf:InvoiceNarrative>This is comments Information</sf:InvoiceNarrative>
      <sf:CustomerCode>DLR555</sf:CustomerCode>
    
```

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```

<sf:PurchaseOrderReference>POR4455</sf:PurchaseOrderReference>
<sf:ShipToName>John Doe</sf:ShipToName>
<sf:ShipToAddress>434 Kenwood Dr</sf:ShipToAddress>
<sf:ShipToCityStateZip>GreenWood,CA,94030</sf:ShipToCityStateZip>
<sf:NumberOfJobs>1</sf:NumberOfJobs>
<sf:InvoiceItems>
  <sf:ItemSequence>1</sf:ItemSequence>
  <sf:ItemType>Part</sf:ItemType>
  <sf:PartNumber>ABC12345678910</sf:PartNumber>
  <sf:JobNumber>123456789012345</sf:JobNumber>
  <sf:Mfg>V</sf:Mfg>
  <sf:PartDescription>Diesel Engine Crankcase</sf:PartDescription>
  <sf:UnitMeasure>EA</sf:UnitMeasure>
  <sf:Quantity>2</sf:Quantity>
  <sf:UnitPrice>40.00</sf:UnitPrice>
  <sf:ItemAmount>80.00</sf:ItemAmount>
</sf:InvoiceItems>
<sf:RepairInfo>
  <sf:JobInfo>
    <sf:JobID>1001234</sf:JobID>
    <sf:JobNarrative>Narrative for the Job Info</sf:JobNarrative>
    <sf:VehicleInfo>
      <sf:VIN>12345678901234567</sf:VIN>
      <sf:CustomerUnitID>Mack100-50</sf:CustomerUnitID>
      <sf:Year>1996</sf:Year>
      <sf:Make>Mack</sf:Make>
      <sf:Model>Super Cab</sf:Model>
      <sf:Mileage>1234567890</sf:Mileage>
      <sf:LaborInfo>
        <sf:LaborID>123-45</sf:LaborID>
        <sf:LaborNarrative>Mechanics Notes Here</sf:LaborNarrative>
      </sf:LaborInfo>
    </sf:VehicleInfo>
  </sf:JobInfo>
</sf:RepairInfo>
</sf:InvoiceInfo>
</sf:BatchInfo>
</sf:SettlementXML>

```

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7.2 XML Settlement File Schema

```

<?xml version="1.0" encoding="utf-8" ?>
<xs:schema id="SettlementFileDS"
  targetNamespace="http://Volvo.Com/SettlementFile.xsd"
  xmlns:mstns="http://Volvo.Com/SettlementFile.xsd"
  xmlns:sf="http://Volvo.Com/SettlementFile.xsd"
  xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns:msdata="urn:schemas-microsoft-com:xml-msdata" attributeFormDefault="qualified" elementFormDefault="qualified">
  <xs:element name="SettlementXML" msdata:prefix="sf">
    <xs:complexType>
      <xs:choice maxOccurs="unbounded">
        <xs:element name="BatchInfo" maxOccurs="1" minOccurs="1" msdata:prefix="sf">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="DealerCode" type="xs:string" minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
              <xs:element name="BatchNumber" type="xs:string" minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
              <xs:element name="BatchInvoiceCount" type="xs:nonNegativeInteger" minOccurs="1" maxOccurs="1"
msdata:prefix="sf" />
              <xs:element name="BatchAmount" type="xs:decimal" minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
              <xs:element name="SettlementDate" type="xs:date" minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
              <xs:element name="CurrencyType" type="xs:string" minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
              <xs:element name="InvoiceInfo" msdata:prefix="sf" minOccurs="0" maxOccurs="unbounded">
                <xs:complexType>
                  <xs:sequence>
                    <xs:element name="InvoiceID" type="xs:string" minOccurs="1" maxOccurs="1"
msdata:prefix="sf" />
                    <xs:element name="InvoiceType" type="xs:string" minOccurs="1" maxOccurs="1"
msdata:prefix="sf" />
                    <xs:element name="InvoiceDate" type="xs:date" minOccurs="1" maxOccurs="1"
msdata:prefix="sf" />
                    <xs:element name="CustomerID" type="xs:string" minOccurs="1" maxOccurs="1"
msdata:prefix="sf" />
                    <xs:element name="CustomerPO" type="xs:string" minOccurs="1" maxOccurs="1"
msdata:prefix="sf" />
                    <xs:element name="OEM" type="xs:string" minOccurs="1" maxOccurs="1"
msdata:prefix="sf" />
                    <xs:element name="AuthorizationCode" type="xs:string" minOccurs="1"
maxOccurs="1" msdata:prefix="sf" />
                    <xs:element name="SaleAmount" type="xs:decimal" minOccurs="1" maxOccurs="1"
msdata:prefix="sf" />
                    <xs:element name="LocalSalesTax" type="xs:decimal" minOccurs="1"
maxOccurs="1" msdata:prefix="sf" />
                    <xs:element name="StateSalesTax" type="xs:decimal" minOccurs="1"
maxOccurs="1" msdata:prefix="sf" />
                    <xs:element name="FederalSalesTax" type="xs:decimal" minOccurs="1"
maxOccurs="1" msdata:prefix="sf" />
                    <xs:element name="TotalSalesTax" type="xs:decimal" minOccurs="1"
maxOccurs="1" msdata:prefix="sf" />
                    <xs:element name="FreightAmount" type="xs:decimal" minOccurs="1"
maxOccurs="1" msdata:prefix="sf" />
                    <xs:element name="InvoiceAmount" type="xs:decimal" minOccurs="1"
maxOccurs="1" msdata:prefix="sf" />

```


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```

maxOccurs="1" msdata:prefix="sf" />
msdata:prefix="sf" />
maxOccurs="1" msdata:prefix="sf" />
msdata:prefix="sf" />
msdata:prefix="sf" />
maxOccurs="1" msdata:prefix="sf" />
msdata:prefix="sf" />
msdata:prefix="sf">

```

