



Implementing Meteor on Alternate Platforms

Version 1.0

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Revision History

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Contents

Revision History.....	2
1. Overview	5
2. Provider Summary	6
3. UI Provider	7
3.1 Implementing a Token Provider	7
3.2 Implementing a UI Provider	8
4. Access Provider	9
5. Data Provider	11
5.1 DataServerAbstraction.....	11
5.2 Data Provider	11
Other Resources.....	14
Appendix A: Meteor 4.0 Web Services	15
AccessProviderService.....	15
WSDL.....	15
FindDataForBorrower Operation.....	16
FindDataForBorrowerWithConsolidated Operation	17
RegistryService.....	18
WSDL.....	18
GetCertificate Operation.....	22
GetIndexProviders Operation	24
GetDataProvider Operation	26
GetAllDataProviders Operation.....	26
GetAliases Operation.....	28
GetAuthenticationLevel Operation	30
GetVersion Operation	31
IndexProviderService	33
WSDL.....	33
FindDataProvidersForBorrower Operation	34
DataProviderService	36
WSDL.....	36
QueryDataForBorrower Operation	37

GetStatus Operation.....	39
Appendix B: Request and Response Schemas.....	41
MeteorIndexRequest.....	41
MeteorIndexResponse.....	41
MeteorDataRequest.....	43
MeteorDataResponse.....	43
Meteor_Schema_4.0.0.xsd	43
Appendix C: Backwards Compatibility Guide	52
HPC.....	52
HPC Schema	52
Example HPC Message.....	53
SAML 1.0 Draft.....	55
SAML 1.0 Draft to Final XSLT.....	55
Data Provider Request	56
Meteor 4.0 to Meteor 3.3 XSLT	57
Meteor 4.0 to Meteor 3.2 XSLT	57
Data Provider Response	57
Meteor 4 Data Provider to Meteor 3 Access Provider XSLT	58
Meteor 3 Data Provider to Meteor 4 Access Provider XSLT	58

1. Overview

The provider software of the Meteor system is coded in Java and intended to run on an application server that supports Java (e.g. Tomcat).

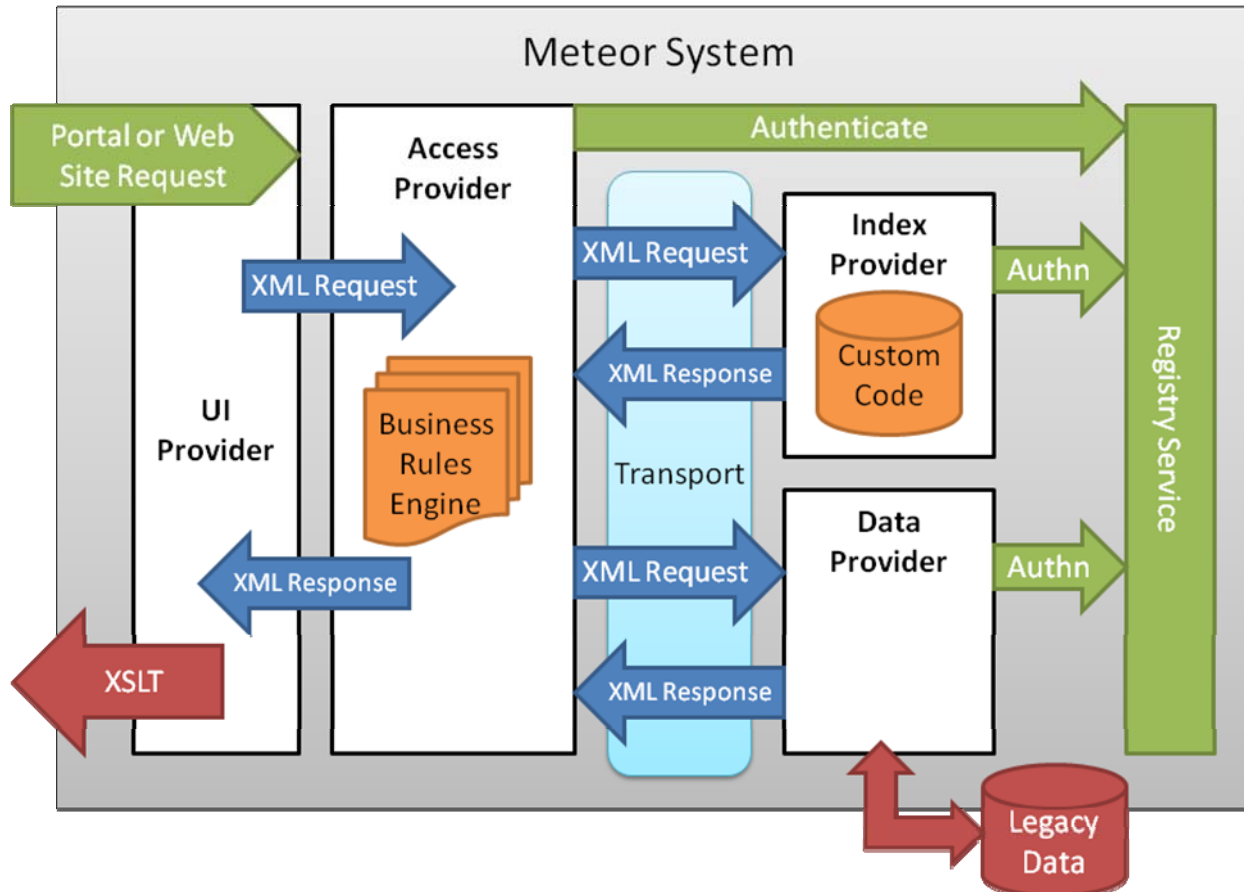
Implementing Meteor on another platform such as .NET will most likely require a rewrite of the Meteor implementation. The purpose of this document is to provide tips and resources to help development teams create their own implementation of any Meteor provider software.

Before reading this document, the reader is highly recommended to read the other Meteor documentation to acquire a full understanding of the network. Understanding the open source Java reference implementation may also help with writing a custom implementation. The reader is also recommended to install the Meteor Java implementation for development testing.

2. Provider Summary

Consider this diagram of the Meteor 4.0 architecture:

Meteor Architecture



The following providers can be implemented on an alternative platform:

- **UI Provider**

The UI Provider contains the external-facing UI of the Meteor system. It handles user authentication and gets data from a Meteor Access Provider via web service. The UI Provider contains a sub-component called a Token Provider that provides the credentials of the authenticated user.

- **Access Provider**

The Access Provider software communicates with the Index Provider and Data Providers to get loan data and aggregates the awards with duplicate loan and best

source logic. The Meteor 4 Java implementation is able to request data from Meteor 3 and Meteor 4 Data Providers.

If the Access Provider must be implemented on an alternate platform, it is highly recommended not to re-implement the best source and duplicate loan logic. This logic is encapsulated in its own Java library – if possible, this logic should be invoked from the alternate platform using a platform-specific Java bridge framework.

- **Data Provider**

The Data Provider software returns data for a requested SSN. The Meteor 4 Java implementation contains a backwards compatibility layer to return data to either Meteor 3 or Meteor 4 Access Providers.

If data must be accessed using an alternate platform but the provider software itself can still run on Java, consider a built-in or custom implementation of the `DataServerAbstraction` interface that communicates with the alternate platform remotely (e.g. `RemoteDataServer`).

3. UI Provider

If only the user authentication component must be run on a platform other than Java, a built-in or custom `TokenProvider` implementation can authenticate users with the remote system (e.g. Shibboleth, which has a .NET implementation. See the Meteor Shibboleth Guide for details). Otherwise, the UI provider will need to be implemented from scratch.

If the Access Provider must also be a custom implementation, the UI Provider and the Access Provider may be merged. To merge the UI and Access Providers, skip to the [Access Provider](#) section.

3.1 Implementing a Token Provider

To authenticate on a different platform than Java, do the following:

- 1) If it does not already exist, create the authentication system that will authenticate Meteor users (e.g. Shibboleth).
- 2) In Java, implement a `Token Provider` that retrieves user credentials from the authentication system. An example is the `ShibbolethTokenProvider` in package `org.meteornetwork.meteor.ui.token`. See the Meteor `TokenProvider` Implementation guide for details.

3.2 Implementing a UI Provider

The Meteor UI Provider software is the only part of the Meteor network that is exposed to end users. It communicates with Meteor Access Provider software to get data from the Meteor network. Therefore, programmers must do the following:

- Restrict access to the UI provider implementation to authorized users
- Communicate user credentials and queries to an Access Provider instance.

Communication with an Access Provider occurs via the `AccessProviderService` web service hosted by the Access Provider software. (See [Appendix A](#) for details.) Any custom UI provider must implement a client of the Access Provider web service. (For instructions, refer to a web services framework designed for the UI Provider's platform.)

The `AccessProviderService` exposes two operations:

- **[FindDataForBorrower](#)**

Returns an XML response containing the Borrower view of loan data (best source logic applied, duplicate loans removed).

- **[FindDataForBorrowerWithConsolidated](#)**

Returns an XML response containing the Borrower view of loan data, as well as all loan information (including duplicates) to display on the FAA Consolidated View screen.

When building the web service client, the following additional considerations must be made:

- 1) The Access Provider web service uses public key authentication to verify the UI Provider is allowed to make requests. The UI Provider must sign all SOAP requests using its private key (following the WS-Security standard) and the Access Provider must have the UI Provider's public key in its configured trust store. (See the Meteor Implementation Guide for details.)
- 2) Other web services require a SAML assertion to be attached in a WS-Security header. The `AccessProviderService`, however, accepts attributes that go into the SAML assertion as parameters in the message body. (See the `AccessProviderService` WSDL "[tokenAttributes](#)" complex type). This is because the user may be authenticated by any implementation of the `TokenProvider` interface, but the Access Provider must take these attributes and compose a SAML assertion for requests to other providers.

For a compliant UI Provider implementation, pass all user credentials as these token attributes. Provide as many attributes as possible; some are required depending on user role. See the Meteor Implementation Guide for more details.

4. Access Provider

The Access Provider is the most complex piece of the Meteor network. It is responsible for contacting Meteor Index Providers and Data Providers and filtering awards by duplicate loan and best source logic.

The Java reference implementation follows these steps. Below each step are notes on implementing on an alternative platform:

- 1) Receives request for data from UI Provider**
- 2) Verifies request signature and data**

If the UI Provider and Access Provider must both be custom implementations, they can be merged and these first two steps become moot. Otherwise, the Access Provider must host the `AccessProviderService` web service as defined by its WSDL in [Appendix A](#). The Access Provider must validate the signature of each request to ensure it comes from the UI provider, and it must collect the user's Meteor attributes to create SAML assertions with.

- 3) Queries Meteor Registry for Index Provider connection info**

The Meteor Registry hosts a web service to access registry entries. Like the other Meteor web services (except `AccessProviderService`), requests to the Meteor Registry must be signed and include a SAML assertion with the user's Meteor attributes in the WS-Security header. The request must be signed with the certificate the Access Provider registered with the Meteor Registry. See [Appendix A](#) for details.

To get index provider info, see the [GetIndexProviders](#) operation.

- 4) Queries Index Provider for list of Data Providers**

The Index Provider software hosts the `IndexProviderService` web service. An Access Provider sends a signed request with the query SSN and a SAML assertion with the user's Meteor attributes in the WS-Security header. The Index Provider returns a list of data providers and their loan locator info (see Implementation guide for more info on Loan Locator). See [Appendix A](#) for details.

- 5) Queries Data Providers for loan data**

Meteor 4 is built to be backwards compatible with Meteor 3 with a translation framework, designed to streamline development of future backwards compatibility. Custom implementations must also support backwards compatibility if they wish to support older versions of Meteor.

The Access Provider queries the registry for the connection info of each Data Provider (see [GetDataProvider](#) and [GetAllDataProviders](#)). For each Data Provider, the following additional steps are performed:

- a. The software determines the version of Meteor the Data Provider is running:
 - i. Version returned by the registry.
 - ii. If no version is returned by the registry, default version 3.3.4 is used.
- b. If the version is ≥ 4.0 , the software communicates with the `DataProviderService` web service of the Data Provider to get loan data. Like `RegistryService` and `IndexProviderService`, requests must be signed and contain a SAML assertion with the user's Meteor attributes in the WS-Security header. See [Appendix A](#) for details.
- c. If the version is < 4.0 , the software must communicate with the Data Provider's HPCP implementation. See [Appendix C](#) for notes on backwards compatibility.

To increase performance, the Java implementation spawns a new thread for each Data Provider request so that they may be called in parallel.

6) Applies duplicate loan and best source logic

This business logic is encapsulated in its own JAR file (`meteorbusiness.jar`) and the source code is contained in its own project folder (`meteorbusiness`). If the platform the Access Provider is running on supports it, it is highly recommended the native platform code invoke the logic in this JAR file. Meteor business logic is likely to change whenever new Meteor schema elements are introduced, so the ability to replace the business logic library is valuable for decreasing upgrade development time.

7) Returns data to the UI Provider

If the UI Provider and Access Provider must both be custom implementations, they can be merged and this step becomes moot. Otherwise, the Access Provider must host the `AccessProviderService` web service as defined by its WSDL in [Appendix A](#). The Access Provider must validate the signature of each request to ensure it comes from the UI provider, and it must collect the user's Meteor attributes to create SAML assertions with.

5. Data Provider

5.1 DataServerAbstraction

If the logic that retrieves loan data must be coded on a different platform but the Data Provider software itself can run on Java, consider implementing the DataServerAbstraction interface to call a remote server hosting the alternative platform (e.g. RemoteDataServer, HPCDataServer).

The greatest advantage with this approach is developers need not worry about backwards compatibility between Meteor 4 and Meteor 3. Data only needs to comply with the Meteor 4 schema and the Data Provider software will translate to Meteor 3 when necessary.

5.2 Data Provider

If hosting any part of the Data Provider in Java is not possible, a custom Data Provider implementation must do the following:

- Host the DataProviderService web service as defined by its WSDL in [Appendix A](#).
- Host a HPC service or compatibility layer. The Meteor Registry only contains one connection URL, so that URL must be able to point to both the DataProviderService and HPC endpoints.
- Translate a Meteor 3 request to Meteor 4, and a Meteor 4 response to Meteor 3.
- Offer a [Status web service operation](#) for the Meteor help desk agents to invoke.

The Java reference implementation follows these steps to handle a request for data. Below each step are notes on implementing on an alternative platform:

1) Receives request from Access Provider

The Meteor Registry only contains one connection URL for Access Providers to send requests to. This means that Meteor 3 providers will send HPC requests and Meteor 4 providers will send DataProviderService requests to the same URL. Custom implementations must be able to receive both kinds of requests at the same URL.

Both kinds of requests must have their signatures validated against the provider's certificate in the Meteor Registry. The provider's certificate can be retrieved from the Meteor Registry via a call to the RegistryService web service (see [GetCertificate](#) operation).

The Meteor 4.0 Status Provider software is run by the Meteor help desk to ascertain the status of all Data Providers on the network. The Status Provider software sends a web service request to execute the [GetStatus](#) operation. The Data Provider, if able, must return a response to the Status Provider (only if the request SAML is validated and the user role is HELPDESK). See

2) If request version is < 4.0, translate to 4.0 request

There are several differences between Meteor 3 and Meteor 4 XML requests:

- Meteor 3 providers embed the SAML assertion containing the user's Meteor attributes in the XML request, not in a separate SOAP header like in Meteor 4. This SAML assertion conforms to a draft version of the SAML 1.0 schema. The SAML assertion must be extracted from the body of the request and translated to a valid SAML 2.0 assertion (or interpreted considering the differences between SAML 1.0 draft and SAML 2.0). See [Appendix C](#) for details about the differences between SAML versions.
- The XML request itself changed between Meteor 3 to Meteor 4. The request must be translated to the Meteor 4 version (or interpreted considering the differences between the Meteor 3 and Meteor 4 data request schemas). See [Appendix C](#) for details.

3) Verify SAML Assertion is not expired

Analyze the conditions element in the SAML assertion to make sure the current time is within the assertion validity period.

4) Verify request:

- a. **If user is borrower, verify borrower SSN attribute from SAML assertion matches the query SSN**
- b. **Verify user authentication meets minimum authentication level for the user's role**

Official authentication levels of Access Providers are available via the [GetAuthenticationLevel](#) registry web service operation.

- c. **Verify user's role is not HELPDESK**

Meteor help desk users are only allowed to perform a status query.

5) Query data for borrower

Data can be queried by whatever implementation works best for the alternative platform. The data must be formatted in XML and comply with the Meteor 4 schema.

6) If user role is APCSR or LENDER, filter data by registered organization aliases

7) If request version is < 4.0, translate data response to older version

The Meteor 4.0 data response schema contains new elements and types not available to the Meteor 3.0 schema. These new elements must be removed from any response sent to a Meteor 3 Access Provider. See [Appendix C](#) for details.

8) Send response

The response must be returned using the same protocol as the request (if request was HPC, response must be HPC as well).

Other Resources

- Meteor Implementation Guide
 - Meteor Developers Guide
 - Meteor DataServerAbstraction Implementation Guide
 - Meteor IndexServerAbstraction Implementation Guide
 - Meteor TokenProvider Implementation Guide
 - Meteor Data Dictionary
 - Shibboleth
-
- Meteor stand-alone installation

Appendix A: Meteor 4.0 Web Services

AccessProviderService

WSDL

```
<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions xmlns:ns1="http://ws.common.meteor.meteornetwork.org/" xmlns:ns2="http://schemas.xmlsoap.org/soap/http"
xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/" xmlns:tns="http://ws.access.provider.meteor.meteornetwork.org/"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/" xmlns:xsd="http://www.w3.org/2001/XMLSchema" name="AccessProviderService"
targetNamespace="http://ws.access.provider.meteor.meteornetwork.org/">
  <wsdl:types>
    <xs:schema xmlns:tns="http://ws.common.meteor.meteornetwork.org/" xmlns:xs="http://www.w3.org/2001/XMLSchema"
elementFormDefault="unqualified" targetNamespace="http://ws.common.meteor.meteornetwork.org/" version="1.0">
      <xs:element name="findDataForBorrower" type="tns:findDataForBorrower"/>
      <xs:element name="findDataForBorrowerResponse" type="tns:findDataForBorrowerResponse"/>
      <xs:element name="findDataForBorrowerWithConsolidated" type="tns:findDataForBorrowerWithConsolidated"/>
      <xs:element name="findDataForBorrowerWithConsolidatedResponse"
type="tns:findDataForBorrowerWithConsolidatedResponse"/>
      <xs:complexType name="findDataForBorrowerWithConsolidated">
        <xs:sequence>
          <xs:element minOccurs="0" name="ssn" type="xs:string"/>
          <xs:element minOccurs="0" name="tokenAttrrs" type="tns:tokenAttributes"/>
        </xs:sequence>
      </xs:complexType>
      <xs:complexType name="tokenAttributes">
        <xs:sequence>
          <xs:element minOccurs="0" name="authenticationProcessId" type="xs:string"/>
          <xs:element minOccurs="0" name="lender" type="xs:string"/>
          <xs:element minOccurs="0" name="level" type="xs:int"/>
          <xs:element minOccurs="0" name="organizationId" type="xs:string"/>
          <xs:element minOccurs="0" name="organizationIdType" type="xs:string"/>
          <xs:element minOccurs="0" name="organizationType" type="xs:string"/>
          <xs:element minOccurs="0" name="providerType" type="tns:providerType"/>
          <xs:element minOccurs="0" name="role" type="tns:role"/>
          <xs:element minOccurs="0" name="ssn" type="xs:string"/>
          <xs:element minOccurs="0" name="userHandle" type="xs:string"/>
        </xs:sequence>
      </xs:complexType>
      <xs:complexType name="findDataForBorrowerWithConsolidatedResponse">
        <xs:sequence>
          <xs:element minOccurs="0" name="resultBestSource" type="xs:string"/>
          <xs:element minOccurs="0" name="resultAll" type="xs:string"/>
          <xs:element minOccurs="0" name="duplicateAwardsMap" type="xs:base64Binary"/>
        </xs:sequence>
      </xs:complexType>
      <xs:complexType name="findDataForBorrower">
        <xs:sequence>
          <xs:element minOccurs="0" name="ssn" type="xs:string"/>
          <xs:element minOccurs="0" name="tokenAttrrs" type="tns:tokenAttributes"/>
        </xs:sequence>
      </xs:complexType>
      <xs:complexType name="findDataForBorrowerResponse">
        <xs:sequence>
          <xs:element minOccurs="0" name="DataForBorrower" type="xs:string"/>
        </xs:sequence>
      </xs:complexType>
      <xs:simpleType name="providerType">
        <xs:restriction base="xs:string">
          <xs:enumeration value="ACCESS"/>
          <xs:enumeration value="INDEX"/>
          <xs:enumeration value="DATA"/>
          <xs:enumeration value="STATUS"/>
          <xs:enumeration value="AUTHENTICATION"/>
          <xs:enumeration value="LENDER"/>
        </xs:restriction>
      </xs:simpleType>
      <xs:simpleType name="role">
        <xs:restriction base="xs:string">
          <xs:enumeration value="FAA"/>
          <xs:enumeration value="BORROWER"/>
          <xs:enumeration value="APCSR"/>
          <xs:enumeration value="LENDER"/>
          <xs:enumeration value="HELPEDESK"/>
        </xs:restriction>
      </xs:simpleType>
    </xs:schema>
  </wsdl:types>
  <wsdl:message name="findDataForBorrowerWithConsolidated">
    <wsdl:part element="ns1:findDataForBorrowerWithConsolidated" name="parameters"/>
  </wsdl:message>
  <wsdl:message name="findDataForBorrower">
    <wsdl:part element="ns1:findDataForBorrower" name="parameters"/>
  </wsdl:message>
  <wsdl:message name="findDataForBorrowerResponse">
    <wsdl:part element="ns1:findDataForBorrowerResponse" name="parameters"/>
  </wsdl:message>
  <wsdl:message name="findDataForBorrowerWithConsolidatedResponse">
```

```

<wsdl:part element="ns1:findDataForBorrowerWithConsolidatedResponse" name="parameters"/>
</wsdl:message>
<wsdl:portType name="AccessProviderService">
  <wsdl:operation name="findDataForBorrowerWithConsolidated">
    <wsdl:input message="ns1:findDataForBorrowerWithConsolidated" name="findDataForBorrowerWithConsolidated"/>
    <wsdl:output message="ns1:findDataForBorrowerWithConsolidatedResponse"
name="findDataForBorrowerWithConsolidatedResponse"/>
  </wsdl:operation>
  <wsdl:operation name="findDataForBorrower">
    <wsdl:input message="ns1:findDataForBorrower" name="findDataForBorrower"/>
    <wsdl:output message="ns1:findDataForBorrowerResponse" name="findDataForBorrowerResponse"/>
  </wsdl:operation>
</wsdl:portType>
<wsdl:binding name="AccessProviderServiceSoapBinding" type="ns1:AccessProviderService">
  <soap12:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="findDataForBorrower">
    <soap12:operation soapAction="" style="document"/>
    <wsdl:input name="findDataForBorrower">
      <soap12:body use="literal"/>
    </wsdl:input>
    <wsdl:output name="findDataForBorrowerResponse">
      <soap12:body use="literal"/>
    </wsdl:output>
  </wsdl:operation>
  <wsdl:operation name="findDataForBorrowerWithConsolidated">
    <soap12:operation soapAction="" style="document"/>
    <wsdl:input name="findDataForBorrowerWithConsolidated">
      <soap12:body use="literal"/>
    </wsdl:input>
    <wsdl:output name="findDataForBorrowerWithConsolidatedResponse">
      <soap12:body use="literal"/>
    </wsdl:output>
  </wsdl:operation>
</wsdl:binding>
<wsdl:service name="AccessProviderService">
  <wsdl:port binding="tns:AccessProviderServiceSoapBinding" name="findDataForBorrower">
    <soap12:address location="http://localhost:8080/accessprovider/services/AccessProviderService"/>
  </wsdl:port>
</wsdl:service>
</wsdl:definitions>