```

minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
minOccurs="1" maxOccurs="1" msdata:prefix="sf" />

```

```
msdata:prefix="sf">
```

```
maxOccurs="unbounded" msdata:prefix="sf">
```

```
type="xs:string" minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
```

```
name="JobNarrative" type="xs:string" minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
```

```
name="VehicleInfo" minOccurs="0" maxOccurs="unbounded" msdata:prefix="sf">
```

```

<xs:element name="InvoiceNarrative" type="xs:string" minOccurs="1"
<xs:element name="CustomerCode" type="xs:string" minOccurs="1" maxOccurs="1"
<xs:element name="PurchaseOrderReference" type="xs:string" minOccurs="1"
<xs:element name="ShipToName" type="xs:string" minOccurs="1" maxOccurs="1"
<xs:element name="ShipToAddress" type="xs:string" minOccurs="1" maxOccurs="1"
<xs:element name="ShipToCityStateZip" type="xs:string" minOccurs="1"
<xs:element name="NumberOfJobs" type="xs:string" minOccurs="1" maxOccurs="1"
<xs:element name="InvoiceItems" minOccurs="1" maxOccurs="unbounded"
    <xs:complexType>
        <xs:sequence>
            <xs:element name="ItemSequence" type="xs:string"
            <xs:element name="ItemType" type="xs:string"
            <xs:element name="PartNumber" type="xs:string"
            <xs:element name="JobNumber" type="xs:string"
            <xs:element name="Mfg" type="xs:string"
            <xs:element name="PartDescription" type="xs:string"
            <xs:element name="UnitMeasure" type="xs:string"
            <xs:element name="Quantity" type="xs:decimal"
            <xs:element name="UnitPrice" type="xs:decimal"
            <xs:element name="ItemAmount" type="xs:decimal"
        </xs:sequence>
    </xs:complexType>
</xs:element>
<xs:element name="RepairInfo" minOccurs="0" maxOccurs="unbounded"
    <xs:complexType>
        <xs:sequence>
            <xs:element name="JobInfo" minOccurs="0"
                <xs:complexType>
                    <xs:sequence>
                        <xs:element name="JobID"
                    </xs:sequence>
                </xs:complexType>
            </xs:element>
            </xs:element>
        </xs:sequence>
    </xs:complexType>

```

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```

<xs:sequence>
  <xs:element name="VIN" type="xs:string" minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
  <xs:element name="CustomerUnitID" type="xs:string" minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
  <xs:element name="Year" type="xs:string" minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
  <xs:element name="Make" type="xs:string" minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
  <xs:element name="Model" type="xs:string" minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
  <xs:element name="Mileage" type="xs:string" minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
  <xs:element name="LaborInfo" minOccurs="0" maxOccurs="unbounded" msdata:prefix="sf">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="LaborID" type="xs:string" minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
        <xs:element name="LaborNarrative" type="xs:string" minOccurs="1" maxOccurs="1" msdata:prefix="sf" />
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:sequence> <!-- Close VehicleInfo -->
<!-- Close VehicleInfo -->
-->
</xs:complexType>
</xs:element> <!-- Close
-->
</xs:sequence> <!-- Close JobInfo
-->
</xs:complexType> <!-- Close JobInfo -->
</xs:element> <!-- Close JobInfo -->
</xs:sequence> <!-- Close RepairInfo -->
</xs:complexType> <!-- Close RepairInfo -->
</xs:element> <!-- Close RepairInfo -->
</xs:sequence> <!-- Close InvoiceInfo-->
</xs:complexType> <!-- Close InvoiceInfo-->
</xs:element> <!-- Close InvoiceInfo-->
</xs:sequence> <!-- Close BatchInfo -->
</xs:complexType> <!-- Close BatchInfo -->
</xs:element> <!-- Close BatchInfo -->
</xs:choice>
</xs:complexType>
</xs:element>
<xs:element name="SettlementFileDS" msdata:IsDataSet="true" msdata:Prefix="sf" msdata:EnforceConstraints="false">
  <xs:complexType>
    <xs:choice maxOccurs="unbounded">
      <xs:element ref="sf:SettlementXML"/>
    </xs:choice>
  </xs:complexType>