```

FindDataForBorrower Operation

Given a SSN and a user's security token attributes, the Access Provider will query the Meteor network for loan data on the SSN. Only best source loans will be returned. The response is a string XML document that implements the Meteor Data Response schema.

Request Example

```

<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
  <soap:Header>
    <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd" soap:mustUnderstand="true">
      <ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#" Id="SIG-2">
        <ds:SignedInfo>
          <ds:CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#">
            <ec:InclusiveNamespaces xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#" PrefixList="soap"/>
          </ds:CanonicalizationMethod>
          <ds:SignatureMethod Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1"/>
          <ds:Reference URI="#id-1">
            <ds:Transforms>
              <ds:Transform Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#">
                <ec:InclusiveNamespaces xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#" PrefixList=""/>
              </ds:Transform>
            </ds:Transforms>
            <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
            <ds:DigestValue>F9pI6Cj/a+FfK7LvpsI3H2J3GQI=</ds:DigestValue>
          </ds:Reference>
        </ds:SignedInfo>
        <ds:SignatureValue>PVjxCHB6AMKvfgQvWRqyL9hlRRUdJ0htm+11mOtSR9VU08PEwFNvZ/zXEyQgJ+80Cq2nBeojTvh
xt8nWzrzbgbXpKVNr1Pq+e12/LaKPRoywfjX7v/seYyaHHVDVjINcx1Yc3VMxX5NynG6jztvyzfr
XfhU0s3HjuejaGKzjg1kN6xOBkvQwHb39ct/tP3b2C3wzFLQhT3eTxE5SRDGe4Q0BAS4w9pRvFc
xZFUFVR7dU/B1dJYEY2N0MDqoUn0AoTDCheYTR12PfoDPIBjQyky511NUI8oJvvrTBSCX6wH6Yyscm
7kcW32R1grw0iwlybPqrpTuKDP6Ovcq8oFzEgw==</ds:SignatureValue>
        <ds:KeyInfo Id="KI-84382A06B3CF5AA16B13285409730312">
          <wsse:SecurityTokenReference wsu:Id="STR-84382A06B3CF5AA16B13285409730463">
            <ds:X509Data>
              <ds:X509IssuerSerial>
                <ds:X509IssuerName>OU=Meteor Development,O=Logic Technology\,
Inc,1.2.840.113549.1.9.1=#16146a6c617a6f73406c74696f6e6c696e652e636f6d,C=US,ST=NY,CN=Meteor Test Root Certificate
Authority</ds:X509IssuerName>
                <ds:X509SerialNumber>1</ds:X509SerialNumber>
              </ds:X509IssuerSerial>
            </ds:X509Data>
          </wsse:SecurityTokenReference>
        </ds:KeyInfo>
      </ds:Signature>
    </wsse:Security>
  </soap:Header>
  <soap:Body>
    <ns1:findDataForBorrowerWithConsolidatedResponse parameters="parameters"/>
  </soap:Body>
</soap:Envelope>

```

```

    </wsse:Security>
  </soap:Header>
  <soap:Body xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd" wsu:Id="id-1">
    <ns2:findDataForBorrower xmlns:ns2="http://ws.common.meteor.meteornetwork.org/">
      <ssn>104041004</ssn>
      <tokenAttrs>
        <authenticationProcessId>1</authenticationProcessId>
        <level>3</level>
        <role>BORROWER</role>
        <ssn>104041004</ssn>
        <userHandle>username</userHandle>
      </tokenAttrs>
    </ns2:findDataForBorrower>
  </soap:Body>
</soap:Envelope>

```

Response Example

```

<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
  <soap:Body>
    <ns2:findDataForBorrowerResponse xmlns:ns2="http://ws.common.meteor.meteornetwork.org/">
      <DataForBorrower>&lt;?xml version="1.0" encoding="UTF-8"?&gt;&lt;MeteorRSMsg xmlns="http://schemas.pescxml.org"
PESCCXMLVersion="4.0.0"&gt;&lt;MeteorDataProviderInfo
xmlns=""&gt;&lt;MeteorDataProviderDetailInfo&gt;&lt;DataProviderType&gt;UNK&lt;/DataProviderType&gt;&lt;DataProviderData&gt;&lt;E
ntityID&gt;DP33-LRS&lt;/EntityID&gt;&lt;EntityURL&gt;http://localhost:8180/DataProvider-3.3.4-
LRS/rpcrouter&lt;/EntityURL&gt;&lt;Contacts/&gt;&lt;/DataProviderData&gt;&lt;DataProviderAggregateTotal/&gt;&lt;/MeteorDataProvid
erDetailInfo&gt;&lt;MeteorDataProviderMsg&gt;&lt;RSMsg&gt;D-011 &amp;lt;a href="http://www.mydomain.com"&amp;gt;Contact
us&amp;lt;/a&amp;gt; to notify the Meteor Help Desk. We were unable to process your request.&lt;/RSMsg&gt;
...
&lt;/MeteorDataProviderDetailInfo&gt;&lt;/MeteorDataProviderInfo&gt;&lt;MeteorDataAggregates
xmlns=""&gt;&lt;OriginalBalanceGrandTotal
ServicerID="809547"&gt;8000.00&lt;/OriginalBalanceGrandTotal&gt;&lt;OutstandingBalanceGrandTotal
ServicerID="809547"&gt;1131.96&lt;/OutstandingBalanceGrandTotal&gt;&lt;OtherFeesOutstandingGrandTotal
ServicerID="809547"&gt;&lt;/OtherFeesOutstandingGrandTotal&gt;&lt;/MeteorDataAggregates&gt;&lt;MeteorIndexProviderData
xmlns=""&gt;&lt;EntityName&gt;National Student
Clearinghouse&lt;/EntityName&gt;&lt;EntityID&gt;LTI_IP40&lt;/EntityID&gt;&lt;EntityURL&gt;http://loanlocator.org&lt;/EntityURL&gt;
&lt;Contacts/&gt;&lt;/MeteorIndexProviderData&gt;&lt;/MeteorRSMsg&gt;</DataForBorrower>
    </ns2:findDataForBorrowerResponse>
  </soap:Body>
</soap:Envelope>

```

FindDataForBorrowerWithConsolidated Operation

Given a SSN and a user's security token attributes, the Access Provider will query the Meteor network for loan data on the SSN. Duplicate loans will be returned as well as best source. Three pieces of information are returned:

- resultBestSource – string XML document that implements the Meteor Data Response schema, including only best source loans
- resultAll – string XML document that implements the Meter Data Response schema, including all loans available on the network (best source and duplicate loans)
- duplicateAwardsMap – a base 64 binary string that is a serialized Java Map of duplicate awards. See the Java AccessProviderService implementation for details ([org.meteornetwork.meteor.provider.access.ws.AccessProviderServiceImpl](#))

Request Example

```

<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
  <soap:Header>
    <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd" soap:mustUnderstand="true">
      <ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#" Id="SIG-6">
        <ds:SignedInfo>
          <ds:CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#">
            <ec:InclusiveNamespaces xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#" PrefixList="soap"/>
          </ds:CanonicalizationMethod>
          <ds:SignatureMethod Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1"/>
          <ds:Reference URI="#id-5">
            <ds:Transforms>
              <ds:Transform Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#">
                <ec:InclusiveNamespaces xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#" PrefixList=""/>
              </ds:Transform>
            </ds:Transforms>
          <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
          <ds:DigestValue>x/pEec4bLE/7NrdKlx8JeenrWms=</ds:DigestValue>
        </ds:Reference>
      </ds:SignedInfo>
    </ds:Signature>
  </wsse:Security>

```

```

    <ds:SignatureValue>O/IQMrSjYdcOA3ZPI8VYhjU5n/MOKYp6JZT6G/cKIZOFsIkhZyqoirD9prkqx2QSSCbicum7yrHw
/N8D69+RvK2Ih0CRWR9+rr3F5Cwa7T6tESO3EKewbXyai/T80LXdojyB/Sx0xhiWKKr/OTJfPFe
HODGuqnhPS1LZTBktVlRWebkGantVxkgatcFj0SlvNAZ4LJdW9XK/Wf8jxnsABkN1ESIkNzrNVBx
h918zboUyOsPu2Mpx7NJS1RRDDNO+JrPjx7CVV00w9onimksBpKntu3JB2ub8v9m+9erAaHxHfRYR
+5tGXX50c5vPle8GWQ3lsAwlOchxIc7ZCAkMhw==</ds:SignatureValue>
    <ds:KeyInfo Id="KI-84382A06B3CF5AA16B1328557710788">
      <wsse:SecurityTokenReference wsu:Id="STR-84382A06B3CF5AA16B1328557710789">
        <ds:X509Data>
          <ds:X509IssuerSerial>
            <ds:X509IssuerName>OU=Meteor Development,O=Logic Technology\,
Inc,1.2.840.113549.1.9.1=#16146a6c617a6f73406c74696f6e6c696e652e636f6d,C=US,ST=NY,CN=Meteor Test Root Certificate
Authority</ds:X509IssuerName>
            <ds:X509SerialNumber>1</ds:X509SerialNumber>
          </ds:X509IssuerSerial>
        </ds:X509Data>
      </wsse:SecurityTokenReference>
    </ds:KeyInfo>
  </ds:Signature>
</wsse:Security>
</soap:Header>
<soap:Body xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd" wsu:Id="id-5">
  <ns2:findDataForBorrowerWithConsolidated xmlns:ns2="http://ws.common.meteor.meteornetwork.org/">
    <ssn>303660303</ssn>
    <tokenAttrs>
      <authenticationProcessId>1</authenticationProcessId>
      <level>3</level>
      <role>FAA</role>
      <userHandle>username</userHandle>
    </tokenAttrs>
  </ns2:findDataForBorrowerWithConsolidated>
</soap:Body>
</soap:Envelope>

```

Response Example

```

<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
  <soap:Body>
    <ns2:findDataForBorrowerWithConsolidatedResponse xmlns:ns2="http://ws.common.meteor.meteornetwork.org/">
      <resultBestSource><?xml version="1.0" encoding="UTF-8"?><MeteorRsmMsg xmlns="http://schemas.pescxml.org"
PESCXMLVersion="4.0.0"><MeteorDataProviderInfo
xmlns=""><MeteorDataProviderDetailInfo><DataProviderType>UNK</DataProviderType><DataProviderData><EntityID>DP33-LRS</EntityID><EntityURL>http://localhost:8180/DataProvider-3.3.4-LRS/rpcrouter<
...

<OutstandingBalanceGrandTotal
ServicerID="809547">565.98</OutstandingBalanceGrandTotal><OtherFeesOutstandingGrandTotal
ServicerID="809547">482.33</OtherFeesOutstandingGrandTotal><MeteorDataAggregates><MeteorIndexProviderData
xmlns=""><EntityName>National Student
Clearinghouse</EntityName><EntityID>LTI_IP40</EntityID><EntityURL>http://loanlocator.org</EntityURL><
<Contacts><MeteorIndexProviderData><MeteorRsmMsg></resultBestSource>

      <resultAll><?xml version="1.0" encoding="UTF-8"?><MeteorRsmMsg xmlns="http://schemas.pescxml.org"
PESCXMLVersion="4.0.0"><MeteorDataProviderInfo
xmlns=""><MeteorDataProviderDetailInfo><DataProviderType>UNK</DataProviderType><DataProviderData><EntityID>DP33-LRS</EntityID><EntityURL>http://localhost:8180/DataProvider-3.3.4-LRS/rpcrouter</EntityURL>
...

<MeteorDataProviderInfo><MeteorIndexProviderData xmlns=""><EntityName>National Student
Clearinghouse</EntityName><EntityID>LTI_IP40</EntityID><EntityURL>http://loanlocator.org</EntityURL>
<Contacts><MeteorIndexProviderData><MeteorRsmMsg></resultAll>

<duplicateAwardsMap>r00ABXNyABFqYXZlLnV0aWwvVHJlZUhcAzB9j4tJwrmAwABTAAKY29tcGFyYXRvcnQAFkxqYXZlL3V0aWwvQ29tcGFyYXRvcj4t4HB3BAAAA
AFzcgARamF2YSsYw5LkludGVnZXIS4qCk94GHOAIAAUkABXZhbHVleHIAEGphdmEubGFuZy50dWliZXKGrJUDC5TgiwIAAHwAAAAAHNyABNqYXZlLnV0aWwvQXJyYX
lMaXNOeIHSZnHYZ0DAAFJAARzaXpleHAAAAACdWQAAAACQB+AAVzcQB+AAMAAAABHg=</duplicateAwardsMap>
    </ns2:findDataForBorrowerWithConsolidatedResponse>
  </soap:Body>
</soap:Envelope>

```

RegistryService

WSDL

```

<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions xmlns:ns1="http://ws.common.meteor.meteornetwork.org/" xmlns:ns2="http://schemas.xmlsoap.org/soap/http"
xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/" xmlns:tns="http://ws.registry.meteor.meteornetwork.org/"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/" xmlns:xsd="http://www.w3.org/2001/XMLSchema" name="RegistryService"
targetNamespace="http://ws.registry.meteor.meteornetwork.org/">
  <wsdl:types>
    <xs:schema xmlns:tns="http://ws.common.meteor.meteornetwork.org/" xmlns:xs="http://www.w3.org/2001/XMLSchema"
attributeFormDefault="unqualified" elementFormDefault="unqualified" targetNamespace="http://ws.common.meteor.meteornetwork.org/">
      <xs:element name="GetAliases" type="tns:GetAliases"/>
      <xs:element name="GetAliasesResponse" type="tns:GetAliasesResponse"/>
      <xs:element name="GetAllDataProviders" type="tns:GetAllDataProviders"/>
      <xs:element name="GetAllDataProvidersResponse" type="tns:GetAllDataProvidersResponse"/>
      <xs:element name="GetAuthenticationLevel" type="tns:GetAuthenticationLevel"/>
    </xs:schema>
  </wsdl:types>

```

```

<xs:element name="GetAuthenticationLevelResponse" type="tns:GetAuthenticationLevelResponse"/>
<xs:element name="GetCertificate" type="tns:GetCertificate"/>
<xs:element name="GetCertificateResponse" type="tns:GetCertificateResponse"/>
<xs:element name="GetDataProvider" type="tns:GetDataProvider"/>
<xs:element name="GetDataProviderResponse" type="tns:GetDataProviderResponse"/>
<xs:element name="GetIndexProviders" type="tns:GetIndexProviders"/>
<xs:element name="GetIndexProvidersResponse" type="tns:GetIndexProvidersResponse"/>
<xs:element name="GetRoles" type="tns:GetRoles"/>
<xs:element name="GetRolesResponse" type="tns:GetRolesResponse"/>
<xs:element name="GetVersion" type="tns:GetVersion"/>
<xs:element name="GetVersionResponse" type="tns:GetVersionResponse"/>
<xs:complexType name="GetVersion">
  <xs:sequence>
    <xs:element minOccurs="0" name="MeteorInstitutionId" type="xs:string"/>
    <xs:element minOccurs="0" name="ProviderType" type="tns:providerType"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="GetVersionResponse">
  <xs:sequence>
    <xs:element minOccurs="0" name="GetVersionResponse" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="GetDataProvider">
  <xs:sequence>
    <xs:element minOccurs="0" name="MeteorInstitutionId" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="GetDataProviderResponse">
  <xs:sequence>
    <xs:element minOccurs="0" name="GetDataProviderResponse" type="tns:dataProvider"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="dataProvider">
  <xs:sequence>
    <xs:element minOccurs="0" name="description" type="xs:string"/>
    <xs:element minOccurs="0" name="institutionIdentifier" type="xs:string"/>
    <xs:element minOccurs="0" name="meteorVersion" type="xs:string"/>
    <xs:element minOccurs="0" name="url" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="GetAliases">
  <xs:sequence>
    <xs:element minOccurs="0" name="MeteorInstitutionId" type="xs:string"/>
    <xs:element minOccurs="0" name="ProviderType" type="tns:providerType"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="GetAliasesResponse">
  <xs:sequence>
    <xs:element maxOccurs="unbounded" minOccurs="0" name="GetAliasesResponse" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType abstract="true" name="abstractCollection">
  <xs:sequence/>
</xs:complexType>
<xs:complexType abstract="true" name="abstractList">
  <xs:complexContent>
    <xs:extension base="tns:abstractCollection">
      <xs:sequence/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="arrayList">
  <xs:complexContent>
    <xs:extension base="tns:abstractList">
      <xs:sequence/>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="GetIndexProviders">
  <xs:sequence>
    <xs:element minOccurs="0" name="MeteorVersion" type="tns:version"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="version">
  <xs:sequence>
    <xs:element minOccurs="0" name="maintenance" type="xs:int"/>
    <xs:element minOccurs="0" name="major" type="xs:int"/>
    <xs:element minOccurs="0" name="minor" type="xs:int"/>
    <xs:element minOccurs="0" name="release" type="xs:int"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="GetIndexProvidersResponse">
  <xs:sequence>
    <xs:element maxOccurs="unbounded" minOccurs="0" name="GetIndexProvidersResponse" type="tns:indexProvider"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="indexProvider">
  <xs:sequence>
    <xs:element minOccurs="0" name="institutionIdentifier" type="xs:string"/>
    <xs:element minOccurs="0" name="name" type="xs:string"/>
    <xs:element minOccurs="0" name="url" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="GetCertificate">
  <xs:sequence>