```

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```
</xs:complexType>  
</xs:element>  
</xs:schema>
```



SettlementFile.xsd

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8.0 Acknowledgement File Layout

The acknowledgement file is a variation of the Settlement file. Therefore, these two files are almost identical except for some tags used to identify errors found within the Settlement file.

NOTE: These fields will be in **BOLD AND CAPITALIZED** to note differences between the two files.

See the attached XML Schemas for formatting of the data (Strings, Monetary data, dates and others).

NOTE: All of the XML tags will be required, however, certain tags are optional and can be empty!

That is, if no data is present, then provide the tags with no data (I.E. <VIN></VIN>). See the following tables for more detail on the optional tags.

8.1 Batch

This section identifies the information for this batch run and occurs only once.

Tag Identifier	Description / See XML Schema for formatting	Optional
BatchInfo	Information about the batch	
DealerCode	Dealer Identification Code as stored at MVPREFERRED	
BatchNumber	A unique ID which identifies batch (Used to check for duplicates)	
BatchInvoiceCount	Number of invoices within this batch	
BatchAmount	Total dollar amount for this batch	
SettlementDate	Date of this batch	
CurrencyType	USD (United States Dollar) or CAD (Canadian Dollar)	
ACKNOWLEDGEMENTCODE	0 = File processed successfully 1 = File formatted improperly (No other information follows) 2 = File Suspected as duplicate (No other information follows) 3 = Submitting dealer is invalid 4 = Submitting dealer is blocked 5 = File Contained Errors and was partially processed (See AcknowledgementMsg and InvoiceItem detail error messages) 6 = File rejected, contained no valid authorization codes	
ACKNOWLEDGEMENTMSG	Detailed error message if file processing encountered any errors (refer to section 9.0).	

8.2 Invoice

This section identifies the information for each sales invoice or work order and occurs once for each invoice or work order. There must be at least one InvoiceInfo record, but there can be many invoice records for a single batch.

Tag Identifier	Description / See XML Schema for formatting	Optional
InvoiceInfo	Invoice Information	
OEM	Price Verification source indicator: VT or VCE	
InvoiceID	Invoice/Repair Order Unique Identification (Alphanumeric Only; Maximum Length - 11 characters) NOTE: Duplicate Invoices per Dealer can be presented, however the invoice number will have a A, B, etc appended each time it's presented at the same dealership. Therefore these invoices can only be maximum length = 9 characters.	

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InvoiceType	Type of Invoice – P, R, C, or O. P = Parts, R = Repair, C = Credit, O = Other	
InvoiceDate	Invoice Date (When Purchase Was Actually Made)	
CustomerID	Customer Identification per NATS Records	
CustomerPO	Purchase Order Number if required by the Fleet Company Note: max length = 20 characters	Yes
AuthorizationCode	Authorization Code as received from the MVPREFERRED Authorization Module	
SaleAmount	Total amount for all the line items	
LocalSalesTax	Municipality Taxes	Yes
StateSalesTax	State or Province Taxes	
FederalSalesTax	Federal or Government Taxes	
TotalSalesTax	All combined taxes for Invoice	YES
FreightAmount	Freight Amount if applicable	Yes
InvoiceAmount	Total invoice amount (Sales Amount + LocalSalesTax+ Freight Amount)	
InvoiceNarrative	General narrative text about the invoice	Yes
CustomerCode	Dealer's assigned customer number	Yes
PurchaseOrderReference	Dealer's assigned purchase order number	Yes
ShipToName	Applies to Part invoice only	Yes
ShipToAddress	Part Invoice only	Yes
ShipToCityStateZip	Part Invoice only	Yes
NumberOfJobs	Number of jobs on a repair order	Yes
ACKNOWLEDGEMENTCODE	0 = Invoice processed successfully 1 = Invalid authorization code 2 = Invoice failed price validation 3 = Invoice line item cannot have a zero quantity 4 = Invoice has no invoice number 5 = Invoice has already been funded 6 = Invoice was previously presented for settlement 7 = Invoice was dated in the future 8 = Invoice has been drawn against a test account 9 = Invoice number exceeds the maximum length 10 = Invoice number previously presented in same batch 11 = Line items/tax/freight amounts on invoice don't add up to submitted invoice total 12 = Line items/tax /freight amounts on invoice don't add up to invoice total. Same as unreconcilable, but don't treat as error. 13 = Invoice was submitted without an account number 14 = The sum of federal, state and local sales taxes on this invoice do not add up to the submitted total sales tax 15 = The validation failed for invoices from IMPro side and has been logged into ValidationError table	
ACKNOWLEDGEMENTMSG	Detailed error message (refer to section 9.0)	

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8.3 Invoiceltems

This section identifies all of the individual line items that make up the entire invoice. This section may have multiple occurrences.

Tag Identifier	Description / See XML Schema for formatting	Optional
Invoiceltems	Invoice Line Item Information	
ItemSequence	For each invoice, begins with 1 and increment for each individual line item; <i>must be sequential</i>	
ItemType	P, L, R, M, O P = Part, L = Labor, R= Rentals, M = Mileage/Travel Time, O = Other	
PartNumber	Part Number	
JobNumber	Job Number Note: If Invoice is Repair, must match corresponding RepairInfo.JobInfo.JobID below in section 9.4, else default to '1'	
Mfg	V, M, C, or O. Part manufacturer. V = Volvo, M = Mack, C = VCE O = Other.	
PartDescription	Part Text Description	
UnitMeasure	EA, HR, or O. Unit Of Measure – EA, HR, LB, FT, etc. EA = Each , HR = Hours, O = Other	
Quantity	Number of Items (5, 5.5, 2.50) – no more than 2 decimal places	
UnitPrice	Price Per Item (5, 5.5, 2.50) – no more than 2 decimal places	
ItemAmount	Total Item Amount (Quantity * UnitPrice) – (25, 30.35, 6.25) – no more than 2 decimal places	
ACKNOWLEDGEMENTCODE	0 = Line item processed successfully 1 = Line item error occurred – see following error message for details	
ACKNOWLEDGEMENTMSG	Detailed error message (refer to section 9.0).	

8.4 RepairInfo

This section is required for Repair Orders and occurs only if the invoice type is a Repair Order. The RepairInfo element occurs only once for each invoice. However, the RepairInfo element can have multiple JobID elements within it.

Tag Identifier	Description / See XML Schema for formatting	Optional
RepairInfo	Repair Order Information	Yes
Job Info	Job Information	
JobID	Job Identification Begins with '1', increments for each individual Invoiceltem element above (9.3) and must be sequential; also must match corresponding JobNumber in the Invoiceltems Element (9.3) above.	
JobNarrative	Narrative Text about the job	
VehicleInfo	Vehicle Information	
VIN	Vehicle Identification Number	
CustomerUnitID	Vehicle Unit Number	

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Year	Year of the Vehicle	
Make	OEM Designator (Mack, Volvo, Other)	
Model	OEM Model Designator	
Mileage	Current Mileage Reading	
LaborInfo	Labor Information	
LaborID	Labor Identification	
LaborNarrative	Mechanic Notes	

8.5 Settlement to Acknowledgment Field Conversions

The following fields in the Settlement file (Invoice, part, manufacturer and UOM) will get converted to the following values in the Acknowledgement file if they not already the one letter values.

Field	Settlement File	Acknowledgment File
Invoice Type	Part	P
	Repair Order	R
	Credit	C
	Other [Any value, other than above]	O
Part Type	Part	P
	Labor	L
	Rentals	R
	Mileage\Travel Time	M
Manufacturer Type	Other [Any value, other than above]	O
	Mack	M
	Volvo	V
	Construction	C
Unit of Measurement Type	Other [Any value, other than above]	O
	Each	EA
	Hour	HR
	Other [Any value, other than above]	O

The settlement process checks for first character of these element values in the settlement file to determine the respective type.

Example: With the settlement file element `<sf:InvoiceType>Repair Order</sf:InvoiceType>`, the process will pick up the first letter value "R", store and replace it with 'R' in the `<sf:InvoiceType>R</sf:InvoiceType>` Acknowledgment file.

The settlement and acknowledgement files will have matching Invoice, Part, MFG and UOM types if the settlement file originally contains the one letter values listed above. Otherwise, they will be converted as described above.

8.6 XML Sample