```

```

        <xs:element minOccurs="0" name="MeteorInstitutionId" type="xs:string"/>
        <xs:element minOccurs="0" name="ProviderType" type="tns:providerType"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="GetCertificateResponse">
    <xs:sequence>
        <xs:element minOccurs="0" name="GetCertificateResponse" type="xs:base64Binary"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="GetRoles">
    <xs:sequence>
        <xs:element minOccurs="0" name="MeteorInstitutionId" type="xs:string"/>
        <xs:element minOccurs="0" name="AuthenticationProcessId" type="xs:string"/>
        <xs:element minOccurs="0" name="ProviderType" type="tns:providerType"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="GetRolesResponse">
    <xs:sequence>
        <xs:element maxOccurs="unbounded" minOccurs="0" name="GetRolesResponse" type="tns:role"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="GetAllDataProviders">
    <xs:sequence/>
</xs:complexType>
<xs:complexType name="GetAllDataProvidersResponse">
    <xs:sequence>
        <xs:element maxOccurs="unbounded" minOccurs="0" name="GetAllDataProvidersResponse" type="tns:dataProvider"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="GetAuthenticationLevel">
    <xs:sequence>
        <xs:element minOccurs="0" name="MeteorInstitutionId" type="xs:string"/>
        <xs:element minOccurs="0" name="AuthenticationProcessId" type="xs:string"/>
        <xs:element minOccurs="0" name="ProviderType" type="tns:providerType"/>
        <xs:element minOccurs="0" name="Role" type="tns:role"/>
    </xs:sequence>
</xs:complexType>
<xs:complexType name="GetAuthenticationLevelResponse">
    <xs:sequence>
        <xs:element minOccurs="0" name="GetAuthenticationLevelResponse" type="xs:int"/>
    </xs:sequence>
</xs:complexType>
<xs:simpleType name="providerType">
    <xs:restriction base="xs:string">
        <xs:enumeration value="ACCESS"/>
        <xs:enumeration value="INDEX"/>
        <xs:enumeration value="DATA"/>
        <xs:enumeration value="STATUS"/>
        <xs:enumeration value="AUTHENTICATION"/>
        <xs:enumeration value="LENDER"/>
    </xs:restriction>
</xs:simpleType>
<xs:simpleType name="role">
    <xs:restriction base="xs:string">
        <xs:enumeration value="FAA"/>
        <xs:enumeration value="BORROWER"/>
        <xs:enumeration value="APCSR"/>
        <xs:enumeration value="LENDER"/>
        <xs:enumeration value="HELPEDESK"/>
    </xs:restriction>
</xs:simpleType>
<xs:element name="RegistryException" type="tns:RegistryException"/>
<xs:complexType name="RegistryException">
    <xs:sequence/>
</xs:complexType>
</xs:schema>
</wsdl:types>
<wsdl:message name="GetVersionResponse">
    <wsdl:part element="ns1:GetVersionResponse" name="parameters"/>
</wsdl:message>
<wsdl:message name="GetAllDataProviders">
    <wsdl:part element="ns1:GetAllDataProviders" name="parameters"/>
</wsdl:message>
<wsdl:message name="GetAllDataProvidersResponse">
    <wsdl:part element="ns1:GetAllDataProvidersResponse" name="parameters"/>
</wsdl:message>
<wsdl:message name="GetRolesResponse">
    <wsdl:part element="ns1:GetRolesResponse" name="parameters"/>
</wsdl:message>
<wsdl:message name="GetDataProviderResponse">
    <wsdl:part element="ns1:GetDataProviderResponse" name="parameters"/>
</wsdl:message>
<wsdl:message name="GetCertificateResponse">
    <wsdl:part element="ns1:GetCertificateResponse" name="parameters"/>
</wsdl:message>
<wsdl:message name="GetRoles">
    <wsdl:part element="ns1:GetRoles" name="parameters"/>
</wsdl:message>
<wsdl:message name="RegistryException">
    <wsdl:part element="ns1:RegistryException" name="RegistryException"/>
</wsdl:message>
<wsdl:message name="GetIndexProviders">
    <wsdl:part element="ns1:GetIndexProviders" name="parameters"/>
</wsdl:message>
<wsdl:message name="GetDataProvider">

```

```

    <wsdl:part element="ns1:GetDataProvider" name="parameters"/>
</wsdl:message>
<wsdl:message name="GetAliasesResponse">
  <wsdl:part element="ns1:GetAliasesResponse" name="parameters"/>
</wsdl:message>
<wsdl:message name="GetIndexProvidersResponse">
  <wsdl:part element="ns1:GetIndexProvidersResponse" name="parameters"/>
</wsdl:message>
<wsdl:message name="GetVersion">
  <wsdl:part element="ns1:GetVersion" name="parameters"/>
</wsdl:message>
<wsdl:message name="GetAuthenticationLevelResponse">
  <wsdl:part element="ns1:GetAuthenticationLevelResponse" name="parameters"/>
</wsdl:message>
<wsdl:message name="GetAuthenticationLevel">
  <wsdl:part element="ns1:GetAuthenticationLevel" name="parameters"/>
</wsdl:message>
<wsdl:message name="GetCertificate">
  <wsdl:part element="ns1:GetCertificate" name="parameters"/>
</wsdl:message>
<wsdl:message name="GetAliases">
  <wsdl:part element="ns1:GetAliases" name="parameters"/>
</wsdl:message>
<wsdl:portType name="RegistryService">
  <wsdl:operation name="GetVersion">
    <wsdl:input message="ns1:GetVersion" name="GetVersion"/>
    <wsdl:output message="ns1:GetVersionResponse" name="GetVersionResponse"/>
    <wsdl:fault message="ns1:RegistryException" name="RegistryException"/>
  </wsdl:operation>
  <wsdl:operation name="GetDataProvider">
    <wsdl:input message="ns1:GetDataProvider" name="GetDataProvider"/>
    <wsdl:output message="ns1:GetDataProviderResponse" name="GetDataProviderResponse"/>
    <wsdl:fault message="ns1:RegistryException" name="RegistryException"/>
  </wsdl:operation>
  <wsdl:operation name="GetAliases">
    <wsdl:input message="ns1:GetAliases" name="GetAliases"/>
    <wsdl:output message="ns1:GetAliasesResponse" name="GetAliasesResponse"/>
    <wsdl:fault message="ns1:RegistryException" name="RegistryException"/>
  </wsdl:operation>
  <wsdl:operation name="GetIndexProviders">
    <wsdl:input message="ns1:GetIndexProviders" name="GetIndexProviders"/>
    <wsdl:output message="ns1:GetIndexProvidersResponse" name="GetIndexProvidersResponse"/>
    <wsdl:fault message="ns1:RegistryException" name="RegistryException"/>
  </wsdl:operation>
  <wsdl:operation name="GetCertificate">
    <wsdl:input message="ns1:GetCertificate" name="GetCertificate"/>
    <wsdl:output message="ns1:GetCertificateResponse" name="GetCertificateResponse"/>
    <wsdl:fault message="ns1:RegistryException" name="RegistryException"/>
  </wsdl:operation>
  <wsdl:operation name="GetRoles">
    <wsdl:input message="ns1:GetRoles" name="GetRoles"/>
    <wsdl:output message="ns1:GetRolesResponse" name="GetRolesResponse"/>
    <wsdl:fault message="ns1:RegistryException" name="RegistryException"/>
  </wsdl:operation>
  <wsdl:operation name="GetAllDataProviders">
    <wsdl:input message="ns1:GetAllDataProviders" name="GetAllDataProviders"/>
    <wsdl:output message="ns1:GetAllDataProvidersResponse" name="GetAllDataProvidersResponse"/>
    <wsdl:fault message="ns1:RegistryException" name="RegistryException"/>
  </wsdl:operation>
  <wsdl:operation name="GetAuthenticationLevel">
    <wsdl:input message="ns1:GetAuthenticationLevel" name="GetAuthenticationLevel"/>
    <wsdl:output message="ns1:GetAuthenticationLevelResponse" name="GetAuthenticationLevelResponse"/>
    <wsdl:fault message="ns1:RegistryException" name="RegistryException"/>
  </wsdl:operation>
</wsdl:portType>
<wsdl:binding name="RegistryServiceSoapBinding" type="ns1:RegistryService">
  <soap12:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
  <wsdl:operation name="GetVersion">
    <soap12:operation soapAction="" style="document"/>
    <wsdl:input name="GetVersion">
      <soap12:body use="literal"/>
    </wsdl:input>
    <wsdl:output name="GetVersionResponse">
      <soap12:body use="literal"/>
    </wsdl:output>
    <wsdl:fault name="RegistryException">
      <soap12:fault name="RegistryException" use="literal"/>
    </wsdl:fault>
  </wsdl:operation>
  <wsdl:operation name="GetDataProvider">
    <soap12:operation soapAction="" style="document"/>
    <wsdl:input name="GetDataProvider">
      <soap12:body use="literal"/>
    </wsdl:input>
    <wsdl:output name="GetDataProviderResponse">
      <soap12:body use="literal"/>
    </wsdl:output>
    <wsdl:fault name="RegistryException">
      <soap12:fault name="RegistryException" use="literal"/>
    </wsdl:fault>
  </wsdl:operation>
  <wsdl:operation name="GetAliases">
    <soap12:operation soapAction="" style="document"/>
    <wsdl:input name="GetAliases">
      <soap12:body use="literal"/>
    </wsdl:input>

```

```

        </wsdl:input>
        <wsdl:output name="GetAliasesResponse">
            <soap12:body use="literal"/>
        </wsdl:output>
        <wsdl:fault name="RegistryException">
            <soap12:fault name="RegistryException" use="literal"/>
        </wsdl:fault>
    </wsdl:operation>
    <wsdl:operation name="GetCertificate">
        <soap12:operation soapAction="" style="document"/>
        <wsdl:input name="GetCertificate">
            <soap12:body use="literal"/>
        </wsdl:input>
        <wsdl:output name="GetCertificateResponse">
            <soap12:body use="literal"/>
        </wsdl:output>
        <wsdl:fault name="RegistryException">
            <soap12:fault name="RegistryException" use="literal"/>
        </wsdl:fault>
    </wsdl:operation>
    <wsdl:operation name="GetIndexProviders">
        <soap12:operation soapAction="" style="document"/>
        <wsdl:input name="GetIndexProviders">
            <soap12:body use="literal"/>
        </wsdl:input>
        <wsdl:output name="GetIndexProvidersResponse">
            <soap12:body use="literal"/>
        </wsdl:output>
        <wsdl:fault name="RegistryException">
            <soap12:fault name="RegistryException" use="literal"/>
        </wsdl:fault>
    </wsdl:operation>
    <wsdl:operation name="GetAllDataProviders">
        <soap12:operation soapAction="" style="document"/>
        <wsdl:input name="GetAllDataProviders">
            <soap12:body use="literal"/>
        </wsdl:input>
        <wsdl:output name="GetAllDataProvidersResponse">
            <soap12:body use="literal"/>
        </wsdl:output>
        <wsdl:fault name="RegistryException">
            <soap12:fault name="RegistryException" use="literal"/>
        </wsdl:fault>
    </wsdl:operation>
    <wsdl:operation name="GetRoles">
        <soap12:operation soapAction="" style="document"/>
        <wsdl:input name="GetRoles">
            <soap12:body use="literal"/>
        </wsdl:input>
        <wsdl:output name="GetRolesResponse">
            <soap12:body use="literal"/>
        </wsdl:output>
        <wsdl:fault name="RegistryException">
            <soap12:fault name="RegistryException" use="literal"/>
        </wsdl:fault>
    </wsdl:operation>
    <wsdl:operation name="GetAuthenticationLevel">
        <soap12:operation soapAction="" style="document"/>
        <wsdl:input name="GetAuthenticationLevel">
            <soap12:body use="literal"/>
        </wsdl:input>
        <wsdl:output name="GetAuthenticationLevelResponse">
            <soap12:body use="literal"/>
        </wsdl:output>
        <wsdl:fault name="RegistryException">
            <soap12:fault name="RegistryException" use="literal"/>
        </wsdl:fault>
    </wsdl:operation>
</wsdl:binding>
<wsdl:service name="RegistryService">
    <wsdl:port binding="tns:RegistryServiceSoapBinding" name="RegistryServiceImplPort">
        <soap12:address location="http://localhost:8080/meteorregistry/services/RegistryService"/>
    </wsdl:port>
</wsdl:service>
</wsdl:definitions>

```

GetCertificate Operation

Gets a serialized Java X509Certificate object from the Meteor registry for the requested Meteor Institution.

Request Example

```

<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Header>
    <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
      xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd" soap:mustUnderstand="1">

```



```

        <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
        <ds:DigestValue>hWImLxo9J024Uc4eYhvDfX7qEuY=</ds:DigestValue>
    </ds:Reference>
    </ds:SignedInfo>
    <ds:SignatureValue>btqEOj0IQcCbX0uArEj6iKmm4FANdBTZ9rWhFbZ/St/xSulVhw6UF/mQUEXdaJUpiV4i8vBWT77j
K0ZxxmhNobKyNasTa/SzKGvYcVkyWg6VOZwyar6/9TFghSNcgll/qap5S2h1CYX5pq2HsGKLGCB
dJzput0I1QqraWGFMMYJLzrs2nyvOrRbiWbWmAnZgtWriYdhs9d1kVwT453fCevUtoHk4lUfJtP
jT053pi8Q21mzvjm9TP/BBtJExmVxSbGjTS8Wrkk0nOhkFimIsVgluVwKqDjlelnSwL9cuLiWsq
Hp5QN0L5WlhV64UdMzRzXrwrHhgNZJFpXGyeVw==</ds:SignatureValue>
    <ds:KeyInfo Id="KeyId-96282B1A1B479C3197132855574789017">
        <wsse:SecurityTokenReference wsu:Id="STRId-96282B1A1B479C3197132855574789018">
            <ds:X509Data>
                <ds:X509IssuerSerial>
                    <ds:X509IssuerName>CN=Meteor Test Root Certificate
Authority,ST=NY,C=US,E=jlazos@litionline.com,O=Logic Technology\, Inc,OU=Meteor Development</ds:X509IssuerName>
                    <ds:X509SerialNumber>1</ds:X509SerialNumber>
                </ds:X509IssuerSerial>
            </ds:X509Data>
        </wsse:SecurityTokenReference>
    </ds:KeyInfo>
    </ds:Signature>
    </wsse:Security>
</soap:Header>
<soap:Body xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd" wsu:Id="id-7">
    <ns2:GetCertificate xmlns:ns2="http://ws.common.meteor.meteornetwork.org/">
        <MeteorInstitutionId>LTI_AP40</MeteorInstitutionId>
        <ProviderType>ACCESS</ProviderType>
    </ns2:GetCertificate>
</soap:Body>
</soap:Envelope>

```

Response Example

```

<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
    <soap:Body>
        <ns2:GetCertificateResponse xmlns:ns2="http://ws.common.meteor.meteornetwork.org/">
            <GetCertificateResponse>r00ABXNyAC1qYXZlLnN1Y3VyaXR5LmNlcuQuQ2V2Y2VydG1maWNhdGUKQ2V2Y2VydG1maWNhdGVScXZCJ72qdyA48DAIAA1sABGRhdGF0AAJbQkWB
HR5cGVOABJMamF2Ys9sYw5nL1N0cmLuZzt4cHVyAAJbQqzzf/GGCFtGAgAAeHAAAQMMIIECDCCAvcGawIBAgIBATANBgkqhkiG9w0BAQQFADCCBrTEvMC0GAlUEAxMmTW
V0Zw9yIFRlc3QgUm9vdCBDZXXJ0aWZpY2F0ZSBDbXR0b3JpdHkxZCZAJBgnVBAgTAK5ZMqswCQYDVQGEWJVUzEjMCEGCSqGS1b3DQEJARyUamchem9zQGx0aW9ubGluZS5
jb20xHjAcBgNVBAoTFUxvZ211jIFRlY2hub2xvZ3ksIEluYzEibmBkGAlUECMTWV0Zw9yIERldmVsb3BtZW50MB4XDTE2MDkxNTIwMjAxMl0wZDTE2MDkxNTIwMjAxMl0w
gZwzHjAcBgNVBAMTFXdl3dy5tZXRLb3JlZXR3b3JrLm9yZzELMAkGA1UECmCT1kxZCZAJBgnVBAgTALVTMSMwIQYJKoZIhvcNAQkBFHRqbGF6b3NAbHRpb25saW51LmNvb
TEeMBwGAlUECMTWV0Zw9yIjE2MDkxNTIwMjAxMl0wZDTE2MDkxNTIwMjAxMl0wZDTE2MDkxNTIwMjAxMl0wZDTE2MDkxNTIwMjAxMl0wZDTE2MDkxNTIwMjAxMl0w
5+52JbdTfgHksAXr33kHys3ZmlYHPfb103LcfEvl1jBNgmvsRyt2T++x7nFHayBz4AA0ZOFHMPk6EJXcLyXQO1YFMEURcVVEtai+YzVDSk2Ihd900E1Oo8W6R5p+1VMRUP
MuGKv0UDGv7mo+nmkZON0757mu74Qpy8OW06dUvzGEwvoQ6PuMJCriddFj+TEnZQbXI87ZjvQqZM2Xs933D+Jn/gwVNOgrf46SFeNL9HHVIV71dMAzaqgWkrov8tTzwj1
xdXH8fP/FwyBFUslihQ4x0sIiRw+pvN5mTF0tobNIIbb8VDWbz6j+i1+mbe4BSkVakagNZWQze8cJfqTAgMBAAGjQjBAMCAGAlUdEQQZMBECPX3dy5tZXRLb3JlZXR3b3JrLm9yZzE
3JrLm9yZzAJBgNVHRMEAjaAMBEGCWSAGG+EIBAQQEAWIGQDANBgkqhkiG9w0BAQQFAAOCAQEAgpLM2yT2YSUsq1Av2Tgd144G4uYV/fWorccBEwmbzgvA8HAjQHreu
mLDHl7g4GwOMYXzgxcm679MdaIt56a/wxRq8V+vWw4s7DJqypxrS45Fe9EAoyOVLkKsrP37aQ3eCTuSb17KISfFnYtw5dqHALhq887KXYELG872qAc7uIqKUP8L+raQy
4XgQ4avir+lWc0MoJxocZ2hUzWpHlt5iGu8mo9KR0h3T/G6U+iv+IeQ3/LlH3daYCW01ROs1GUK/WzTrRrJlUzRlKPh8YggxByxQJ4zoQLckc5203DDqNsJdlb4vI74
UBUOhI7gxjRHtHo2cWk6o9MhMRGNFHQABVguNTA5</GetCertificateResponse>
        </ns2:GetCertificateResponse>
    </soap:Body>
</soap:Envelope>

```

GetIndexProviders Operation

Given the Access Provider's version of meteor, returns the connection info of all compatible Index Providers in the registry.

Request Example

```

<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
    <soap:Header>
        <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd" soap:mustUnderstand="1">
            <saml2:Assertion xmlns:saml2="urn:oasis:names:tc:SAML:2.0:assertion" xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" ID="67FCDC5A46DAA2CE8F13285409787811" IssueInstant="2012-02-
06T15:09:38.781Z" Version="2.0" xsi:type="saml2:AssertionType">
                <saml2:Issuer>meteornetwork.org</saml2:Issuer>
                <ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
                    <ds:SignedInfo>
                        <ds:CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#"/>
                        <ds:SignatureMethod Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1"/>
                        <ds:Reference URI="#67FCDC5A46DAA2CE8F13285409787811">
                            <ds:Transforms>
                                <ds:Transform Algorithm="http://www.w3.org/2000/09/xmldsig#enveloped-signature"/>
                                <ds:Transform Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#">
                                    <ec:InclusiveNamespaces xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#" PrefixList="xs"/>
                                </ds:Transform>
                            </ds:Transforms>
                        <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
                        <ds:DigestValue>gMLGdbxqM9kCq4nbPfiZURjSM=</ds:DigestValue>
                    </ds:Reference>
                </ds:Signature>
            </wsse:Security>
    </soap:Header>
    <soap:Body>
        <IndexProviders/>
    </soap:Body>
</soap:Envelope>

```



```

    </ds:KeyInfo>
    </ds:Signature>
  </wsse:Security>
</soap:Header>
<soap:Body xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd" wsu:Id="id-1">
  <ns2:GetIndexProviders xmlns:ns2="http://ws.common.meteor.meteornetwork.org/">
    <MeteorVersion>
      <maintenance>0</maintenance>
      <major>4</major>
      <minor>0</minor>
      <release>0</release>
    </MeteorVersion>
  </ns2:GetIndexProviders>
</soap:Body>
</soap:Envelope>

```

Response Example

```

<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <ns2:GetIndexProvidersResponse xmlns:ns2="http://ws.common.meteor.meteornetwork.org/">
      <GetIndexProvidersResponse>
        <institutionIdentifier>LTI_IP40</institutionIdentifier>
        <url>http://localhost:8080/indexprovider/services/IndexProviderService</url>
      </GetIndexProvidersResponse>
    </ns2:GetIndexProvidersResponse>
  </soap:Body>
</soap:Envelope>

```

GetDataProvider Operation

Gets connection info for a specified Data Provider.

GetAllDataProviders Operation

Gets connection info for all data providers in the registry. This operation is more efficient than calling GetDataProvider for each data provider returned by the Index Provider, since it requires only one web service call.

Request Example

```

<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Header>
    <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
      xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd" soap:mustUnderstand="1">
      <saml2:Assertion xmlns:saml2="urn:oasis:names:tc:SAML:2.0:assertion" xmlns:xs="http://www.w3.org/2001/XMLSchema"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" ID="_96282B1A1B479C319713285574942126" IssueInstant="2012-02-
        06T19:15:49.421Z" Version="2.0" xsi:type="saml2:AssertionType">
        <saml2:Issuer>meteornetwork.org</saml2:Issuer>
        <ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
          <ds:SignedInfo>
            <ds:CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#" />
            <ds:SignatureMethod Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1" />
            <ds:Reference URI="#_96282B1A1B479C319713285574942126">
              <ds:Transforms>
                <ds:Transform Algorithm="http://www.w3.org/2000/09/xmldsig#enveloped-signature" />
                <ds:Transform Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#" />
                <ec:InclusiveNamespaces xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#" PrefixList="xs" />
              </ds:Transforms>
            </ds:Reference>
            <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1" />
            <ds:DigestValue>QSATvRRL0bOw49vgsH72G3KcVwc</ds:DigestValue>
          </ds:SignedInfo>
          <ds:SignatureValue>Ory69112emh+x4tSMJOC3XeF+IsdteogixfRvnnJHHVrKz69iFZlqtPmME5+CV9y49z1f3iLcuzrfim6fs+5epSkSxM67pWB5ZA9iPTS/uxPzL
            nsAt5HHgFWyKQWc54oV4hamrD3LScIQ9qAjrFu4ygttu05xzfoPd9q2YH8rxgJwmXITMgMgH8h1spYU6gKVSQZKVUO11+bnSgudR6mRyaDvEBSi4QVrjelxJQlevQWSA
            a5t0sxgAp/FWpAYVQeT/ynX02HctBuQrk9L//vNyI6VnVPOf7xKpECVtzBL3A8ZMTjpsFQoaLzD14z8Yj94299WqcPI5h+f5LHXvSgW=</ds:SignatureValue>
        </saml2:Assertion>
      </wsse:Security>
  </soap:Header>
  <ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
    <ds:SignedInfo>
      <ds:CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#" />
      <ds:SignatureMethod Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1" />
      <ds:Reference URI="#_96282B1A1B479C319713285574942126">
        <ds:Transforms>
          <ds:Transform Algorithm="http://www.w3.org/2000/09/xmldsig#enveloped-signature" />
          <ds:Transform Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#" />
          <ec:InclusiveNamespaces xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#" PrefixList="xs" />
        </ds:Transforms>
      </ds:Reference>
      <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1" />
      <ds:DigestValue>QSATvRRL0bOw49vgsH72G3KcVwc</ds:DigestValue>
    </ds:SignedInfo>
    <ds:SignatureValue>Ory69112emh+x4tSMJOC3XeF+IsdteogixfRvnnJHHVrKz69iFZlqtPmME5+CV9y49z1f3iLcuzrfim6fs+5epSkSxM67pWB5ZA9iPTS/uxPzL
      nsAt5HHgFWyKQWc54oV4hamrD3LScIQ9qAjrFu4ygttu05xzfoPd9q2YH8rxgJwmXITMgMgH8h1spYU6gKVSQZKVUO11+bnSgudR6mRyaDvEBSi4QVrjelxJQlevQWSA
      a5t0sxgAp/FWpAYVQeT/ynX02HctBuQrk9L//vNyI6VnVPOf7xKpECVtzBL3A8ZMTjpsFQoaLzD14z8Yj94299WqcPI5h+f5LHXvSgW=</ds:SignatureValue>
  </ds:Signature>
  <ds:KeyInfo>
    <ds:X509Data>
      <ds:X509Certificate>MIIECDCCAvCgAwIBAgIBATANBgkqhkiG9w0BAQoFADCBRTevMCOGA1UEAxMmTWV0ZW9yIFRlc3Qg
        Um9vdCBBDXJ0aWZpY2F0ZSBBdXR0b3JpdHkxZCZAJBgNVBAgTAk5ZMzQwSjQyYVQwQGEwVjUzejEjMCEB
        CSgGSIb3DQEJARyUamxhem9zQGx0aW9ubGluZS5jb20xHjAcBgNVBAoTFUxvZzI1jIFRlY2hub2xv
        Z3ksIEluYzEhMkRGA1UECmSTWV0ZW9yIERldmVsb3BtZW50MzQwSjQyYVQwQGEwVjUzejEjMCEB
        MDkwNTIwMjAxMl9wZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZw
        TlIxZCZAJBgNVBAYTAU1VMsMwIQYJKoZIhvcNAQkBFHRqbG96b3B3Jm9yZzEELMAKGA1UECmBw
        A1UEChMVTG9naWVjaG95bG9neSwSW5jMRswGQYDVQQLExJNZXRlb3JlZGRGV2ZwxcG1lbnQw
        ggEiMAOGCSGS1b3DQEBAAQAAIBDWAwwgEKA0IABQCVW55+52JbdTfgHkAAXr33HkYs3ZmlYHPf
        bl03LcFv1jBngMvSRyt2P+X7nfHAYBz4AO4OZFHMpK6EJXcLyXQOIYFMEURcVVEtai+YzVdSk2
        Ihd900E1o8W6R5p+1VMRUFmUGKv0UDGv7mo+nmkzoN0757mu74Qpy80W06dUvzGevwoQ6PumJCr
        iddfj+TEnzQbXI87ZjvQZM2Xs933D+Jn/gwVN0grf46SfeNL9HHVIV71dMAzaqgWkrov8tTzwj1
        xdXH8fP/FWpAYVQeT/ynX02HctBuQrk9L//vNyI6VnVPOf7xKpECVtzBL3A8ZMTjpsFQoaLzD14z8Yj94299WqcPI5h+f5LHXvSgW=</ds:KeyInfo>
    </ds:KeyInfo>
  </ds:Signature>
  <ds:SignatureValue>Ory69112emh+x4tSMJOC3XeF+IsdteogixfRvnnJHHVrKz69iFZlqtPmME5+CV9y49z1f3iLcuzrfim6fs+5epSkSxM67pWB5ZA9iPTS/uxPzL
    nsAt5HHgFWyKQWc54oV4hamrD3LScIQ9qAjrFu4ygttu05xzfoPd9q2YH8rxgJwmXITMgMgH8h1spYU6gKVSQZKVUO11+bnSgudR6mRyaDvEBSi4QVrjelxJQlevQWSA
    a5t0sxgAp/FWpAYVQeT/ynX02HctBuQrk9L//vNyI6VnVPOf7xKpECVtzBL3A8ZMTjpsFQoaLzD14z8Yj94299WqcPI5h+f5LHXvSgW=</ds:SignatureValue>
  </ds:SignatureValue>
  <ds:KeyInfo>
    <ds:X509Data>
      <ds:X509Certificate>MIIECDCCAvCgAwIBAgIBATANBgkqhkiG9w0BAQoFADCBRTevMCOGA1UEAxMmTWV0ZW9yIFRlc3Qg
        Um9vdCBBDXJ0aWZpY2F0ZSBBdXR0b3JpdHkxZCZAJBgNVBAgTAk5ZMzQwSjQyYVQwQGEwVjUzejEjMCEB
        CSgGSIb3DQEJARyUamxhem9zQGx0aW9ubGluZS5jb20xHjAcBgNVBAoTFUxvZzI1jIFRlY2hub2xv
        Z3ksIEluYzEhMkRGA1UECmSTWV0ZW9yIERldmVsb3BtZW50MzQwSjQyYVQwQGEwVjUzejEjMCEB
        MDkwNTIwMjAxMl9wZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZw
        TlIxZCZAJBgNVBAYTAU1VMsMwIQYJKoZIhvcNAQkBFHRqbG96b3B3Jm9yZzEELMAKGA1UECmBw
        A1UEChMVTG9naWVjaG95bG9neSwSW5jMRswGQYDVQQLExJNZXRlb3JlZGRGV2ZwxcG1lbnQw
        ggEiMAOGCSGS1b3DQEBAAQAAIBDWAwwgEKA0IABQCVW55+52JbdTfgHkAAXr33HkYs3ZmlYHPf
        bl03LcFv1jBngMvSRyt2P+X7nfHAYBz4AO4OZFHMpK6EJXcLyXQOIYFMEURcVVEtai+YzVdSk2
        Ihd900E1o8W6R5p+1VMRUFmUGKv0UDGv7mo+nmkzoN0757mu74Qpy80W06dUvzGevwoQ6PumJCr
        iddfj+TEnzQbXI87ZjvQZM2Xs933D+Jn/gwVN0grf46SfeNL9HHVIV71dMAzaqgWkrov8tTzwj1
        xdXH8fP/FWpAYVQeT/ynX02HctBuQrk9L//vNyI6VnVPOf7xKpECVtzBL3A8ZMTjpsFQoaLzD14z8Yj94299WqcPI5h+f5LHXvSgW=</ds:KeyInfo>
    </ds:KeyInfo>
  </ds:Signature>
  <ds:SignatureValue>Ory69112emh+x4tSMJOC3XeF+IsdteogixfRvnnJHHVrKz69iFZlqtPmME5+CV9y49z1f3iLcuzrfim6fs+5epSkSxM67pWB5ZA9iPTS/uxPzL
    nsAt5HHgFWyKQWc54oV4hamrD3LScIQ9qAjrFu4ygttu05xzfoPd9q2YH8rxgJwmXITMgMgH8h1spYU6gKVSQZKVUO11+bnSgudR6mRyaDvEBSi4QVrjelxJQlevQWSA
    a5t0sxgAp/FWpAYVQeT/ynX02HctBuQrk9L//vNyI6VnVPOf7xKpECVtzBL3A8ZMTjpsFQoaLzD14z8Yj94299WqcPI5h+f5LHXvSgW=</ds:SignatureValue>
  </ds:SignatureValue>
  <ds:KeyInfo>
    <ds:X509Data>
      <ds:X509Certificate>MIIECDCCAvCgAwIBAgIBATANBgkqhkiG9w0BAQoFADCBRTevMCOGA1UEAxMmTWV0ZW9yIFRlc3Qg
        Um9vdCBBDXJ0aWZpY2F0ZSBBdXR0b3JpdHkxZCZAJBgNVBAgTAk5ZMzQwSjQyYVQwQGEwVjUzejEjMCEB
        CSgGSIb3DQEJARyUamxhem9zQGx0aW9ubGluZS5jb20xHjAcBgNVBAoTFUxvZzI1jIFRlY2hub2xv
        Z3ksIEluYzEhMkRGA1UECmSTWV0ZW9yIERldmVsb3BtZW50MzQwSjQyYVQwQGEwVjUzejEjMCEB
        MDkwNTIwMjAxMl9wZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZwZGZw
        TlIxZCZAJBgNVBAYTAU1VMsMwIQYJKoZIhvcNAQkBFHRqbG96b3B3Jm9yZzEELMAKGA1UECmBw
        A1UEChMVTG9naWVjaG95bG9neSwSW5jMRswGQYDVQQLExJNZXRlb3JlZGRGV2ZwxcG1lbnQw
        ggEiMAOGCSGS1b3DQEBAAQAAIBDWAwwgEKA0IABQCVW55+52JbdTfgHkAAXr33HkYs3ZmlYHPf
        bl03LcFv1jBngMvSRyt2P+X7nfHAYBz4AO4OZFHMpK6EJXcLyXQOIYFMEURcVVEtai+YzVdSk2
        Ihd900E1o8W6R5p+1VMRUFmUGKv0UDGv7mo+nmkzoN0757mu74Qpy80W06dUvzGevwoQ6PumJCr
        iddfj+TEnzQbXI87ZjvQZM2Xs933D+Jn/gwVN0grf46SfeNL9HHVIV71dMAzaqgWkrov8tTzwj1
        xdXH8fP/FWpAYVQeT/ynX02HctBuQrk9L//vNyI6VnVPOf7xKpECVtzBL3A8ZMTjpsFQoaLzD14z8Yj94299WqcPI5h+f5LHXvSgW=</ds:KeyInfo>
    </ds:KeyInfo>
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PF38CspGolNha+hws3y8VfUehscpWj5y4fp9anPhSmMMvy3MsNm0ghfDAZJJ0YzBo0XTSuZ3ggqYN
qRT60S3Z1jQ6cutcTtX+oCPXq/cQGuawhK4e06ZQUKqay+VTyFCucLKE3zEb1ln8ULzK33UV2
KdWvDysTAppLm9VkhXs2HTgEHV00E4Z2Es9M+akuOzC5amQwZFH/srhHdU71c5y1IdntLFLkaN9
QKt3QKFFAFdp4RoRajpvpq1UsIuh6AiOxflBgg==</ds:SignatureValue>
  </ds:KeyInfo Id="KeyId-96282B1A1B479C3197132855574950027">
    <wsse:SecurityTokenReference wsu:Id="STRId-96282B1A1B479C3197132855574950028">
      <ds:X509Data>
        <ds:X509IssuerSerial>
          <ds:X509IssuerName>CN=Meteor Test Root Certificate
Authority,ST=NY,C=US,E=jlazos@litionline.com,O=Logic Technology\, Inc,OU=Meteor Development</ds:X509IssuerName>
          <ds:X509SerialNumber>1</ds:X509SerialNumber>
        </ds:X509IssuerSerial>
      </ds:X509Data>
    </wsse:SecurityTokenReference>
  </ds:KeyInfo>
</ds:Signature>
</wsse:Security>
</soap:Header>
<soap:Body xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd" wsu:Id="id-11">
  <ns2:GetAllDataProviders xmlns:ns2="http://ws.common.meteor.meteornetwork.org/">
</soap:Body>
</soap:Envelope>

```

Response Example

```

<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <ns2:GetAllDataProvidersResponse xmlns:ns2="http://ws.common.meteor.meteornetwork.org/">
      <GetAllDataProvidersResponse>
        <institutionIdentifier>DP33-LRS</institutionIdentifier>
        <meteorVersion>3.3.4.0</meteorVersion>
      </GetAllDataProvidersResponse>
    </ns2:GetAllDataProvidersResponse>
  </soap:Body>
</soap:Envelope>

```

```

        <url>http://localhost:8180/DataProvider-3.3.4-LRS/rpcrouter</url>
    </GetAllDataProvidersResponse>
    <GetAllDataProvidersResponse>
        <institutionIdentifier>DP33-LO</institutionIdentifier>
        <meteorVersion>3.3.4.0</meteorVersion>
        <url>http://localhost:8180/DataProvider-3.3.4-LO/rpcrouter</url>
    </GetAllDataProvidersResponse>
    <GetAllDataProvidersResponse>
        <institutionIdentifier>DP33-SBS</institutionIdentifier>
        <meteorVersion>3.3.4.0</meteorVersion>
        <url>http://localhost:8180/DataProvider-3.3.4-SBS/rpcrouter</url>
    </GetAllDataProvidersResponse>
    <GetAllDataProvidersResponse>
        <institutionIdentifier>DP40-G</institutionIdentifier>
        <meteorVersion>4.0.0.0</meteorVersion>
        <url>http://localhost:8080/dataprovider-G/services/DataProviderService</url>
    </GetAllDataProvidersResponse>
    <GetAllDataProvidersResponse>
        <institutionIdentifier>DP40-FAT</institutionIdentifier>
        <meteorVersion>4.0.0.0</meteorVersion>
        <url>http://localhost:8080/dataprovider-FAT/services/DataProviderService</url>
    </GetAllDataProvidersResponse>
    <GetAllDataProvidersResponse>
        <institutionIdentifier>DP40-LO</institutionIdentifier>
        <meteorVersion>4.0.0.0</meteorVersion>
        <url>http://localhost:8080/dataprovider-LO/services/DataProviderService</url>
    </GetAllDataProvidersResponse>
    <GetAllDataProvidersResponse>
        <institutionIdentifier>DP40-S</institutionIdentifier>
        <meteorVersion>4.0.0.0</meteorVersion>
        <url>http://localhost:8080/dataprovider-S/services/DataProviderService</url>
    </GetAllDataProvidersResponse>
    <GetAllDataProvidersResponse>
        <institutionIdentifier>DP33-G</institutionIdentifier>
        <meteorVersion>3.3.4.0</meteorVersion>
        <url>http://localhost:8180/DataProvider-3.3.4-G/rpcrouter</url>
    </GetAllDataProvidersResponse>
    <GetAllDataProvidersResponse>
        <institutionIdentifier>DP40-GSP</institutionIdentifier>
        <meteorVersion>4.0.0.0</meteorVersion>
        <url>http://localhost:8080/dataprovider-GSP/services/DataProviderService</url>
    </GetAllDataProvidersResponse>
    <GetAllDataProvidersResponse>
        <institutionIdentifier>DP40-LRS</institutionIdentifier>
        <meteorVersion>4.0.0.0</meteorVersion>
        <url>http://localhost:8080/dataprovider-LRS/services/DataProviderService</url>
    </GetAllDataProvidersResponse>
</ns2:GetAllDataProvidersResponse>
</soap:Body>
</soap:Envelope>

```

GetAliases Operation

Returns the list of aliases for the given Meteor institution identifier. APCR and LENDER users are only allowed to view data provided by their own institution or one of its aliases.

Request Example

```

<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Header>
    <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
      xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd" soap:mustUnderstand="1">
      <saml2:Assertion xmlns:saml2="urn:oasis:names:tc:SAML:2.0:assertion" xmlns:xs="http://www.w3.org/2001/XMLSchema"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" ID="_98AEADD17F6D682727132855603610961" IssueInstant="2012-02-
        06T19:20:36.109Z" Version="2.0" xsi:type="saml2:AssertionType">
        <saml2:Issuer>meteornetwork.org</saml2:Issuer>
        <ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
          <ds:SignedInfo>
            <ds:CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#"/>
            <ds:SignatureMethod Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1"/>
            <ds:Reference URI="#_98AEADD17F6D682727132855603610961">
              <ds:Transforms>
                <ds:Transform Algorithm="http://www.w3.org/2000/09/xmldsig#enveloped-signature"/>
                <ds:Transform Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#">
                  <ec:InclusiveNamespaces xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#" PrefixList="xs"/>
                </ds:Transform>
              </ds:Transforms>
            <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
            <ds:DigestValue>MtHomPqH2Diu0UzDnH6BJKZAmY=</ds:DigestValue>
          </ds:Reference>
        </ds:SignedInfo>
        <ds:SignatureValue>RSLhXQBfTs+e3a9z0QbOg3C1OVXuYmmw/6cX0BEVnlGv22kaEJDqfLIAxNIth0rcR6LCwMw0UdXh2FeC5Roc7E2IdZp034q+SG7r9IsM7eLsHv
          XXfiXXQFvrHKfiIdMtQZYKVEto/eIUw0TCjoadminGP+Q/0QhrJaMtF1fMy65wW/JA21g57DEl4mzzWktjgvT8K38jEE6bECPiTnnr+JPZhpORIF4CnvGOGdiryqWNOGOU
          k+Ow/kn+K+wyZ+XrUHC40BbTVuIqUTYcds753OC6g723SqSw+Fiw5y7sNU5Uo/Zcnf17K6rUCeQ0967puL/2/aSlxH2NwohyLSGM9dA==</ds:SignatureValue>
        <ds:KeyInfo>
          <ds:X509Data>
            <ds:X509Certificate>MIIECDCCAvCgAwIBAgIBATANBqkqhkiG9w0BAQQFADCBRTevMC0GALUEAxMmTW0ZW9yIFRlc3Qg
          Um9vdCBDZXJ0aWZpY2F0ZSBkdXRob3RpdHkxZCZAJBgNVBAgTAk52MQswCQYDQQEwJVUzEjMCEG