```
<?xml version="1.0" encoding="utf-8" ?>
<sf:SettlementXML xmlns:sf="http://Volvo.Com/SettlementFileAck.xsd">
  <sf:BatchInfo>
    <sf:DealerCode>D1234</sf:DealerCode>
    <sf:BatchNumber>001</sf:BatchNumber>
    <sf:BatchInvoiceCount>1</sf:BatchInvoiceCount>
  </sf:BatchInfo>
</sf:SettlementXML>
```

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```

<sf:BatchAmount>100.00</sf:BatchAmount>
<sf:SettlementDate>2009-12-25</sf:SettlementDate>
<sf:CurrencyType>USD</sf:CurrencyType>
<sf:AcknowledgementCode>0</sf:AcknowledgementCode>
<sf:AcknowledgementMsg>File Processed Successfully</sf:AcknowledgementMsg>
<sf:InvoiceInfo>
  <sf:OEM>VT</sf:OEM>
  <sf:InvoiceID>12345678AAA</sf:InvoiceID>
  <sf:InvoiceType>R</sf:InvoiceType>
  <sf:InvoiceDate>2009-12-25</sf:InvoiceDate>
  <sf:CustomerID> A12345678912345</sf:CustomerID>
  <sf:CustomerPO>PO123456781234567890</sf:CustomerPO>
  <sf:AuthorizationCode>E12345678901234</sf:AuthorizationCode>
  <sf:SaleAmount>80.00</sf:SaleAmount>
  <sf:LocalSalesTax>15.00</sf:LocalSalesTax>
  <sf:StateSalesTax>0.00</sf:StateSalesTax>
  <sf:FederalSalesTax>0.00</sf:FederalSalesTax>
  <sf>TotalSalesTax>22.00</sf>TotalSalesTax>
  <sf:FreightAmount>5.00</sf:FreightAmount>
  <sf:InvoiceAmount>100.00</sf:InvoiceAmount>
  <sf:InvoiceNarrative>This is comments Information</sf:InvoiceNarrative>
  <sf:CustomerCode>DLR555</sf:CustomerCode>
  <sf:PurchaseOrderReference>POR4455</sf:PurchaseOrderReference>
  <sf:ShipToName>John Doe</sf:ShipToName>
  <sf:ShipToAddress>434 Kenwood Dr</sf:ShipToAddress>
  <sf:ShipToCityStateZip>GreenWood, CA, 94030</sf:ShipToCityStateZip>
  <sf:NumberOfJobs>1</sf:NumberOfJobs>
  <sf:AcknowledgementCode>1</sf:AcknowledgementCode>
  <sf:AcknowledgementMsg>Invalid Authorization Code</sf:AcknowledgementMsg>
  <sf:InvoiceItems>
    <sf:ItemSequence>1</sf:ItemSequence>
    <sf:ItemType>P</sf:ItemType>
    <sf:PartNumber>ABC12345678910</sf:PartNumber>
    <sf:JobNumber>123456789012345</sf:JobNumber>
    <sf:Mfg>V</sf:Mfg>
    <sf:PartDescription>Diesel Engine Crankcase</sf:PartDescription>
    <sf:UnitMeasure>EA</sf:UnitMeasure>
    <sf:Quantity>2</sf:Quantity>
    <sf:UnitPrice>40.00</sf:UnitPrice>
    <sf:ItemAmount>80.00</sf:ItemAmount>
    <sf:AcknowledgementCode>0</sf:AcknowledgementCode>
    <sf:AcknowledgementMsg>OK</sf:AcknowledgementMsg>
  </sf:InvoiceItems>
  <sf:RepairInfo>
    <sf:JobInfo>
      <sf:JobID>1001234</sf:JobID>
      <sf:JobNarrative>Narrative for the Job Info</sf:JobNarrative>
      <sf:VehicleInfo>
        <sf:VIN>12345678901234567</sf:VIN>
        <sf:CustomerUnitID>Mack100-50</sf:CustomerUnitID>
        <sf:Year>1996</sf:Year>
        <sf:Make>Mack</sf:Make>
        <sf:Model>Super Cab</sf:Model>
        <sf:Mileage>1234567890</sf:Mileage>
        <sf:LaborInfo>
          <sf:LaborID>123-45</sf:LaborID>
          <sf:LaborNarrative>Mechanics Notes Here</sf:LaborNarrative>
        </sf:LaborInfo>
      </sf:VehicleInfo>
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</sf:BatchInfo>
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8.7 XML Schema File

```

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Settlement ACK.XSD

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9.0 Response Status Codes

See attachment MVPREFERRED Error Codes and Messages for a list of all available codes and messages.