```



```

<saml2:AuthnStatement AuthnInstant="2012-02-06T19:15:55.328Z">
  <saml2:SubjectLocality Address="10.10.101.194" DNSName="lticslt-06"/>
  <saml2:AuthnContext>
    <saml2:AuthnContextClassRef/>
  </saml2:AuthnContext>
</saml2:AuthnStatement>
<saml2:AttributeStatement>
  <saml2:Attribute FriendlyName="ProviderType" NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:uri">
    <saml2:AttributeValue xsi:type="xs:string">DataProvider</saml2:AttributeValue>
  </saml2:Attribute>
</saml2:AttributeStatement>
</saml2:Assertion>
<wsse:SecurityTokenReference xmlns:wsse="http://docs.oasis-open.org/wss/oasis-wss-wssecurity-secext-1.1.xsd"
wsse11:TokenType="http://docs.oasis-open.org/wss/oasis-wss-saml-token-profile-1.1#SAMLV2.0" wsu:Id="STRSAMLId-7B45699CB6CAB6A839132855575545330">
  <wsse:KeyIdentifier ValueType="http://docs.oasis-open.org/wss/oasis-wss-saml-token-profile-1.1#SAMLID">_7B45699CB6CAB6A839132855575534326</wsse:KeyIdentifier>
</wsse:SecurityTokenReference>
<ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#" Id="SIG-12">
  <ds:SignedInfo>
    <ds:CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#">
      <ec:InclusiveNamespaces xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#" PrefixList="soap"/>
    </ds:CanonicalizationMethod>
    <ds:SignatureMethod Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1"/>
    <ds:Reference URI="#id-11">
      <ds:Transforms>
        <ds:Transform Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#">
          <ec:InclusiveNamespaces xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#" PrefixList=""/>
        </ds:Transform>
      </ds:Transforms>
      <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
      <ds:DigestValue>feFDORBFfWlxDI8gQXj4slypaTw=</ds:DigestValue>
    </ds:Reference>
    <ds:Reference URI="#STRSAMLId-7B45699CB6CAB6A839132855575545330">
      <ds:Transforms>
        <ds:Transform Algorithm="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-soap-message-security-1.0#STR-Transform">
          <wsse:TransformationParameters>
            <ds:CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#">
            </wsse:TransformationParameters>
          </ds:Transform>
        </ds:Transforms>
        <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
        <ds:DigestValue>XDam9pb3ysPTLLDX1Qn8nezbJ7I=</ds:DigestValue>
      </ds:Reference>
    </ds:SignedInfo>
    <ds:SignatureValue>mL3Rb/ze6JNTj/ZWb42hH8Npw5pAQLFmVy7/Hc1BWMNB7IeR8VhXcKXTsKP/N0FQUw8LD0GptwYy
0PKADvgG2+0mJEyoI7x1DUwL+XZu/hTE+9MPCbiHJM3ONkUCZ3uueeSX/1Q3KmVj7iDiA7k89xV
mPZ3ZVuGVjPPr7AN3FSCjbgmegCqVBXWpJvppZ2r1sg90oo8Pz6ixIU9YhncruKpzcDymHVBZXEQ
ZFLiIzRSozFZ3rEav9wT7JmRng/35NA3tncZ6HlrIcTcgqS7kzfaFnJxzyqLriBU9Lbk/7zUQAzu
3oAmvlz7N2b+J+aTtEAKkrfg6VMFdh5PznM8ygg==</ds:SignatureValue>
    <ds:KeyInfo Id="KeyId-7B45699CB6CAB6A839132855575545327">
      <wsse:SecurityTokenReference wsu:Id="STRId-7B45699CB6CAB6A839132855575545328">
        <ds:X509Data>
          <ds:X509IssuerSerial>
            <ds:X509IssuerName>CN=Meteor Test Root Certificate
Authority,ST=NY,C=US,E=jlazos@litionline.com,O=Logic Technology\, Inc,OU=Meteor Development</ds:X509IssuerName>
            <ds:X509SerialNumber>1</ds:X509SerialNumber>
          </ds:X509IssuerSerial>
        </ds:X509Data>
      </wsse:SecurityTokenReference>
    </ds:KeyInfo>
  </ds:Signature>
</wsse:Security>
</soap:Header>
<soap:Body xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd" wsu:Id="id-11">
  <ns2:GetAuthenticationLevel xmlns:ns2="http://ws.common.meteor.meteornetwork.org/">
    <MeteorInstitutionId>DP40-LO</MeteorInstitutionId>
    <AuthenticationProcessId>1</AuthenticationProcessId>
    <ProviderType>DATA</ProviderType>
    <Role>BORROWER</Role>
  </ns2:GetAuthenticationLevel>
</soap:Body>
</soap:Envelope>

```

Response Example

```

<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <ns2:GetAuthenticationLevelResponse xmlns:ns2="http://ws.common.meteor.meteornetwork.org/">
      <GetAuthenticationLevelResponse>3</GetAuthenticationLevelResponse>
    </ns2:GetAuthenticationLevelResponse>
  </soap:Body>
</soap:Envelope>

```

GetVersion Operation

Given a Meteor institution identifier, returns the version of Meteor that institution is running. Use this method to determine if backwards compatibility is necessary.


```

        <ds:Transforms>
          <ds:Transform Algorithm="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-soap-message-
security-1.0#STR-Transform">
            <wsse:TransformationParameters>
              <ds:CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#" />
            </wsse:TransformationParameters>
          </ds:Transform>
        </ds:Transforms>
        <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1" />
        <ds:DigestValue>AwNKZKaxmsLhs6j7xjEChileIYk=</ds:DigestValue>
      </ds:Reference>
    </ds:SignedInfo>
    <ds:SignatureValue>ZNcKGY8YeGLcfWgLsailTtOYFuYNj0p3EK2YTEm9Xewcbs+fjXuFzruKzmslHQ191E7Z+lfATr2yj
GqxGzaOBuXn2hsvhZzufOHwimQamSf5i4KJ/661FxyC91kv59UdGSLQN+X4bZXTRM+LtLHZK2Wgp
Lui6yDbVP3yMF+DqyndkyvKABe4cuVJhd9fpYlkZYvbcZjFI8aChsaaMtstRdUuhVaq0G6fF3g+
SRgRdT3Ceh5FcrJ9nmqcFxB40FmcPyQ48T9G9vuGR7Vt1jkF+PHVwgrq+2tSQAYw0wOtiB8Y/7p
dIUshCNoJ7zushtINYdqQkVaCaQNmTYYSYI8g==</ds:SignatureValue>
    <ds:KeyInfo Id="KeyId-850723AFD328882056132864035393712">
      <wsse:SecurityTokenReference wsu:Id="STRId-850723AFD328882056132864035393713">
        <ds:X509Data>
          <ds:X509IssuerSerial>
            <ds:X509IssuerName>CN=Meteor Test Root Certificate
Authority,ST=NY,C=US,E=jlazos@litionline.com,O=Logic Technology\, Inc,OU=Meteor Development</ds:X509IssuerName>
            <ds:X509SerialNumber>1</ds:X509SerialNumber>
          </ds:X509IssuerSerial>
        </ds:X509Data>
      </wsse:SecurityTokenReference>
    </ds:KeyInfo>
  </ds:Signature>
</wsse:Security>
</soap:Header>
<soap:Body xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd" wsu:Id="id-5">
  <ns2:GetVersion xmlns:ns2="http://ws.common.meteor.meteornetwork.org/">
    <MeteorInstitutionId>LTI_AP33</MeteorInstitutionId>
    <ProviderType>ACCESS</ProviderType>
  </ns2:GetVersion>
</soap:Body>
</soap:Envelope>

```

Response Example

```

<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <ns2:GetVersionResponse xmlns:ns2="http://ws.common.meteor.meteornetwork.org/">
      <GetVersionResponse>3.3.4.0</GetVersionResponse>
    </ns2:GetVersionResponse>
  </soap:Body>
</soap:Envelope>

```

IndexProviderService

WSDL

```

<?xml version="1.0" encoding="utf-8"?>
<wsdl:definitions xmlns:ns1="http://ws.common.meteor.meteornetwork.org/" xmlns:ns2="http://schemas.xmlsoap.org/soap/http"
xmlns:soap12="http://schemas.xmlsoap.org/wsdl/soap12/" xmlns:tns="http://ws.index.provider.meteor.meteornetwork.org/"
xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/" xmlns:xsd="http://www.w3.org/2001/XMLSchema" name="IndexProviderService"
targetNamespace="http://ws.index.provider.meteor.meteornetwork.org/">
  <wsdl:types>
    <xs:schema xmlns:tns="http://ws.common.meteor.meteornetwork.org/" xmlns:xs="http://www.w3.org/2001/XMLSchema"
elementFormDefault="unqualified" targetNamespace="http://ws.common.meteor.meteornetwork.org/" version="1.0">
      <xs:element name="FindDataProvidersForBorrower" type="tns:FindDataProvidersForBorrower" />
      <xs:element name="FindDataProvidersForBorrowerResponse" type="tns:FindDataProvidersForBorrowerResponse" />
      <xs:complexType name="FindDataProvidersForBorrower">
        <xs:sequence>
          <xs:element minOccurs="0" name="RequestXml" type="xs:string" />
        </xs:sequence>
      </xs:complexType>
      <xs:complexType name="FindDataProvidersForBorrowerResponse">
        <xs:sequence>
          <xs:element minOccurs="0" name="DataProvidersList" type="xs:string" />
        </xs:sequence>
      </xs:complexType>
    </xs:schema>
  </wsdl:types>
  <wsdl:message name="FindDataProvidersForBorrower">
    <wsdl:part element="ns1:FindDataProvidersForBorrower" name="parameters" />
  </wsdl:message>
  <wsdl:message name="FindDataProvidersForBorrowerResponse">
    <wsdl:part element="ns1:FindDataProvidersForBorrowerResponse" name="parameters" />
  </wsdl:message>
  <wsdl:portType name="IndexProviderService">
    <wsdl:operation name="FindDataProvidersForBorrower">
      <wsdl:input message="ns1:FindDataProvidersForBorrower" name="FindDataProvidersForBorrower" />
      <wsdl:output message="ns1:FindDataProvidersForBorrowerResponse" name="FindDataProvidersForBorrowerResponse" />
    </wsdl:operation>
  </wsdl:portType>
  <wsdl:binding name="IndexProviderServiceSoapBinding" type="ns1:IndexProviderService">
    <soap12:binding style="document" transport="http://schemas.xmlsoap.org/soap/http" />
  </wsdl:binding>

```



```

    </saml2:AuthnContext>
  </saml2:AuthnStatement>
  <saml2:AttributeStatement>
    <saml2:Attribute FriendlyName="ProviderType" NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:uri">
      <saml2:AttributeValue xsi:type="xs:string">AccessProvider</saml2:AttributeValue>
    </saml2:Attribute>
    <saml2:Attribute FriendlyName="SSN" NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:uri">
      <saml2:AttributeValue xsi:type="xs:string">104041004</saml2:AttributeValue>
    </saml2:Attribute>
    <saml2:Attribute FriendlyName="AuthenticationProcessID" NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:uri">
      <saml2:AttributeValue xsi:type="xs:string">1</saml2:AttributeValue>
    </saml2:Attribute>
    <saml2:Attribute FriendlyName="Level" NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:uri">
      <saml2:AttributeValue xsi:type="xs:string">3</saml2:AttributeValue>
    </saml2:Attribute>
    <saml2:Attribute FriendlyName="UserHandle" NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:uri">
      <saml2:AttributeValue xsi:type="xs:string">username</saml2:AttributeValue>
    </saml2:Attribute>
    <saml2:Attribute FriendlyName="Role" NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:uri">
      <saml2:AttributeValue xsi:type="xs:string">BORROWER</saml2:AttributeValue>
    </saml2:Attribute>
  </saml2:AttributeStatement>
  </saml2:Assertion>
  <wssse:SecurityTokenReference xmlns:wsssell="http://docs.oasis-open.org/wss/oasis-wss-wssecurity-secext-1.1.xsd"
wsssell:TokenType="http://docs.oasis-open.org/wss/oasis-wss-saml-token-profile-1.1#SAMLV2.0" wsu:Id="STRSAMLId-67FCD5A46DAA2CE8F132855574729659">
    <wssse:KeyIdentifier ValueType="http://docs.oasis-open.org/wss/oasis-wss-saml-token-profile-1.1#SAMLID">_67FCD5A46DAA2CE8F132855574720355</wssse:KeyIdentifier>
  </wssse:SecurityTokenReference>
  <ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#" Id="SIG-22">
    <ds:SignedInfo>
      <ds:CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#"
      <ec:InclusiveNamespaces xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#" PrefixList="soap"/>
    </ds:CanonicalizationMethod>
    <ds:SignatureMethod Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1"/>
    <ds:Reference URI="#id-21">
      <ds:Transforms>
        <ds:Transform Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#"
        <ec:InclusiveNamespaces xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#" PrefixList=""/>
        </ds:Transform>
      </ds:Transforms>
      <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
      <ds:DigestValue>lowkvYTv45FJI+KXuk86X3sYg3g</ds:DigestValue>
    </ds:Reference>
    <ds:Reference URI="#STRSAMLId-67FCD5A46DAA2CE8F132855574729659">
      <ds:Transforms>
        <ds:Transform Algorithm="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-soap-message-security-1.0#STR-Transform">
          <ds:TransformationParameters>
            <ds:CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#" />
          </ds:TransformationParameters>
        </ds:Transform>
      </ds:Transforms>
      <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
      <ds:DigestValue>cYItpGV58Mtk2pHbpE5A8RKwduiA=</ds:DigestValue>
    </ds:Reference>
    </ds:SignedInfo>
    <ds:SignatureValue>NBsoSInO/VJztYYi9vhU2Iu8kzF9vfCZZslyAHRfG8bkRYFWhnpXbn4fool3y2pK71jIwIaBv4
xmFOvzzAvuQXMLpUzJiUULJkK7wsf78aUKcQbCdTk1Q2IET9cLTDkBXb4zZBPapGOLfyhetMwbYU
uow4IPDJs95TZubnCuOghhu6Vks5StHGPrsoS/2PAPdUmDwfM8Fh5Cu4P0mJZLFbtIuDF7F96Hv
xoljZ5f5is1qrVzBvwAJoC3axZUrM4HbeUgr4D4IliXiTgMhxfU27BDnYFv03goJvzhkBISN4Mcb
M42HUQywpm5ukof8GCDahGonyYjRGDX9sSM9A==</ds:SignatureValue>
    <ds:KeyInfo Id="KeyId-67FCD5A46DAA2CE8F132855574729656">
      <wssse:SecurityTokenReference wsu:Id="STRId-67FCD5A46DAA2CE8F132855574729657">
        <ds:X509Data>
          <ds:X509IssuerSerial>
            <ds:X509IssuerName>CN=Meteor Test Root Certificate
Authority,ST=NY,C=US,E=jlazos@litionline.com,O=Logic Technology\, Inc,OU=Meteor Development</ds:X509IssuerName>
            <ds:X509SerialNumber>1</ds:X509SerialNumber>
          </ds:X509IssuerSerial>
        </ds:X509Data>
      </wssse:SecurityTokenReference>
    </ds:KeyInfo>
  </ds:Signature>
</wssse:Security>
</soap:Header>
<soap:Body xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd" wsu:Id="id-21">
  <ns2:FindDataProvidersForBorrower xmlns:ns2="http://ws.common.meteor.meteornetwork.org/">
    <RequestXml><?xml version="1.0" encoding="UTF-8"?>
    <MeteorIndexRequest
xmlns="http://www.meteornetwork.org/schemas/MeteorIndexRequest">
      <AccessProvider>
      <MeteorInstitutionIdentifier>LTI_A
P40<lt;/MeteorInstitutionIdentifier>
      <UserHandle>
      <UserHandle>
      <IssueInstant>2012-02-06T14:15:46.859-
05:00<lt;/IssueInstant>
      <AccessProvider>
      <SSN>104041004<lt;/SSN>
    </ns2:FindDataProvidersForBorrower>
  </soap:Body>
</soap:Envelope>

```

Response Example

```

<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body>
    <ns2:FindDataProvidersForBorrowerResponse xmlns:ns2="http://ws.common.meteor.meteornetwork.org/">

```



```

<soap12:operation soapAction="" style="document"/>
<wsdl:input name="QueryDataForBorrower">
  <soap12:body use="literal"/>
</wsdl:input>
<wsdl:output name="QueryDataForBorrowerResponse">
  <soap12:body use="literal"/>
</wsdl:output>
</wsdl:operation>
<wsdl:operation name="GetStatus">
  <soap12:operation soapAction="" style="document"/>
  <wsdl:input name="GetStatus">
    <soap12:body use="literal"/>
  </wsdl:input>
  <wsdl:output name="GetStatusResponse">
    <soap12:body use="literal"/>
  </wsdl:output>
</wsdl:operation>
</wsdl:binding>
<wsdl:service name="DataProviderService">
  <wsdl:port binding="tns:DataProviderServiceSoapBinding" name="DataProviderServiceImplPort">
    <soap12:address location="http://localhost:8080/dataprovider-G/services/DataProviderService"/>
  </wsdl:port>
</wsdl:service>
</wsdl:definitions>

```

QueryDataForBorrower Operation

Through this operation, the Data Provider returns any loan data it has for the requested SSN. Request data is passed as a string XML document that implements the Meteor Data Request schema. Response data is returned as a string XML document that implements the Meteor Data Response schema, which imports the official Meteor Data schema.

Request Example

```

<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
  <soap:Header>
    <wsse:Security xmlns:wsse="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd"
      xmlns:wssu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd" soap:mustUnderstand="true">
      <saml2:Assertion xmlns:saml2="urn:oasis:names:tc:SAML:2.0:assertion" xmlns:xs="http://www.w3.org/2001/XMLSchema"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" ID="_67FCDC5A46DAA2CE8F13285575084369" IssueInstant="2012-02-06T19:15:50.843Z" Version="2.0" xsi:type="saml2:AssertionType">
        <saml2:Issuer>meteonetwork.org</saml2:Issuer>
        <ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
          <ds:SignedInfo>
            <ds:CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#" />
            <ds:SignatureMethod Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1" />
            <ds:Reference URI="#_67FCDC5A46DAA2CE8F13285575084369">
              <ds:Transforms>
                <ds:Transform Algorithm="http://www.w3.org/2000/09/xmldsig#enveloped-signature" />
                <ds:Transform Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#" />
                <ec:InclusiveNamespaces xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#" PrefixList="xs" />
              </ds:Transforms>
            </ds:Reference>
            <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1" />
            <ds:DigestValue>3lwhBhA2kqZMew+Vh8niToXiHIU=</ds:DigestValue>
          </ds:SignedInfo>
        </ds:Signature>
      </wsse:Security>
    </soap:Header>
    <soap:Body>
      <ns1:QueryDataForBorrowerRequest xmlns:ns1="http://www.w3.org/2001/XMLSchema" />
    </soap:Body>
  </soap:Envelope>

```

```

    <saml2:NameID Format="urn:oasis:names:tc:SAML:1.1:nameid-format:unspecified"
NameQualifier="meteor.network.org">LTI_AP40</saml2:NameID>
    <saml2:SubjectConfirmation Method="urn:oasis:names:tc:SAML:2.0:cm:sender-vouches"/>
  </saml2:Subject>
  <saml2:Conditions NotBefore="2012-02-06T19:15:50.781Z" NotOnOrAfter="2012-02-06T19:16:50.781Z"/>
  <saml2:AuthnStatement AuthnInstant="2012-02-06T19:15:50.781Z">
    <saml2:SubjectLocality Address="10.10.101.194" DNSName="ltics1t-06"/>
    <saml2:AuthnContext>
      <saml2:AuthnContextClassRef/>
    </saml2:AuthnContext>
  </saml2:AuthnStatement>
  <saml2:AttributeStatement>
    <saml2:Attribute FriendlyName="ProviderType" NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:uri">
      <saml2:AttributeValue xsi:type="xs:string">AccessProvider</saml2:AttributeValue>
    </saml2:Attribute>
    <saml2:Attribute FriendlyName="SSN" NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:uri">
      <saml2:AttributeValue xsi:type="xs:string">104041004</saml2:AttributeValue>
    </saml2:Attribute>
    <saml2:Attribute FriendlyName="AuthenticationProcessID" NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-
format:uri">
      <saml2:AttributeValue xsi:type="xs:string">1</saml2:AttributeValue>
    </saml2:Attribute>
    <saml2:Attribute FriendlyName="Level" NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:uri">
      <saml2:AttributeValue xsi:type="xs:string">3</saml2:AttributeValue>
    </saml2:Attribute>
    <saml2:Attribute FriendlyName="UserHandle" NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:uri">
      <saml2:AttributeValue xsi:type="xs:string">username</saml2:AttributeValue>
    </saml2:Attribute>
    <saml2:Attribute FriendlyName="Role" NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:uri">
      <saml2:AttributeValue xsi:type="xs:string">BORROWER</saml2:AttributeValue>
    </saml2:Attribute>
  </saml2:AttributeStatement>
  </saml2:Assertion>
  <wsse:SecurityTokenReference xmlns:wsse="http://docs.oasis-open.org/wss/oasis-wss-wssecurity-secext-1.1.xsd"
wsse:TokenType="http://docs.oasis-open.org/wss/oasis-wss-saml-token-profile-1.1#SAMLV2.0" wsu:Id="STRSAMLId-
67FCDC5A46DAA2CE8F132855575090673">
    <wsse:KeyIdentifier ValueType="http://docs.oasis-open.org/wss/oasis-wss-saml-token-profile-
1.1#SAMLID">_67FCDC5A46DAA2CE8F132855575090673</wsse:KeyIdentifier>
    </wsse:SecurityTokenReference>
    <ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#" Id="SIG-26">
      <ds:SignedInfo>
        <ds:CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#">
          <ec:InclusiveNamespaces xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#" PrefixList="soap"/>
        </ds:CanonicalizationMethod>
        <ds:SignatureMethod Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1"/>
        <ds:Reference URI="#id-25">
          <ds:Transforms>
            <ds:Transform Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#">
              <ec:InclusiveNamespaces xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#" PrefixList=""/>
            </ds:Transform>
          </ds:Transforms>
          <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
          <ds:DigestValue>cen/7We9uPRdF+bVHoEmscHVSIs=</ds:DigestValue>
        </ds:Reference>
        <ds:Reference URI="#STRSAMLId-67FCDC5A46DAA2CE8F132855575090673">
          <ds:Transforms>
            <ds:Transform Algorithm="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-soap-message-
security-1.0#STR-Transform">
              <ds:TransformationParameters>
                <ds:CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#" />
              </ds:TransformationParameters>
            </ds:Transform>
          </ds:Transforms>
          <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
          <ds:DigestValue>IHmkliXFLliSi8t72hqUhfC1Nc8=</ds:DigestValue>
        </ds:Reference>
      </ds:SignedInfo>
      <ds:SignatureValue>i3p4XxVe/tjfvspNoSIhUEMCqRfNTmi7JwIVZMabzMdThoeIn+xbgAUMMPfcZNC0dF9WQATj0+fs
sNhaQJHcRVb8WeAm8rAelYwkIbV19UYgQA/3GmmbfPxrPxY1SfnPEHlSSqlycfsGrXt6dOHX8w9c
dGcb8V8gHCVaRIB5dwx6BkaALCY4eFGRTCfoMClfkq2/orWdik4DdyYOxTVde3RiYp0RF6f1Wu4i
pDdroCgZHi9uUkkBuzanoWq/QCR6gZTGEAG413lrv/+I8s7cwgffrVDZiYH7IZJm04+nwoUv90Y
4N6P9Di7HXfQ95y1ndGQ0XVaSWIvYm1S3A6c2g==</ds:SignatureValue>
      <ds:KeyInfo Id="KeyId-67FCDC5A46DAA2CE8F132855575090670">
        <wsse:SecurityTokenReference wsu:Id="STRId-67FCDC5A46DAA2CE8F132855575090671">
          <ds:X509Data>
            <ds:X509IssuerSerial>
              <ds:X509IssuerName>CN=Meteor Test Root Certificate
Authority,ST=NY,C=US,E=jlazos@litionline.com,O=Logic Technology\, Inc,OU=Meteor Development</ds:X509IssuerName>
              <ds:X509SerialNumber>1</ds:X509SerialNumber>
            </ds:X509IssuerSerial>
          </ds:X509Data>
        </wsse:SecurityTokenReference>
      </ds:KeyInfo>
    </ds:Signature>
  </soap:Header>
  <soap:Body wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd" wsu:Id="id-25">
    <ns2:QueryDataForBorrower xmlns:ns2="http://ws.common.meteor.meteor.network.org/">
      <RequestXml>&lt;?xml version="1.0" encoding="UTF-8"?&gt;
&lt;MeteorDataRequest xmlns="http://www.meteor.network.org/schemas/MeteorDataRequest"
meteorVersion="4.0.0"&gt;&lt;AccessProvider&gt;&lt;MeteorInstitutionIdentifier&gt;LTI_AP40&lt;/MeteorInstitutionIdentifier&gt;&lt;
UserHandle&gt;&lt;username&lt;/UserHandle&gt;&lt;IssueInstant&gt;2012-02-06T14:15:50.500-
05:00&lt;/IssueInstant&gt;&lt;/AccessProvider&gt;&lt;SSN&gt;104041004&lt;/SSN&gt;&lt;/MeteorDataRequest&gt;</RequestXml>
    </ns2:QueryDataForBorrower>
  </soap:Body>

```



```

<saml2:Conditions NotBefore="2012-02-07T18:20:46.296Z" NotOnOrAfter="2012-02-07T18:21:46.296Z"/>
<saml2:AuthnStatement AuthnInstant="2012-02-07T18:20:46.296Z">
  <saml2:SubjectLocality Address="10.10.101.194" DNSName="lticslt-06"/>
  <saml2:AuthnContext>
    <saml2:AuthnContextClassRef/>
  </saml2:AuthnContext>
</saml2:AuthnStatement>
<saml2:AttributeStatement>
  <saml2:Attribute FriendlyName="ProviderType" NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:uri">
    <saml2:AttributeValue xsi:type="xs:string">AccessProvider</saml2:AttributeValue>
  </saml2:Attribute>
  <saml2:Attribute FriendlyName="AuthenticationProcessID" NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:uri">
    <saml2:AttributeValue xsi:type="xs:string">1</saml2:AttributeValue>
  </saml2:Attribute>
  <saml2:Attribute FriendlyName="Level" NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:uri">
    <saml2:AttributeValue xsi:type="xs:string">3</saml2:AttributeValue>
  </saml2:Attribute>
  <saml2:Attribute FriendlyName="UserHandle" NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:uri">
    <saml2:AttributeValue xsi:type="xs:string">meteor</saml2:AttributeValue>
  </saml2:Attribute>
  <saml2:Attribute FriendlyName="Role" NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-format:uri">
    <saml2:AttributeValue xsi:type="xs:string">HELPDESK</saml2:AttributeValue>
  </saml2:Attribute>
</saml2:AttributeStatement>
</saml2:Assertion>
<wsse:SecurityTokenReference xmlns:wsse="http://docs.oasis-open.org/wss/oasis-wss-wssecurity-secext-1.1.xsd"
wsse:TokenType="http://docs.oasis-open.org/wss/oasis-wss-saml-token-profile-1.1#SAMLV2.0" wsu:Id="STRSAMLId-4BA66EAA498651B188132863884640616">
  <wsse:KeyIdentifier ValueType="http://docs.oasis-open.org/wss/oasis-wss-saml-token-profile-1.1#SAMLID">_4BA66EAA498651B188132863884631212</wsse:KeyIdentifier>
</wsse:SecurityTokenReference>
<ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#" Id="SIG-6">
  <ds:SignedInfo>
    <ds:CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#">
      <ec:InclusiveNamespaces xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#" PrefixList="soap"/>
    </ds:CanonicalizationMethod>
    <ds:SignatureMethod Algorithm="http://www.w3.org/2000/09/xmldsig#rsa-sha1"/>
    <ds:Reference URI="#id-5">
      <ds:Transforms>
        <ds:Transform Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#">
          <ec:InclusiveNamespaces xmlns:ec="http://www.w3.org/2001/10/xml-exc-c14n#" PrefixList=""/>
        </ds:Transform>
      </ds:Transforms>
      <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
      <ds:DigestValue>U+3egIYNTYYSEsCiuIRybOep7zg=</ds:DigestValue>
    </ds:Reference>
    <ds:Reference URI="#STRSAMLId-4BA66EAA498651B188132863884640616">
      <ds:Transforms>
        <ds:Transform Algorithm="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-soap-message-security-1.0#STR-Transform">
          <ds:TransformationParameters>
            <ds:CanonicalizationMethod Algorithm="http://www.w3.org/2001/10/xml-exc-c14n#">
            </ds:CanonicalizationMethod>
            <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
            <ds:DigestValue>JksNGMxLila/p1QZ0xGyNekBc6E=</ds:DigestValue>
          </ds:TransformationParameters>
        </ds:Transform>
      </ds:Transforms>
    </ds:Reference>
    <ds:SignedInfo>
      <ds:SignatureValue>axWxP3+6Iulky+40D3T5dM3xPaNaEn3vRK18ek9pKtCFct8jI7JqVwFmHjNFTwobG5drwKMGEqYlmkWmz9Ulfid+XHm950AHshaF4eJo8oefXCHtqZEA6Ldhi+nwMD74Jc3QRmwVN9xi.S9OV12WF2eMsiLOppq+0WSGtMBXm1jxqslc4i7hmXAMY+JK27MnGbhsjlzZFOU4PgTVaU51YyE6nYHFVKwRMA1M7A51Sw+zc4L8wldUn/b/pMFEPVVG6zpfF/1g2X7dUoOvlnsOVaNNe25YAh2nCnRbhmVx6T emTMQiEmxXyUM58fYpDqSC8G9z8jVzcGkFzfjw==</ds:SignatureValue>
      <ds:KeyInfo Id="KeyId-4BA66EAA498651B188132863884640613">
        <wsse:SecurityTokenReference wsu:Id="STRId-4BA66EAA498651B188132863884640614">
          <ds:X509Data>
            <ds:X509IssuerSerial>
              <ds:X509IssuerName>CN=Meteor Test Root Certificate
Authority,ST=NY,C=US,E=jlazos@litionline.com,O=Logic Technology\, Inc,OU=Meteor Development</ds:X509IssuerName>
              <ds:X509SerialNumber>1</ds:X509SerialNumber>
            </ds:X509IssuerSerial>
          </ds:X509Data>
        </wsse:SecurityTokenReference>
      </ds:KeyInfo>
    </ds:Signature>
  </wsse:Security>
</soap:Header>
<soap:Body xmlns:wsu="http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-utility-1.0.xsd" wsu:Id="id-5">
  <ns2:GetStatus xmlns:ns2="http://ws.common.meteor.meteornetwork.org/">
</soap:Body>
</soap:Envelope>

```

Response Example

```

<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://www.w3.org/2003/05/soap-envelope">
  <soap:Body>
    <ns2:GetStatusResponse xmlns:ns2="http://ws.common.meteor.meteornetwork.org/">
      <GetStatusResponse><?xml version="1.0" encoding="UTF-8"?&gt;
        &lt;MeteorRsMsg xmlns="http://schemas.pesxml.org" PESXMLVersion="4.0.0"&gt;&lt;MeteorDataProviderInfo
xmlns=""&gt;&lt;MeteorDataProviderDetailInfo&gt;&lt;DataProviderType&gt;S&lt;/DataProviderType&gt;&lt;DataProviderData&gt;&lt;Ent
ityName&gt;Data Provider 4.0 S&lt;/EntityName&gt;&lt;EntityID&gt;12345&lt;/EntityID&gt;&lt;EntityURL&gt;http://www.dataprovider-

```

```

S.com</EntityURL>&lt;/Contacts/&gt;&lt;/DataProviderData&gt;&lt;/DataProviderAggregateTotal/&gt;&lt;/MeteorDataProviderDetail
Info&gt;&lt;/MeteorDataProviderMsg&gt;&lt;/RSMsg&gt;&lt;4.0.0&lt;/RSMsg&gt;&lt;/RSMsgLevel&gt;I&lt;/RSMsgLevel&gt;&lt;/MeteorDataProvide
rMsg&gt;&lt;/MeteorDataProviderInfo&gt;&lt;/MeteorRSMsg&gt;</GetStatusResponse>
</ns2:GetStatusResponse>
</soap:Body>
</soap:Envelope>

```

Appendix B: Request and Response Schemas

MeteorIndexRequest

```

<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  targetNamespace="http://www.meteornetwork.org/schemas/MeteorIndexRequest"
  xmlns="http://www.meteornetwork.org/schemas/MeteorIndexRequest"
  elementFormDefault="qualified">

  <xsd:element name="MeteorIndexRequest">
    <xsd:complexType>
      <xsd:all>
        <xsd:element name="AccessProvider">
          <xsd:complexType>
            <xsd:all>
              <xsd:element name="MeteorInstitutionIdentifier" type="xsd:string"/>
              <xsd:element name="Name" type="xsd:string" minOccurs="0"/>
              <xsd:element name="UserHandle" type="xsd:string"/>
              <xsd:element name="IssueInstant" type="xsd:dateTime"/>
            </xsd:all>
          </xsd:complexType>
        </xsd:element>
        <xsd:element name="SSN" type="xsd:string"/>
      </xsd:all>
    </xsd:complexType>
  </xsd:element>
</xsd:schema>

```

MeteorIndexResponse

```

<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  targetNamespace="http://www.meteornetwork.org/schemas/MeteorIndexResponse"
  xmlns="http://www.meteornetwork.org/schemas/MeteorIndexResponse"
  elementFormDefault="qualified">

  <!-- ***** -->
  <!-- ***** Document Structure ***** -->
  <!-- ***** -->
  <xsd:element name="MeteorIndexResponse">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element name="IndexProviderData" type="OrgType" minOccurs="0" maxOccurs="1"/>
        <xsd:element name="DataProviders" minOccurs="1" maxOccurs="1">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="DataProvider" type="OrgType" minOccurs="0" maxOccurs="unbounded"/>
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
        <xsd:element name="IndexProviderMessages" minOccurs="0" maxOccurs="1">
          <xsd:complexType>
            <xsd:sequence>
              <xsd:element name="Message" type="IndexProviderMessageType" minOccurs="0" maxOccurs="unbounded" />
            </xsd:sequence>
          </xsd:complexType>
        </xsd:element>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>

  <!-- ***** -->
  <!-- ***** Complex Types ***** -->
  <!-- ***** -->

  <xsd:complexType name="OrgType">
    <xsd:sequence>
      <xsd:element name="EntityName" type="EntityNameType" minOccurs="0"/>
      <xsd:element name="EntityID" type="EntityIDType" minOccurs="0"/>
      <xsd:element name="EntityURL" type="URLType" minOccurs="0"/>
    </xsd:sequence>
  </xsd:complexType>

  <!-- ***** -->

  <xsd:complexType name="IndexProviderMessageType">
    <xsd:sequence>
      <xsd:element name="RSMsg" type="RSMsgType" minOccurs="1" maxOccurs="1"/>
      <xsd:element name="RSMsgLevel" type="RSMsgLevelType" minOccurs="1" maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>

```

```

<!-- ***** -->
<!-- ***** Simple Types ***** -->
<!-- ***** -->

<xsd:simpleType name="LastNameType">
  <xsd:restriction base="xsd:string">
    <xsd:minLength value="0"/>
    <xsd:maxLength value="35"/>
  </xsd:restriction>
</xsd:simpleType>

<!-- ***** -->

<xsd:simpleType name="FirstNameType">
  <xsd:restriction base="xsd:string">
    <xsd:minLength value="0"/>
    <xsd:maxLength value="12"/>
  </xsd:restriction>
</xsd:simpleType>

<!-- ***** -->

<xsd:simpleType name="MiddleInitialType">
  <xsd:restriction base="xsd:string">
    <xsd:minLength value="0"/>
    <xsd:maxLength value="1"/>
  </xsd:restriction>
</xsd:simpleType>

<!-- ***** -->

<xsd:simpleType name="EntityIDType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Office of Postsecondary Education Identification Number</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:minLength value="0"/>
    <xsd:maxLength value="10"/>
  </xsd:restriction>
</xsd:simpleType>

<!-- ***** -->

<xsd:simpleType name="EntityNameType">
  <xsd:restriction base="xsd:string">
    <xsd:minLength value="0"/>
    <xsd:maxLength value="96"/>
  </xsd:restriction>
</xsd:simpleType>

<!-- ***** -->

<xsd:simpleType name="URLType">
  <xsd:restriction base="xsd:string">
    <xsd:minLength value="0"/>
    <xsd:maxLength value="1024"/>
  </xsd:restriction>
</xsd:simpleType>

<!-- ***** -->

<xsd:simpleType name="RMsgType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Response Message Text</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:minLength value="1"/>
    <xsd:maxLength value="150"/>
  </xsd:restriction>
</xsd:simpleType>

<!-- ***** -->

<xsd:simpleType name="RMsgLevelType">
  <xsd:union memberTypes="RMsgLevelEnum xsd:string"/>
</xsd:simpleType>
<xsd:simpleType name="RMsgLevelEnum">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">"E" = Error </xsd:documentation>
    <xsd:documentation xml:lang="en">"W" = Warning </xsd:documentation>
    <xsd:documentation xml:lang="en">"I" = Information</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="E"/>
    <xsd:enumeration value="W"/>
    <xsd:enumeration value="I"/>
  </xsd:restriction>
</xsd:simpleType>

<!-- ***** -->

<xsd:simpleType name="SSNumType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Social Security Number</xsd:documentation>
  </xsd:annotation>

```

```

        </xsd:annotation>
        <xsd:restriction base="xsd:string">
            <xsd:minLength value="9"/>
            <xsd:maxLength value="9"/>
        </xsd:restriction>
    </xsd:simpleType>

    <!-- ***** -->
</xsd:schema>

```

MeteorDataRequest

```

<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema"
    targetNamespace="http://www.meteornetwork.org/schemas/MeteorDataRequest"
    xmlns="http://www.meteornetwork.org/schemas/MeteorDataRequest"
    elementFormDefault="qualified">

    <xsd:element name="MeteorDataRequest">
        <xsd:complexType>
            <xsd:all>
                <xsd:element name="AccessProvider">
                    <xsd:complexType>
                        <xsd:all>
                            <xsd:element name="MeteorInstitutionIdentifier" type="xsd:string"/>
                            <xsd:element name="Name" type="xsd:string" minOccurs="0"/>
                            <xsd:element name="UserHandle" type="xsd:string"/>
                            <xsd:element name="IssueInstant" type="xsd:dateTime"/>
                        </xsd:all>
                    </xsd:complexType>
                </xsd:element>
                <xsd:element name="SSN" type="xsd:string"/>
            </xsd:all>
            <xsd:attribute name="meteorVersion" type="xsd:string" default="3.3.4"/>
        </xsd:complexType>
    </xsd:element>
</xsd:schema>

```

MeteorDataResponse

```

<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema"
    targetNamespace="http://www.meteornetwork.org/schemas/MeteorDataResponse">

    <xsd:import namespace="http://schemas.pescxml.org" schemaLocation="../schema/Meteor_Schema_4.0.0.xsd" />

</xsd:schema>

```

Meteor_Schema_4.0.0.xsd

```

<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema
    xmlns:xsd="http://www.w3.org/2001/XMLSchema"
    targetNamespace="http://schemas.pescxml.org"
    xmlns="http://schemas.pescxml.org"
    elementFormDefault="unqualified">
    <xsd:element name="MeteorRSMsg" type="MeteorRSMsgType"/>

    <xsd:complexType name="MeteorRSMsgType">
        <xsd:sequence>
            <xsd:element name="MeteorDataProviderInfo" type="MeteorDataProviderInfoType" maxOccurs="unbounded"/>
            <xsd:element name="MeteorDataAggregates" type="MeteorDataAggregatesType" minOccurs="0"/>
            <!-- ***** -->
            <xsd:element name="MeteorIndexProviderData" type="OrgType" minOccurs="0" maxOccurs="unbounded"/>
            <!-- * IndexProviderData is for Access Provider Software use only * -->
            <!-- * Data Providers do not need to populate this element * -->
            <!-- ***** -->
        </xsd:sequence>
        <xsd:attribute name="PESCXMLVersion" use="required" fixed="4.0.0" type="xsd:string"/>
    </xsd:complexType>
    <!-- ***** -->
    <xsd:complexType name="MeteorDataAggregatesType">
        <xsd:annotation>
            <xsd:documentation xml:lang="en"> </xsd:documentation>
            <xsd:documentation xml:lang="en">These fields are derived</xsd:documentation>
            <xsd:documentation xml:lang="en">in the Access Provider</xsd:documentation>
            <xsd:documentation xml:lang="en">Software</xsd:documentation>
            <xsd:documentation xml:lang="en"></xsd:documentation>
        </xsd:annotation>
        <xsd:sequence>
            <xsd:element name="OriginalBalanceGrandTotal" type="TotalByServicerType" minOccurs="0" maxOccurs="unbounded"/>
            <xsd:element name="OutstandingBalanceGrandTotal" type="TotalByServicerType" minOccurs="0" maxOccurs="unbounded"/>
            <xsd:element name="OtherFeesOutstandingGrandTotal" type="TotalByServicerType" minOccurs="0" maxOccurs="unbounded"/>
        </xsd:sequence>
    </xsd:complexType>
    <xsd:complexType name="TotalByServicerType">
        <xsd:simpleContent>
            <xsd:extension base="PosFifteenDigitTwoDecimalType">
                <xsd:attribute name="ServicerID" type="xsd:string"/>
            </xsd:extension>
        </xsd:simpleContent>
    </xsd:complexType>