ERROR NUMBER	ORIGINAL MESSAGE	CUSTOMER MESSAGE	PROBABLE CAUSES	SOLUTIONS
1600	1600 - Sequence number out of order. Expecting {0}, found {1}.Exception	1600 - Sequence number out of order. Expecting {0}, found {1}.	1. Settlement file is corrupt.	1. Contact NATS technical Support
1601	1601 - Record being validated appears to have been truncated. \r\n\r\n{0}Exception	1601 - Record being validated appears to have been truncated. \r\n\r\n{0}	1. Settlement file is corrupt.	1. Contact NATS technical Support
1602	1602 - Format exception validating sequence number following record {0}.\r\n\r\n{1}\r\n\r\nException	1602 - Format exception validating sequence number following record {0}.\r\n\r\n{1}\r\n\r\n	1. Settlement file is corrupt.	1. Contact NATS technical Support
1603	1603 Dealer {0} is blocked	1603 Dealer {0} is blocked	1. Dealer is blocked	1. Call NATS Dealer Support.
1604	1604 Invalid dealer code {0}	1604 Invalid dealer code {0}	1. Invalid dealer code	1. Correct Invoice through error correction interface.
1605	1605 - No header record was found in settlement file. Exception	1605 - No header record was found in settlement file.	1. Settlement file is corrupt.	1. Contact NATS technical Support
1606	1606 Auth code {0} is already closed	1606 Auth code {0} is already closed	1. Auth code is already closed.	1. Correct Invoice through error correction interface.
1607	1607 - Authorization # {0} in settlement file line {1} has already been used. Consistency	1607 - Authorization # {0} in settlement file line {1} has already been used.	1. Authorization number already used. 2. DMS error. 3. Settlement file corrupt	1. Dealer must fix settlement file through web solution using a valid authorization. 2. Contact NATS technical Support
1608	1608 Dealer {0} is not the dealer to whom auth code {1} was given	1608 Dealer {0} is not the dealer to whom auth code {1} was given	1. Dealer is not the dealer to whom auth code was given	1. Correct Invoice through error correction interface.

ERROR NUMBER	ORIGINAL MESSAGE	CUSTOMER MESSAGE	PROBABLE CAUSES	SOLUTIONS
1609	1609 Invoice amount {0} does not match amount authorized for auth code {1}	1609 Invoice amount {0} does not match amount authorized for auth code {1}	1. DMS error.	1. Correct Invoice through error correction interface.
1610	1610 Auth code {0} has expired	1610 Auth code {0} has expired	1. Auth code has expired.	1. Correct Invoice through error correction interface.
1611	1611 Invalid Authorization Code	1611 Invalid Authorization Code	1. Auth does not exist.	1. Correct Invoice through error correction interface.
1612	1612 - Expected credit card record, found "{0}".Exception	1612 - Expected credit card record, found "{0}".	1. Settlement file is corrupt.	1. Contact NATS technical Support
1613	1613 - Amount indicator in credit card record must be 'D' or 'C', found '{0}' in line {1}.Exception	1613 - Amount indicator in credit card record must be 'D' or 'C', found '{0}' in line {1}.	1. Settlement file is corrupt.	1. Contact NATS technical Support
1614	1614 - Expected transaction record, found "{0}".Exception	1614 - Expected transaction record, found "{0}".	1. Settlement file is corrupt.	1. Contact NATS technical Support
1615	1615 - Expected transaction invoice type of P or R, found "{0}" on line {1}.Exception	1615 - Expected transaction invoice type of P or R, found "{0}" on line {1}.	1. Settlement file is corrupt.	1. Contact NATS technical Support
1616	1616 - Expected transaction total amount indicator of D or C, found '{0}' in line {1}.Exception	1616 - Expected transaction total amount indicator of D or C, found '{0}' in line {1}.	1. Settlement file is corrupt.	1. Contact NATS technical Support
1617	1617 - Cannot have fleet number for parts invoice, found "{0}" in line {1}.Consistency	1617 - Cannot have fleet number for parts invoice, found "{0}" in line {1}.	1. DMS allow fleet number on parts only invoice.	1. Contact NATS technical Support

ERROR NUMBER	ORIGINAL MESSAGE	CUSTOMER MESSAGE	PROBABLE CAUSES	SOLUTIONS
1618	1618 - Expected invoice detail record, found "{0}".Exception	1618 - Expected invoice detail record, found "{0}".	1. Settlement file is corrupt.	1. Contact NATS technical Support
1619	1619 - Expected parts detail record, found "{0}".Exception	1619 - Expected parts detail record, found "{0}".	1. Settlement file is corrupt.	1. Contact NATS technical Support
1620	1620 - Expected repair detail record, found "{0}".Exception	1620 - Expected repair detail record, found "{0}".	1. Settlement file is corrupt.	1. Contact NATS technical Support
1621	1621 - Transaction total amount does not equal parts detail total in record {0}. Expected {1}, calcu	1621 - Transaction total amount does not equal parts detail total in record {0}. Expected {1}, calculated {2}.	1. Dollar amount specified by DMS does not match calculated amount in file.	1. Dealer must fix settlement file through web solution.
1622	1622 - Expected trailer record or credit card record, found "{0}".Exception	1622 - Expected trailer record or credit card record, found "{0}".	1. Settlement file is corrupt.	1. Contact NATS technical Support
1623	1623 - Expected parts invoice debit/credit indicator of D or C, found '{0}' in line {1}.Exception	1623 - Expected parts invoice debit/credit indicator of D or C, found '{0}' in line {1}.	1. Settlement file is corrupt.	1. Contact NATS technical Support
1624	1624 Price verification failed on invoice {0}.	1624 Price verification failed on invoice {0}.	1. Bad price.	1. Correct Invoice through error correction interface.
1625	1625 - Transaction total amount does not equal repair detail total in record {0}. Expected {1}, calc	1625 - Transaction total amount does not equal repair detail total in record {0}. Expected {1}, calculated {2}.	1. Dollar amount specified by DMS does not match calculated amount in file.	1. Dealer must fix settlement file through web solution.
1626	1626 - Expected story record, trailer record or credit card record, found "{0}".Exception	1626 - Expected story record, trailer record or credit card record, found "{0}".	1. Settlement file is corrupt.	1. Contact NATS technical Support

ERROR NUMBER	ORIGINAL MESSAGE	CUSTOMER MESSAGE	PROBABLE CAUSES	SOLUTIONS
1627	1627 - Expected repair invoice debit/credit indicator of D or C, found '{0}' in line {1}.Exception	1627 - Expected repair invoice debit/credit indicator of D or C, found '{0}' in line {1}.	1. Settlement file is corrupt.	1. Contact NATS technical Support
1628	1628 - Expected repair invoice item indicator of P, L, or M, found '{0}' in line {1}.Exception	1628 - Expected repair invoice item indicator of P, L, or M, found '{0}' in line {1}.	1. Settlement file is corrupt.	1. Contact NATS technical Support
1629	1629 - Expected story record, a repair detail record, a trailer record or credit card record, found	1629 - Expected story record, a repair detail record, a trailer record or credit card record, found "{0}".	1. Settlement file is corrupt.	1. Contact NATS technical Support
1630	1630 - Total of credit card deposit records does not equal total in trailer record. Expected {0}, ca	1630 - Total of credit card deposit records does not equal total in trailer record. Expected {0}, calculated {1} in line {2}	1. Dollar amount specified by DMS does not match calculated amount in file.	1. Dealer must fix settlement file through web solution.
1631	1631 - Total of credit card credit records does not equal total in trailer record. Expected {0}, cal	1631 - Total of credit card credit records does not equal total in trailer record. Expected {0}, calculated {1} in line {2}	1. Dollar amount specified by DMS does not match calculated amount in file.	1. Dealer must fix settlement file through web solution.
1632	1632 - Found data in settlement file after trailer record: {0}Exception	1632 - Found data in settlement file after trailer record: {0}	1. Settlement file is corrupt.	1. Contact NATS technical Support
1633	1633 - Failed to find auth code {0} in settled invoices. Exception	1633 - Failed to find auth code {0} in settled invoices.	1. Internal error contact NATS.	1. Contact NATS technical Support
1634	1634 - Settlement file is empty. Exception	1634 - Settlement file is empty.	1. Settlement file is corrupt.	1. Contact NATS technical Support

ERROR NUMBER	ORIGINAL MESSAGE	CUSTOMER MESSAGE	PROBABLE CAUSES	SOLUTIONS
1635	1635 - Found unexpected EOF in settlement file. Exception	1635 - Found unexpected EOF in settlement file.	1. Settlement file is corrupt.	1. Contact NATS technical Support
1636	1636 - Auth number {0} was used in a previous settlement batch. Consistency	1636 - Auth number {0} was used in a previous settlement batch.	1. Auth number was used in a previous settlement batch.	1. Correct Invoice through error correction interface.
1637	1637 - Auth number {0} is not for an auth or a credit memo.	1637 - Auth number {0} is not for an auth or a credit memo.	1. Auth number is not for an auth or a credit memo.	1. Correct Invoice through error correction interface.
1638	1638 - Incorrect account number for auth code {0}.	1638 - Incorrect account number for auth code {0}.	1. Incorrect account number for auth code	1. Correct Invoice through error correction interface.
1639	1639 - Item quantity cannot be 0.	1639 - Item quantity cannot be 0.	1. A line item in an invoice has a quantity of zero.	1. Remove the line item from the invoice or to enter a quantity.
1640	1640 - No invoice number provided	1640 - No invoice number provided	1. No invoice number provided	1. Provide an invoice number
1641	1641 - Invoice {0} has already been funded	1641 - Invoice {0} has already been funded	1. Invoice {0} has already been funded	1. Provide a new invoice number
1642	1642 - Invoice {0} was previously presented for settlement	1642 - Invoice {0} was previously presented for settlement	1. Invoice {0} was previously presented for settlement	1. Use another invoice number
1643	1643 - The header must be followed by either a trailer record or a credit card record	1643 - The header must be followed by either a trailer record or a credit card record	1. Settlement file is corrupt.	1.Repair or re-transmit settlement file- Route to IT
1644	1644 - Invoice {0} was paid in part by some method other than MVPPreferred	1644 - Invoice {0} was paid in part by some method other than MVPPreferred	1. - Customer attempted to pay part of the invoice with cash, check, or other credit card	1. The invoice must be billed in full by MVP or use another method of payment

ERROR NUMBER	ORIGINAL MESSAGE	CUSTOMER MESSAGE	PROBABLE CAUSES	SOLUTIONS
1645	1645 - Invoice {0} was drawn against a test account	1645 - Invoice {0} was drawn against a test account	1. Dealer or DMS personnel attempted to create an invoice using a MVP test account	1. Provide a real account number and not a test account number
1646	1646 - Invoice number {0} exceeds maximum key able length	1646 - Invoice number {0} exceeds maximum key able length	1. Invoice number is longer than eleven characters for Volvo dealerships and twelve characters for Mack dealerships	1. They must shorten the invoice number
1647	1647 Invoice {0} is dated in the future	1647 Invoice {0} is dated in the future	1. The invoice has a future date	1. Change the date to today's date or a past date
1648	1648 - Invoice amount for invoice {0} does not equal amount authorized	1648 - Invoice amount for invoice {0} does not equal amount authorized	1. Invoice amount for invoice {0} does not equal amount authorized	1. Change the invoice amount and the authorized amount to match
1649	1649 Invoice number {0} has already been seen in this batch	1649 Invoice number {0} has already been seen in this batch	1. Invoice number {0} has already been seen in this batch	1. Must use another invoice number or remove the duplicate invoice from the batch
1650	1650 The line items plus the tax and freight amounts on the invoice {0} do not add up to the submitted invoice total.	1650 The line items plus the tax and freight amounts on the invoice {0} do not add up to the submitted invoice total.	1.Total calculated amount does not equal the submitted invoice total	1.Please verify the totals of the line item to verify they match the invoice total submitted
1651	1651 The line items plus the tax and freight amounts on the invoice {0} do not add up to the submitted invoice total.	1651 The line items plus the tax and freight amounts on the invoice {0} do not add up to the submitted invoice total.	1.Total calculated amount does not equal the submitted invoice total	1.Please verify the totals of the line item to verify they match the invoice total submitted
1652	1652 Customer Account Number missing. Placeholder account value MVPREFD00000000 added for return processing.	1652 Customer Account Number missing. Placeholder account value MVPREFD00000000 added for return processing.	Customer Account Number missing from STL file	1. Dealer must fix settlement file through web solution.