```

```

    </xsd:simpleContent>
</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="MeteorDataProviderInfoType">
  <xsd:sequence>
    <xsd:element name="MeteorDataProviderDetailInfo" type="MeteorDataProviderDetailInfoType"/>
    <xsd:element name="MeteorDataProviderAwardDetails" type="MeteorDataProviderAwardDetailsType" minOccurs="0"/>
    <xsd:element name="MeteorDataProviderMsg" type="MeteorDataProviderMsgType" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element name="LoanLocatorActivationIndicator" type="xsd:boolean" minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="MeteorDataProviderDetailInfoType">
  <xsd:sequence>
    <xsd:element name="DataProviderType" type="DataProviderTypeType" minOccurs="1" maxOccurs="1"/>
    <xsd:element name="DataProviderData" type="OrgType"/>
    <xsd:element name="DataProviderAggregateTotal" type="DataProviderAggregateType"/>
  </xsd:sequence>
</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="MeteorDataProviderAwardDetailsType">
  <xsd:sequence>
    <xsd:element name="Award" type="AwardDataType" minOccurs="0" maxOccurs="unbounded"/>
  </xsd:sequence>
</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="MeteorDataProviderMsgType">
  <xsd:sequence>
    <xsd:element name="RSMsg" type="RSMsgType" minOccurs="1" maxOccurs="1"/>
    <xsd:element name="RSMsgLevel" type="RSMsgLevelType" minOccurs="1" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="AddressInfoType">
  <xsd:sequence>
    <xsd:element name="AddrValidInd" type="xsd:boolean" minOccurs="0"/>
    <xsd:element name="AddrValidDt" type="xsd:date" minOccurs="0"/>
    <xsd:element name="AddressType" type="AddressTypeType" minOccurs="0"/>
    <xsd:element name="Addr" type="AddrType" minOccurs="0" maxOccurs="3"/>
    <xsd:element name="City" type="CityType" minOccurs="0"/>
    <xsd:element name="StateProv" type="StateProvType" minOccurs="0"/>
    <xsd:element name="PostalCd" type="PostalCdType" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="AwardDataType">
  <xsd:sequence>
    <xsd:annotation>
      <xsd:documentation xml:lang="en">APSUniqueAwardID is used</xsd:documentation>
      <xsd:documentation xml:lang="en">exclusively by the </xsd:documentation>
      <xsd:documentation xml:lang="en">Access Provider Software</xsd:documentation>
    </xsd:annotation>
    <xsd:element name="APSUniqueAwardID" type="APSUniqueIDType" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="DataProviderType" type="DataProviderTypeType" minOccurs="1" maxOccurs="1"/>
    <xsd:element name="AwardType" type="AwardTypeType" minOccurs="0"/>
    <xsd:element name="AwardAmt" type="PosElevenDigitTwoDecimalType" minOccurs="0"/>
    <xsd:element name="AwardBeginDt" type="xsd:date" minOccurs="0"/>
    <xsd:element name="AwardEndDt" type="xsd:date" minOccurs="0"/>
    <xsd:element name="GradeLevelInd" type="GradeLevelIndType" minOccurs="0"/>
    <xsd:element name="LoanStat" type="LoanStatType" minOccurs="0"/>
    <xsd:element name="LoanStatDt" type="xsd:date" minOccurs="0"/>
    <xsd:element name="MPNInd" type="MPNIndType" minOccurs="0"/>
    <xsd:element name="Esign" type="xsd:boolean" minOccurs="0"/>
    <xsd:element name="CommonlineError" type="CommonlineErrorType" minOccurs="0"/>
    <xsd:element name="LoanDt" type="xsd:date" minOccurs="0"/>
    <xsd:element name="Disbursement" type="DisbursementType" minOccurs="0" maxOccurs="99"/>
    <xsd:element name="Student" type="StudentType" minOccurs="0"/>
    <xsd:element name="Borrower" type="BorrowerType" minOccurs="0"/>
    <xsd:element name="Reference" type="PersonType" minOccurs="0" maxOccurs="2"/>
    <xsd:element name="DisbursingAgent" type="OrgType" minOccurs="0"/>
    <xsd:element name="Lender" type="OrgType" minOccurs="0"/>
    <xsd:element name="Servicer" type="OrgType" minOccurs="0"/>
    <xsd:element name="ConsolLender" type="OrgType" minOccurs="0"/>
    <xsd:element name="School" type="OrgType" minOccurs="0"/>
    <xsd:element name="Guarantor" type="OrgType" minOccurs="0"/>
    <xsd:element name="GrantScholarshipProvider" type="OrgType" minOccurs="0"/>
    <xsd:element name="FinAidTranscript" type="OrgType" minOccurs="0"/>
    <xsd:element name="AwardId" type="AwardIdType" minOccurs="0"/>
    <xsd:element name="LoanTransfer" type="LoanTransferType" minOccurs="0"/>
    <xsd:element name="Repayment" type="RepaymentType" minOccurs="0"/>
    <xsd:element name="Default" type="DefaultType" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="GrossLoanAmount" type="PosTwelveDigitTwoDecimalType" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="OnlinePaymentProcessURL" type="xsd:string" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="OnlineDeferForbProcessURL" type="xsd:string" minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="BorrowerType">
  <xsd:complexContent>
    <xsd:extension base="PersonType">
      <xsd:sequence>
        <xsd:element name="DriversLicense" type="DriversLicenseType" minOccurs="0"/>
        <xsd:element name="DriversLicenseState" type="StateProvType" minOccurs="0"/>
      </xsd:sequence>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>

```

```

    </xsd:complexContent>
</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="CollectionCostsType">
  <xsd:sequence>
    <xsd:element name="CollectionCostsAmount" type="PosTwelveDigitTwoDecimalType" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="CollectionCostsDate" type="xsd:date" minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="ContactType">
  <xsd:sequence>
    <xsd:element name="Phone" type="PhoneType" minOccurs="0" maxOccurs="4"/>
    <xsd:element name="AddressInfo" type="AddressInfoType" minOccurs="0"/>
    <xsd:element name="Email" type="EmailType" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="DataProviderAggregateType">
  <xsd:sequence>
    <xsd:annotation>
      <xsd:documentation xml:lang="en">These fields are derived in the Access Provider Software.</xsd:documentation>
    </xsd:annotation>
    <xsd:element name="SvcrTotalAmt" type="PosFifteenDigitTwoDecimalType" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="DefaultType">
  <xsd:sequence>
    <xsd:element name="Def" type="xsd:boolean" minOccurs="0"/>
    <xsd:element name="SatisPmtArr" type="xsd:boolean" minOccurs="0"/>
    <xsd:element name="DefAvertRq" type="xsd:boolean" minOccurs="0"/>
    <xsd:element name="DefAvertRqDt" type="xsd:date" minOccurs="0"/>
    <xsd:element name="DefAvertRqCure" type="xsd:boolean" minOccurs="0"/>
    <xsd:element name="DefAvertRqCureDt" type="xsd:date" minOccurs="0"/>
    <xsd:element name="ClaimFil" type="xsd:boolean" minOccurs="0"/>
    <xsd:element name="ClaimFilDt" type="xsd:date" minOccurs="0"/>
    <xsd:element name="ClaimPd" type="xsd:boolean" minOccurs="0"/>
    <xsd:element name="ClaimPdDt" type="xsd:date" minOccurs="0"/>
    <xsd:element name="EligibilityReinstatementIndicator" type="xsd:boolean" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="EligibilityReinstatementDate" type="xsd:date" minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="DisbursementType">
  <xsd:sequence>
    <xsd:element name="DisbSeqNum" type="PosTwoDigitAmtType" minOccurs="0"/>
    <xsd:element name="SchedDisbDt" type="xsd:date" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="ActualDisbDt" type="xsd:date" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="DisbNetAmt" type="PosElevenDigitTwoDecimalType" minOccurs="0"/>
    <xsd:element name="DisbStatCd" type="DisbStatCdType" minOccurs="0"/>
    <xsd:element name="DisbStatDt" type="xsd:date" minOccurs="0"/>
    <xsd:element name="DisbHold" type="DisbHoldType" minOccurs="0"/>
    <xsd:element name="CancellationAmount" type="PosTwelveDigitTwoDecimalType" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="CancellationDate" type="xsd:date" minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="EmailType">
  <xsd:sequence>
    <xsd:element name="EmailAddress" minOccurs="1" maxOccurs="1">
      <xsd:simpleType>
        <xsd:restriction base="xsd:string">
          <xsd:minLength value="0"/>
          <xsd:maxLength value="256"/>
        </xsd:restriction>
      </xsd:simpleType>
    </xsd:element>
    <xsd:element name="EmailValidInd" type="xsd:boolean" minOccurs="0"/>
    <xsd:element name="EmailValidDt" type="xsd:date" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="LateFeesType">
  <xsd:sequence>
    <xsd:element name="LateFeesAmount" type="PosTwelveDigitTwoDecimalType" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="LateFeesDate" type="xsd:date" minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="LoanTransferType">
  <xsd:sequence>
    <xsd:element name="TransferTypeCd" type="TransferTypeCdType" minOccurs="1" maxOccurs="1"/>
    <xsd:element name="EntityID" type="EntityIDType" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="TransferDt" type="xsd:date" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="OrgType">
  <xsd:sequence>
    <xsd:element name="EntityName" type="EntityNameType" minOccurs="0"/>
    <xsd:element name="EntityID" type="EntityIDType" minOccurs="0"/>
    <xsd:element name="EntityURL" type="URLType" minOccurs="0"/>
    <xsd:element name="Contacts" type="ContactType"/>
  </xsd:sequence>

```

```

</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="OtherFeesType">
  <xsd:sequence>
    <xsd:element name="OtherFeesAmount" type="PosTwelveDigitTwoDecimalType" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="OtherFeesDate" type="xsd:date" minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="PaymentType">
  <xsd:sequence>
    <xsd:element name="PaymentAmt" type="PosElevenDigitTwoDecimalType" minOccurs="1" maxOccurs="1"/>
    <xsd:element name="PaymentDt" type="xsd:date" minOccurs="1" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="PersonType">
  <xsd:sequence>
    <xsd:element name="LastName" type="LastNameType" minOccurs="0"/>
    <xsd:element name="FirstName" type="FirstNameType" minOccurs="0"/>
    <xsd:element name="MiddleInitial" type="MiddleInitialType" minOccurs="0"/>
    <xsd:element name="SSNum" type="SSNumType" minOccurs="0"/>
    <xsd:element name="Contacts" type="ContactType"/>
    <xsd:element name="DtOfBirth" type="xsd:date" minOccurs="0"/>
    <xsd:element name="Employer" type="OrgType" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="PhoneType">
  <xsd:sequence>
    <xsd:element name="PhoneNumType" type="PhoneNumTypeType" minOccurs="1" maxOccurs="1"/>
    <xsd:element name="PhoneNum" type="PhoneNumType" minOccurs="1" maxOccurs="1"/>
    <xsd:element name="PhoneValidInd" type="xsd:boolean" minOccurs="0"/>
    <xsd:element name="PhoneValidDt" type="xsd:date" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="RepaymentType">
  <xsd:sequence>
    <xsd:element name="NextPmtAmt" type="PosElevenDigitTwoDecimalType" minOccurs="0"/>
    <xsd:element name="NextDueDt" type="xsd:date" minOccurs="0"/>
    <xsd:element name="AcctBal" type="PosNegElevenDigitTwoDecimalType" minOccurs="0"/>
    <xsd:element name="AcctBalDt" type="xsd:date" minOccurs="0"/>
    <xsd:element name="PmtPlan" type="PmtPlanType" minOccurs="0"/>
    <xsd:element name="LastPmt" type="PaymentType" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element name="PmtBeginDt" type="xsd:date" minOccurs="0"/>
    <xsd:element name="CurrentMonthlyPayment" type="PosElevenDigitTwoDecimalType" minOccurs="0"/>
    <xsd:element name="CurrIntRate" type="PosSevenDigitThreeDecimalType" minOccurs="0"/>
    <xsd:element name="RepaidPrincipalAmt" type="PosElevenDigitTwoDecimalType" minOccurs="0"/>
    <xsd:element name="CapitalizedIntAmt" type="PosElevenDigitTwoDecimalType" minOccurs="0"/>
    <xsd:element name="TotalPreviousPayments" type="PosTwelveDigitTwoDecimalType" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="AccruedInterest" type="PosTwelveDigitTwoDecimalType" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="LateFees" type="LateFeesType" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element name="CollectionCosts" type="CollectionCostsType" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element name="ServicingFees" type="ServicingFeesType" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element name="OtherFees" type="OtherFeesType" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element name="DefermentForbearance" type="DefermentForbearanceType" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element name="Deferment" type="DefermentForbearanceTimeUsedType" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element name="Forbearance" type="DefermentForbearanceTimeUsedType" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element name="RepaymentTermRemaining" type="RepaymentTermRemainingType" minOccurs="0" maxOccurs="unbounded"/>
    <xsd:element name="DaysPastDue" type="DaysPastDueType" minOccurs="0"/>
  </xsd:sequence>
</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="ServicingFeesType">
  <xsd:sequence>
    <xsd:element name="ServicingFeesAmount" type="PosTwelveDigitTwoDecimalType" minOccurs="0" maxOccurs="1"/>
    <xsd:element name="ServicingFeesDate" type="xsd:date" minOccurs="0" maxOccurs="1"/>
  </xsd:sequence>
</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="StudentType">
  <xsd:complexContent>
    <xsd:extension base="PersonType">
      <xsd:sequence>
        <xsd:element name="GradDt" type="xsd:date" minOccurs="0"/>
      </xsd:sequence>
    </xsd:extension>
  </xsd:complexContent>
</xsd:complexType>
<!-- ***** -->
<xsd:complexType name="SSNumType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Social Security Number. Data providers do not need to mask the SSN themselves. The
    Access Provider software masks the SSN and populates the "unmasked" attribute.</xsd:documentation>
  </xsd:annotation>
  <xsd:simpleContent>
    <xsd:extension base="SSNumSimpleType">
      <xsd:attribute name="unmasked"/>
    </xsd:extension>
  </xsd:simpleContent>
  <xsd:simpleType>
    <xsd:restriction base="xsd:string">
      <xsd:minLength value="9"/>
      <xsd:maxLength value="9"/>
    </xsd:restriction>
  </xsd:simpleType>

```

```

        </xsd:attribute>
    </xsd:extension>
</xsd:simpleContent>
</xsd:complexType>
<xsd:simpleType name="SSNumSimpleType">
    <xsd:restriction base="xsd:string">
        <xsd:minLength value="9"/>
        <xsd:maxLength value="9"/>
    </xsd:restriction>
</xsd:simpleType>

<!-- ***** -->
<!-- ***** -->
<!-- ***** -->
<!-- ***** Simple Types ***** -->
<!-- ***** -->
<!-- ***** -->
<!-- ***** -->
<xsd:simpleType name="AddrType">
    <xsd:restriction base="xsd:string">
        <xsd:minLength value="0"/>
        <xsd:maxLength value="40"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="AddressTypeType">
    <xsd:union memberTypes="AddressTypeEnum xsd:string"/>
</xsd:simpleType>
<xsd:simpleType name="AddressTypeEnum">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">"P" = Permanent</xsd:documentation>
        <xsd:documentation xml:lang="en">"T" = Temporary</xsd:documentation>
    </xsd:annotation>
    <xsd:restriction base="xsd:string">
        <xsd:enumeration value="P"/>
        <xsd:enumeration value="T"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="APSUniqueIDType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">This simpleType is used </xsd:documentation>
        <xsd:documentation xml:lang="en">excludeivly by the </xsd:documentation>
        <xsd:documentation xml:lang="en">Access Provider Software</xsd:documentation>
    </xsd:annotation>
    <xsd:restriction base="xsd:int">
        <xsd:minInclusive value="00000"/>
        <xsd:maxInclusive value="99999"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="AwardIDType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">For FFELP, the CommonLine Unique Identifier</xsd:documentation>
        <xsd:documentation xml:lang="en">plus the CommonLine Loan Sequence Number </xsd:documentation>
    </xsd:annotation>
    <xsd:restriction base="xsd:string">
        <xsd:minLength value="0"/>
        <xsd:maxLength value="21"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="AwardTypeType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">See the Department of Education's "Technical</xsd:documentation>
        <xsd:documentation xml:lang="en">Reference for Common Record Transmitters </xsd:documentation>
        <xsd:documentation xml:lang="en">to Common Origination and Disbursement," </xsd:documentation>
        <xsd:documentation xml:lang="en">Appendix C, for a list of values. </xsd:documentation>
        <xsd:documentation xml:lang="en">In addition to those values, the following </xsd:documentation>
        <xsd:documentation xml:lang="en">may be returned: </xsd:documentation>
        <xsd:documentation xml:lang="en">    "HEAL" </xsd:documentation>
        <xsd:documentation xml:lang="en">    "DLConsl" </xsd:documentation>
        <xsd:documentation xml:lang="en">    "FFELConsl" </xsd:documentation>
        <xsd:documentation xml:lang="en">    "SLS" </xsd:documentation>
    </xsd:annotation>
    <xsd:restriction base="xsd:string">
        <xsd:minLength value="0"/>
        <xsd:maxLength value="9"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="CityType">
    <xsd:restriction base="xsd:string">
        <xsd:minLength value="0"/>
        <xsd:maxLength value="24"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="CommonlineErrorType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">See the CommonLine v5 Error Codes Addendum</xsd:documentation>
    </xsd:annotation>
    <xsd:restriction base="xsd:string">
        <xsd:minLength value="0"/>

```

```

        <xsd:maxLength value="3"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="DataProviderType">
    <xsd:union memberTypes="DataProviderTypeEnum xsd:string"/>
</xsd:simpleType>
<xsd:simpleType name="DataProviderTypeEnum">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">"S" = School </xsd:documentation>
        <xsd:documentation xml:lang="en">"LO" = Loan Originator </xsd:documentation>
        <xsd:documentation xml:lang="en">"LRS" = Loan Repayment Servicer </xsd:documentation>
        <xsd:documentation xml:lang="en">"G" = Guaranty Agency </xsd:documentation>
        <xsd:documentation xml:lang="en">"DA" = Disbursing Agent </xsd:documentation>
        <xsd:documentation xml:lang="en">"GSP" = Grant &#38; Scholarship Provider </xsd:documentation>
        <xsd:documentation xml:lang="en">"FAT" = Financial Aid History Transcript</xsd:documentation>
    </xsd:annotation>
    <xsd:restriction base="xsd:string">
        <xsd:enumeration value="S"/>
        <xsd:enumeration value="LO"/>
        <xsd:enumeration value="LRS"/>
        <xsd:enumeration value="G"/>
        <xsd:enumeration value="DA"/>
        <xsd:enumeration value="GSP"/>
        <xsd:enumeration value="FAT"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="DaysPastDueType">
    <xsd:restriction base="xsd:string">
        <xsd:minLength value="0"/>
        <xsd:maxLength value="3"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:complexType name="DefermentForbearanceType">
    <xsd:sequence>
        <xsd:element name="DefermentForbearanceName" type="DefermentForbearanceNameType" minOccurs="0" maxOccurs="1"/>
        <xsd:element name="DefermentForbearanceBeginDate" type="xsd:date" minOccurs="0" maxOccurs="1"/>
        <xsd:element name="DefermentForbearanceEndDate" type="xsd:date" minOccurs="0" maxOccurs="1"/>
    </xsd:sequence>
</xsd:complexType>
<xsd:simpleType name="DefermentForbearanceNameType">
    <xsd:restriction base="xsd:string">
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:complexType name="DefermentForbearanceTimeUsedType">
    <xsd:sequence>
        <xsd:element name="DefermentForbearanceTypeCode">
            <xsd:simpleType>
                <xsd:restriction base="xsd:string">
                    <xsd:minLength value="0"/>
                    <xsd:maxLength value="20"/>
                </xsd:restriction>
            </xsd:simpleType>
        </xsd:element>
        <xsd:element name="DefermentForbearanceTimeUsed">
            <xsd:simpleType>
                <xsd:restriction base="xsd:string">
                    <xsd:minLength value="0"/>
                    <xsd:maxLength value="3"/>
                </xsd:restriction>
            </xsd:simpleType>
        </xsd:element>
    </xsd:sequence>
</xsd:complexType>
<!-- ***** -->
<xsd:simpleType name="DisbHoldType">
    <xsd:union memberTypes="DisbHoldEnum xsd:string"/>
</xsd:simpleType>
<xsd:simpleType name="DisbHoldEnum">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">"H" = Held </xsd:documentation>
        <xsd:documentation xml:lang="en">"R" = Release</xsd:documentation>
    </xsd:annotation>
    <xsd:restriction base="xsd:string">
        <xsd:enumeration value="H"/>
        <xsd:enumeration value="R"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="DisbStatCdType">
    <xsd:union memberTypes="DisbStatCdEnum xsd:string"/>
</xsd:simpleType>
<xsd:simpleType name="DisbStatCdEnum">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">"A" = Approved but Not Disbursed</xsd:documentation>
        <xsd:documentation xml:lang="en">"C" = Fully Cancelled </xsd:documentation>
        <xsd:documentation xml:lang="en">"D" = Disbursed or Re-Issued </xsd:documentation>
    </xsd:annotation>
    <xsd:restriction base="xsd:string">
        <xsd:enumeration value="A"/>
        <xsd:enumeration value="C"/>
        <xsd:enumeration value="D"/>
    </xsd:restriction>
</xsd:simpleType>