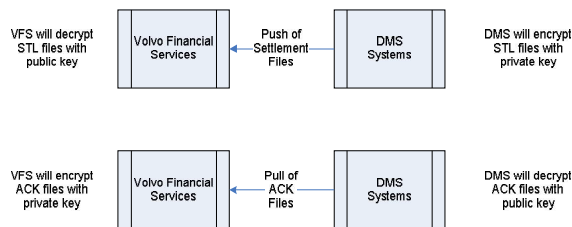
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ERROR NUMBER	ORIGINAL MESSAGE	CUSTOMER MESSAGE	PROBABLE CAUSES	SOLUTIONS
1680	1680 Settlement file {0} successfully processed.	1680 Settlement file {0} successfully processed.	1. Informational	1 No resolution required
1691	1691 Duplicate File	1691 Duplicate File	1. Duplicate File	1. Do not resubmit file.
1692	1692 Batch {0} was partially accepted	1692 Batch {0} was partially accepted	1. Informational	1 No resolution required
1693	1693 Batch {0} was rejected	1693 Batch {0} was rejected	1. Informational	1. No resolution required
1694	1694 Errors in settlement file {0}	1694 Errors in settlement file {0}	1. Informational	1. No resolution required
1695	1695 Error file created for VIT at: {0}	1695 Error file created for VIT at: {0}	1. Informational	1. No resolution required
1696	1696 Settlement file {0} not processed.	1696 Settlement file {0} not processed.	1. Sweeper process failed.	1. Call NATS Technical Support.
1697	1697 Settlement file partially processed.\r\n\r\nDealer code: {0}\r\nDealer name: {1}\r\nSettlement	1697 Settlement file partially processed.\r\n\r\nDealer code: {0}\r\nDealer name: {1}\r\nSettlement file: {2}	1. Informational	1. No resolution required
1698	1698 Unknown batch status code {0}	1698 Unknown batch status code {0}	1. Internal error contact.	1. Call NATS Technical Support.
1699	1699 Settlement file {0} submitted for dealer {1} is incorrectly formatted.	1699 Settlement file {0} submitted for dealer {1} is incorrectly formatted.	1. DMS error.	1. Call DMS

10.0 SFTP with Encryption file transfer (Settlement and Acknowledgement)

Volvo Financial Services requires that all DMS and/or Dealer systems push/pull Settlement and Acknowledgement files using SFTP w/encryption in order to guarantee the security of financial data from origin to destination. Two types of encryption keys are involved with this methodology:

- One key is a Public Key that can be used with various applications and may be obtained by anyone
- The other key is the Private Key which is secret and only available to the owner
- The sender will encrypt the message with the private key
- The decryption will be done with the public key of the receiver
- Keys will be loaded accordingly for processing of settlement and acknowledgement files



- SFTP URL/credentials will be supplied during the initial phase of the certification process
- Sharing of encryption keys between VFS/DMS will be take place over secure channels
- All VFS private/public encryption key processing will take place in the secured VFS network
- All DMS/Dealer private/public key encryption will take place on a secured network
 - Settlement files will be encrypted in DMS/Dealer private network and pushed via SFTP to VFS
 - Settlement files will be decrypted in the VFS private network
 - Acknowledgement files will be encrypted in VFS private network, placed on SFTP server and pulled by DMS
 - Acknowledgement files will be decrypted in the DMS/Dealers private network with appropriate key

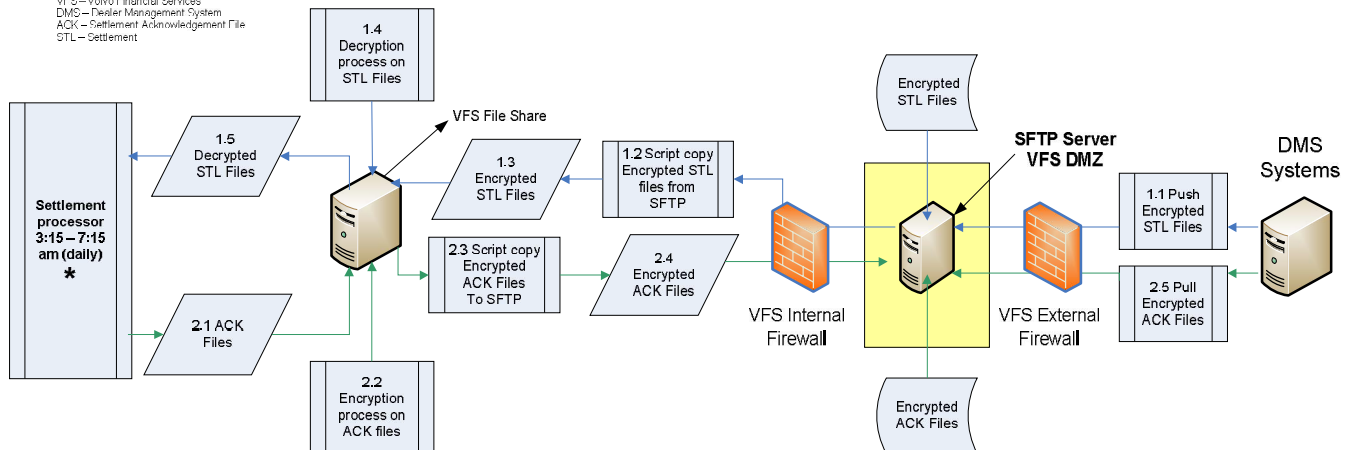
1. DMS push of encrypted settlement files via the public Internet to VFS SFTP server

- 1.1 DMS push encrypted settlement files to VFS SFTP server
- 1.2 VFS FTP script copies the encrypted files from the SFTP server
- 1.3 VFS FTP script places the files inside VFS network
- 1.4 VFS decrypts the STL files
- 1.5 VFS passes the decrypted files to the settlement processor

2. DMS pull of encrypted acknowledgement files from SFTP server

- 2.1 VFS settlement processor generates the acknowledgement (ACK) files
- 2.2 ACK files are encrypted
- 2.3 VFS FTP script copies the encrypted ACK files
- 2.4 VFS FTP script places the ACK files on the SFTP server
- 2.5 DMS systems initiate call to pull encrypted ACK files

VFS – Volvo Financial Services
 DMS – Dealer Management System
 ACK – Settlement Acknowledgement File
 STL – Settlement



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11.0 Service Level Agreement

If no response is received by the sender, assume a timeout occurred, and take appropriate action by aborting the request, or retrying.

The real-time messages to be used for Authorization and Settlement are:

- DMS Transmit Authorization Request to MVPREFERRED
- DMS Wait for Acknowledgement of Authorization from MVPREFERRED
- VFS IT DMS/Dealer network: the bandwidth and/or availability of the DMS and/or dealers connection from their respective Internet Service Provider is not in scope for VFS IT support
 - VFS IT SLA support covers incoming/outgoing connections to the gateway service designated in the specification

12.0 Glossary

Term	Description
ACH – Automated Clearing House	Automated Clearinghouse (ACH) is an automated system for exchanging electronic funds drawn against one another.
A/R – Accounts Receivable	The current outstanding balance that other organizations owe to your company for supplies or services rendered. Accounts receivable represent a current asset for your business. For MVPREFERRED, this is the system which captures all Authorizations, Settlements, and Payments back to the dealerships.
Authorization	Process where DMS send message to the MVPREFERRED to get authorization to reserve line of credit for purchases.
Blanket Purchase Order	A purchase order than can be used more than one (1) time, but expires once the total amount has been used.
Decline	The act of turning down the request for a SOI authorization due to any number of reasons.
DMS – Dealer Management System	Software system that allows truck dealers to manage customers and fleet trucks
Driver Number	A number assigned to a person who drives the fleet customer's Volvo/Mack trucks.
Encryption	The process of transforming data or files, using an algorithm, to make it unreadable to anyone except those with the predefined key and/or signature which authenticates the reader (human or system)
GNU	Free applications, libraries, and developer tools, plus a program to allocate resources and talk to the hardware, known as a kernel.
GPG	(GnuPG) GnuPG is the GNU's free implementation of the OpenPGP standard as defined by RFC4880. See http://www.ietf.org/rfc/rfc4880.txt for full specification.
NSF – Non Sufficient Funds	The terminology used when an account's balance is

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Term	Description
	insufficient to purchase services or goods.
ODFI – Originating Depository Financial Institution	The financial institution that deposits an ACH origination file with an ACH operator (either directly, or by way of a third party).
Posted Transaction	An authorization which has been converted into a live A/R transaction and is now due for payment at the next billing cycle.
PO – Purchase Order	The primary written communication tool between buyer and supplier. PO's are frequently used to convey offers to suppliers, accept offers from suppliers, to confirm already existing verbal contracts and to otherwise formalize a purchase transaction with a supplier.
RO – Repair Orders	Much like a sales order invoice (SOI) except final payment amount is not known until the repair is close to completion. Repair Orders can be authorized to set aside an estimate as to the amount needed for the repair.
Settlement	Settlement is the process where all authorizations are sent to MVPREFERRED at the end of the day for payment (NATS sends payments directly to the Dealers).
SFTP (Secure File Transfer Protocol)	Part of the SSH protocol suite which uses FTP file transfer with encryption.
SSH (Secure Shell)	Network protocol which provides a secure file transfer session between two networked systems.
SOI – Sales Order Invoice	A business document that contains the names and addresses of the buyer and the seller, the date and terms of the sale, a description of the goods, the price of the goods, and the mode of transportation used to ship the goods. The seller calls the invoice a sales invoice; the buyer calls it a purchase invoice.
SPL – Single Purchase Limit	A Velocity Limit much like the monthly or cycle credit limit at an account level, except SPL can be used to limit spending at the account level to a pre-defined maximum amount.
Unit Number	Another name meaning Vehicle Number
Vehicle Number	Not to be confused with VIN – Vehicle number can be setup by the Fleet manager to identify a vehicle by any type of identification.
Velocity Limits	NATS term which defines certain spending limit categories.
VIN – Vehicle Identification Number	The VIN, short for vehicle identification number, is the unique 17-digit number found on every vehicle. It contains the vehicle's serial number, as well as abbreviations for the make, model, and year.
NATS – North American Transaction Services	Volvo entity issuing credit to corporations to allow truck purchase and maintenance
VTNA - Volvo Trucks North America	Volvo entity setting parts/product pricing for various fleet clients.

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XML DMS Volvo Settlement Tech Specs	1.6	01/17/2013

Term	Description
MVPREFERRED - Volvo Preferred Pricing System	Volvo system to allow DMS to lookup preferred pricing for fleet clients
WAN - Wide Area Network	A physical or logical network that provides capabilities for a number of independent devices to communicate with each other over a common transmission-interconnected topology in geographic areas larger than those served by LAN