```

```

    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="DriversLicenseType">
  <xsd:restriction base="xsd:string">
    <xsd:minLength value="0"/>
    <xsd:maxLength value="20"/>
  </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="EntityNameType">
  <xsd:restriction base="xsd:string">
    <xsd:minLength value="0"/>
    <xsd:maxLength value="96"/>
  </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="EntityIDType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Office of Postsecondary Education Identification Number</xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:minLength value="0"/>
    <xsd:maxLength value="10"/>
  </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="FirstNameType">
  <xsd:restriction base="xsd:string">
    <xsd:minLength value="0"/>
    <xsd:maxLength value="12"/>
  </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="GradeLevelIndType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">See the Grade Level Code values as defined</xsd:documentation>
    <xsd:documentation xml:lang="en">in the CommonLine v5 Response @1 record. </xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:minLength value="1"/>
    <xsd:maxLength value="1"/>
  </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="LastNameType">
  <xsd:restriction base="xsd:string">
    <xsd:minLength value="0"/>
    <xsd:maxLength value="35"/>
  </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="LoanStatType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Data providers will return NSLDS values if </xsd:documentation>
    <xsd:documentation xml:lang="en">they can. If they cannot return data from the</xsd:documentation>
    <xsd:documentation xml:lang="en">full set of NSLDS values, they should return </xsd:documentation>
    <xsd:documentation xml:lang="en">one of the values defined in Issue B-061 </xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:minLength value="0"/>
    <xsd:maxLength value="2"/>
  </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="MiddleInitialType">
  <xsd:restriction base="xsd:string">
    <xsd:minLength value="0"/>
    <xsd:maxLength value="1"/>
  </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="MPNIndType">
  <xsd:union memberTypes="MPNIndEnum xsd:string"/>
</xsd:simpleType>
<xsd:simpleType name="MPNIndEnum">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">"Y" = Service Provider has or can </xsd:documentation>
    <xsd:documentation xml:lang="en">confirm that an MPN exists </xsd:documentation>
    <xsd:documentation xml:lang="en">"N" = Service Provider does not </xsd:documentation>
    <xsd:documentation xml:lang="en">have an MPN </xsd:documentation>
  </xsd:annotation>
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Y"/>
    <xsd:enumeration value="N"/>
  </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="FmtpPlanType">
  <xsd:annotation>
    <xsd:documentation xml:lang="en">Standard </xsd:documentation>
    <xsd:documentation xml:lang="en">Graduated </xsd:documentation>
    <xsd:documentation xml:lang="en">Income-Sensitive</xsd:documentation>
    <xsd:documentation xml:lang="en">Extended </xsd:documentation>
  </xsd:annotation>

```

```

        <xsd:restriction base="xsd:string">
            <xsd:minLength value="0"/>
            <xsd:maxLength value="30"/>
        </xsd:restriction>
    </xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="PhoneNumType">
    <xsd:restriction base="xsd:string">
        <xsd:minLength value="0"/>
        <xsd:maxLength value="17"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="PhoneNumTypeEnum">
    <xsd:union memberTypes="PhoneNumTypeEnum xsd:string"/>
</xsd:simpleType>
<xsd:simpleType name="PhoneNumTypeEnum">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">For Individual Persons:</xsd:documentation>
        <xsd:documentation xml:lang="en"> "H" = Home </xsd:documentation>
        <xsd:documentation xml:lang="en"> "W" = Work </xsd:documentation>
        <xsd:documentation xml:lang="en"> "T" = Temporary </xsd:documentation>
        <xsd:documentation xml:lang="en"> "M" = Mobile </xsd:documentation>
        <xsd:documentation xml:lang="en"> "O" = Other </xsd:documentation>
        <xsd:documentation xml:lang="en">For Organizations:</xsd:documentation>
        <xsd:documentation xml:lang="en"> "P" = Primary </xsd:documentation>
        <xsd:documentation xml:lang="en"> "S" = Secondary </xsd:documentation>
    </xsd:annotation>
    <xsd:restriction base="xsd:string">
        <xsd:enumeration value="H"/>
        <xsd:enumeration value="W"/>
        <xsd:enumeration value="T"/>
        <xsd:enumeration value="M"/>
        <xsd:enumeration value="O"/>
        <xsd:enumeration value="P"/>
        <xsd:enumeration value="S"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="PosTwoDigitAmtType">
    <xsd:restriction base="xsd:int">
        <xsd:minInclusive value="00"/>
        <xsd:maxInclusive value="99"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="PosSevenDigitThreeDecimalType">
    <xsd:restriction base="xsd:decimal">
        <xsd:totalDigits value="7"/>
        <xsd:fractionDigits value="3"/>
        <xsd:minInclusive value="0000.000"/>
        <xsd:maxInclusive value="9999.999"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="PosNineDigitAmtType">
    <xsd:restriction base="xsd:decimal">
        <xsd:totalDigits value="9"/>
        <xsd:fractionDigits value="0"/>
        <xsd:minInclusive value="000000000"/>
        <xsd:maxInclusive value="999999999"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="PosElevenDigitTwoDecimalType">
    <xsd:restriction base="xsd:decimal">
        <xsd:totalDigits value="11"/>
        <xsd:fractionDigits value="2"/>
        <xsd:minInclusive value="000000000.00"/>
        <xsd:maxInclusive value="999999999.99"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="PosNegElevenDigitTwoDecimalType">
    <xsd:restriction base="xsd:decimal">
        <xsd:totalDigits value="11"/>
        <xsd:fractionDigits value="2"/>
        <xsd:minInclusive value="-999999999.99"/>
        <xsd:maxInclusive value="999999999.99"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="PosTwelveDigitTwoDecimalType">
    <xsd:restriction base="xsd:decimal">
        <xsd:totalDigits value="12"/>
        <xsd:fractionDigits value="2"/>
        <xsd:minInclusive value="000000000.00"/>
        <xsd:maxInclusive value="999999999.99"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="PosFifteenDigitTwoDecimalType">
    <xsd:restriction base="xsd:decimal">
        <xsd:totalDigits value="15"/>
        <xsd:fractionDigits value="2"/>
    </xsd:restriction>
</xsd:simpleType>

```

```

        <xsd:minInclusive value="000000000000.00"/>
        <xsd:maxInclusive value="999999999999.99"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="PostalCdType">
    <xsd:restriction base="xsd:string">
        <xsd:minLength value="0"/>
        <xsd:maxLength value="10"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="RepaymentTermRemainingType">
    <xsd:restriction base="xsd:string">
        <xsd:minLength value="0"/>
        <xsd:maxLength value="3"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="RMsgType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">Response Message Text</xsd:documentation>
    </xsd:annotation>
    <xsd:restriction base="xsd:string">
        <xsd:minLength value="1"/>
        <!-- xsd:maxLength value="150"/-->
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="RMsgLevelType">
    <xsd:union memberTypes="RMsgLevelEnum xsd:string"/>
</xsd:simpleType>
<xsd:simpleType name="RMsgLevelEnum">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">"E" = Error </xsd:documentation>
        <xsd:documentation xml:lang="en">"W" = Warning </xsd:documentation>
        <xsd:documentation xml:lang="en">"I" = Information</xsd:documentation>
    </xsd:annotation>
    <xsd:restriction base="xsd:string">
        <xsd:enumeration value="E"/>
        <xsd:enumeration value="W"/>
        <xsd:enumeration value="I"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="StateProvType">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">See Appendix B in the CommonLine version 5</xsd:documentation>
        <xsd:documentation xml:lang="en">App Send, Response, Disbursement Info, </xsd:documentation>
        <xsd:documentation xml:lang="en">or Change Send file descriptions </xsd:documentation>
    </xsd:annotation>
    <xsd:restriction base="xsd:string">
        <xsd:minLength value="0"/>
        <xsd:maxLength value="2"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="TransferTypeCdType">
    <xsd:union memberTypes="TransferTypeCdEnum xsd:string"/>
</xsd:simpleType>
<xsd:simpleType name="TransferTypeCdEnum">
    <xsd:annotation>
        <xsd:documentation xml:lang="en">"L" = Lender </xsd:documentation>
        <xsd:documentation xml:lang="en">"G" = Guarantor</xsd:documentation>
        <xsd:documentation xml:lang="en">"S" = Servicer </xsd:documentation>
    </xsd:annotation>
    <xsd:restriction base="xsd:string">
        <xsd:enumeration value="L"/>
        <xsd:enumeration value="G"/>
        <xsd:enumeration value="S"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
<xsd:simpleType name="URLType">
    <xsd:restriction base="xsd:string">
        <xsd:minLength value="0"/>
        <xsd:maxLength value="1024"/>
    </xsd:restriction>
</xsd:simpleType>
<!-- ***** -->
</xsd:schema>

```

Appendix C: Backwards Compatibility Guide

HPC

Meteor 3 uses the High Performance Channel (HPC) protocol to communicate with other nodes on the network. HPC messages are sent using the SOAP protocol, but their content can be compressed (ZLIB) and encoded (base64) before being sent. HPC messages are formatted according to the HPC schema.

HPC has no support for WS-Security. Instead, the SAML assertion and digital signature are embedded in the HPC content and need to be validated programmatically.

HPC is no longer used by Meteor 4 other than for backwards compatibility due to its lack of adaptation and support.

HPC Schema

```
<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">

  <xsd:annotation>
    <xsd:documentation xml:lang="en">

      </xsd:documentation>
    </xsd:annotation>

  <xsd:element name="Envelope" type="HPCEnvelopeType"/>

  <xsd:complexType name="HPCEnvelopeType">
    <xsd:sequence>
      <xsd:element name="Message" type="HPCMessageType"/>
      <xsd:element name="Sender" type="HPCSenderType"/>
      <xsd:element name="Recipient" type="HPCRecipientType"/>
      <xsd:element name="Transaction" type="HPCTransactionType"/>
      <xsd:element name="Package" type="HPCPackageType"/>
    </xsd:sequence>
  </xsd:complexType>

  <xsd:complexType name="HPCMessageType">
    <xsd:attribute name="ID" type="xsd:string"/>
    <xsd:attribute name="Timestamp" type="xsd:string" use="required"/>
  </xsd:complexType>

  <xsd:complexType name="HPCSenderType">
    <xsd:attribute name="ID" type="xsd:string" default="john"/>
    <xsd:attribute name="ContactPhoneNumber" type="xsd:string" default="(555)555-1212"/>
    <xsd:attribute name="ContactEmail" type="xsd:string" default="sender@someemailserver.123"/>
    <xsd:attribute name="System" type="xsd:string" default="HPC Compatibility Implementation for Meteor 4.0"/>
  </xsd:complexType>

  <xsd:complexType name="HPCRecipientType">
    <xsd:attribute name="ID" type="xsd:string" use="required"/>
  </xsd:complexType>

  <xsd:complexType name="HPCTransactionType">
    <xsd:attribute name="Type" type="xsd:string"/>
    <xsd:attribute name="Mode" type="HPCMode"/>
  </xsd:complexType>

  <xsd:complexType name="HPCPackageType">
    <xsd:sequence>
      <xsd:element name="Special" type="xsd:string" default=""/>
      <xsd:element name="Content" type="HPCContentType"/>
    </xsd:sequence>
  </xsd:complexType>

  <xsd:complexType name="HPCContentType">
    <xsd:simpleContent>
      <xsd:extension base="xsd:string">
        <xsd:attribute name="Type" type="xsd:string" use="required"/>
        <xsd:attribute name="Encoding" type="HPCEncodingType" use="required"/>
        <xsd:attribute name="Compression" type="HPCCompressionType" use="required"/>
      </xsd:extension>
    </xsd:simpleContent>
  </xsd:complexType>

  <!-- xsd:simpleType name="PhoneNum">
    <xsd:restriction base="xsd:string">
      <xsd:pattern value="(\d{3})\d{3}-\d{4}"/>
    </xsd:restriction>
  </xsd:simpleType-->
</xsd:schema>
```

```

</xsd:restriction>
</xsd:simpleType-->

<xsd:simpleType name="HPCTYPE">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="Send"/>
    <xsd:enumeration value="Resp"/>
    <xsd:enumeration value="Term"/>
    <xsd:enumeration value="Err"/>
  </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="HPCMode">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="sync"/>
    <xsd:enumeration value="async"/>
  </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="HPCEncodingType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="none"/>
    <xsd:enumeration value="base64"/>
  </xsd:restriction>
</xsd:simpleType>

<xsd:simpleType name="HPCCompressionType">
  <xsd:restriction base="xsd:string">
    <xsd:enumeration value="none"/>
    <xsd:enumeration value="zlib"/>
  </xsd:restriction>
</xsd:simpleType>
</xsd:schema>

```

Example HPC Message

In SOAP Envelope, compressed and encoded

```

<?xml version="1.0" encoding="utf-8"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/" xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <SOAP-ENV:Body>
    <ns1:SubmitHPC xmlns:ns1="urn:HPCServer" SOAP-ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
      <rawHPCMessage xsi:type="xsd:string">&lt;?xml version="1.0" encoding="UTF-8"?&gt;
&lt;Envelope&gt;
  &lt;Message ID="185e90f-135592276df-f6a78980917ada481dfe7c7fa811eca1" Timestamp="Tue Feb 07 13:45:25 EST 2012"/&gt;
  &lt;Sender ContactEmail="(555)555-1212"
    ContactPhoneNumber="sender@semailserver.123" ID="john" System="EEAT-Java HPCMessage Version 1.1"/&gt;
  &lt;Recipient ID="DP40-LO"/&gt;
  &lt;Transaction Type="METEORDATA"/&gt;
  &lt;Package&gt;
    &lt;Special&gt;
    &lt;Content Compression="zlib" Encoding="base64"
Type="METEORDATA"&gt;&lt;![CDATA[eJztWftz2joQfu+v8LiPHeMLzGXGZsbSWPCLziQ9Lx0hClAGVsCSYykv74yYMemNJOWzLRnkhk/sKvVt7uflusVVGdySKgL
OBjARQIZb1gOY5ByRLA/hwGaIEgbFgNxmVM8XpIc4wqyeKml5xvm8rqqr1apCAENMIKOIK4R01YDEMeIcQqYyGCQU8Uc1JAFTQwomXGGMBwoLZjAGCsigFeOk8sBCwcqde
a4t61Xj9NjUqoZ5pGmy5DGWQA8zDjC3ZUPTDUUTz81QP62bR3XD/KJpuR21ZSycRPN1TPE6XlnqgHtCR5Ay4UHgCwXCByUmZzknfAYxRwFYM8IBh7GQpL+fbGUNWjaZy
TMyXsOMPPrJ+N7GPCtLAUX9MJ0e3ocUiracnvoEfx61aos+Vt2XRIDhPfl27DUPUCZtuysHGmbBCAS2JLb9Z0wpJAxW47EKou4oh0LkVU5Wtcq60ev6DUz97kfb/9qTna
WC+cUjRMdx+f+j9ZTFL+aa+OwR6cAo6dNRbjDxzmUyyZsdgK4330ZeQsiBdb85Mwv1854Kq/tan9S/K+ZLbdfn5JAJJfnHkan/h6ZLNbkR0W+1bt9GIu9/rnnvkcSb8Qn
/RLgMdQwDcAvef62naJo8OYq75H3gbk0IK7cJw3Iq5JcIjWm3SX8DM4IRS+NDUKox7uUwfc0zm2YgCyrBvMbY6ex5FN0Q0rZHUfTTHgCYXbAT5kpf9VVOzYQhEvaup
izKaPpZbnzKNsPQwOykZsAE4z5Ye6pMnjktjQ14kxN8T7o4SBF19XBvVMR8Eqgm2LiFxtqh+1WfwS9zmGdQKvcbabR8iAwMZA3/rZwdo4GMAJpBAHULoZeLa8TX1IAW
biqGK21/9eABCL91fcjkkfZb63seSAV4X/Ipufb8W2priBidpje9yoe/Jy0VtCAP+EzWkvrZAI7HaCQONuv/1kLiJndNkzq9MLvxNdTebXTccubN8Yb6LMz2Q7xZifpC
bTdNOBJzJx5UB/5dvLxPdHZKta+wxjwMBtFqcXeits5o627hnt0Yx//FtzeXnt2uSiKAeRkKec+y7ETpOOpMFKXKEz1z06vRMinqwHhuf01TU/333jyvLcgqUQR0Kv
t/GrfiFmi2bW8/d288ksyCKTnah9v9sQVzdN10UFWwqfvsMj57xD/SMceviW8e5PhtdXU+145VH7i/Mk1pHrQ3ZG/WmJ5bF21ut8e8N2Vfy92uNpgC+RCrujcmC4e
7oZm20IvufsqsaH49tha+iuXtszfv6P7QeEct2V]]&gt;&lt;/Content&gt;
    &lt;/Package&gt;
  &lt;/Envelope&gt;
</rawHPCMessage>
</ns1:SubmitHPC>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>

```

Decompressed, decoded content

```

<?xml version="1.0" encoding="utf-8"?>
<MeteorDataRequest>
  <AssertionSpecifier>
    <saml:Assertion xmlns:saml="http://www.oasis-open.org/committees/security/docs/draft-sstc-schema-assertion-27.xsd"
AssertionID="1328640324500" IssueInstant="2012-02-07T18:45:24+0000" Issuer="nchelp.org/meteor" MajorVersion="1" MinorVersion="0">
      <saml:AuthenticationStatement AuthenticationInstant="2012-02-07T18:45:24+0000"
AuthenticationMethod="http://nchelp.org">
        <saml:Subject>
          <saml:NameIdentifier Name="LTI_AP33" SecurityDomain="nchelp.org/meteor"/>
        </saml:Subject>
        <saml:AuthenticationLocality DNSAddress="lticslt-06" IPAddress="10.10.101.194"/>
      </saml:AuthenticationStatement>
      <saml:AttributeStatement>
        <saml:Subject>
          <saml:NameIdentifier Name="LTI_AP33" SecurityDomain="nchelp.org/meteor"/>
        </saml:Subject>
        <saml:Attribute AttributeName="OrganizationIDType" AttributeNamespace="nchelp.org/meteor">

```

```

        <saml:AttributeValue>SCHOOL</saml:AttributeValue>
      </saml:Attribute>
    </saml:AttributeStatement>
    <saml:AttributeStatement>
      <saml:Subject>
        <saml:NameIdentifier Name="LTI_AP33" SecurityDomain="nchelp.org/meteor"/>
      </saml:Subject>
      <saml:Attribute AttributeName="AuthenticationProcessID" AttributeNamespace="nchelp.org/meteor">
        <saml:AttributeValue>1</saml:AttributeValue>
      </saml:Attribute>
    </saml:AttributeStatement>
    <saml:AttributeStatement>
      <saml:Subject>
        <saml:NameIdentifier Name="LTI_AP33" SecurityDomain="nchelp.org/meteor"/>
      </saml:Subject>
      <saml:Attribute AttributeName="OrganizationType" AttributeNamespace="nchelp.org/meteor">
        <saml:AttributeValue>SCHOOL</saml:AttributeValue>
      </saml:Attribute>
    </saml:AttributeStatement>
    <saml:AttributeStatement>
      <saml:Subject>
        <saml:NameIdentifier Name="LTI_AP33" SecurityDomain="nchelp.org/meteor"/>
      </saml:Subject>
      <saml:Attribute AttributeName="OrganizationID" AttributeNamespace="nchelp.org/meteor">
        <saml:AttributeValue>OPEID</saml:AttributeValue>
      </saml:Attribute>
    </saml:AttributeStatement>
    <saml:AttributeStatement>
      <saml:Subject>
        <saml:NameIdentifier Name="LTI_AP33" SecurityDomain="nchelp.org/meteor"/>
      </saml:Subject>
      <saml:Attribute AttributeName="UserHandle" AttributeNamespace="nchelp.org/meteor">
        <saml:AttributeValue>faa</saml:AttributeValue>
      </saml:Attribute>
    </saml:AttributeStatement>
    <saml:AttributeStatement>
      <saml:Subject>
        <saml:NameIdentifier Name="LTI_AP33" SecurityDomain="nchelp.org/meteor"/>
      </saml:Subject>
      <saml:Attribute AttributeName="Level" AttributeNamespace="nchelp.org/meteor">
        <saml:AttributeValue>3</saml:AttributeValue>
      </saml:Attribute>
    </saml:AttributeStatement>
    <saml:AttributeStatement>
      <saml:Subject>
        <saml:NameIdentifier Name="LTI_AP33" SecurityDomain="nchelp.org/meteor"/>
      </saml:Subject>
      <saml:Attribute AttributeName="Role" AttributeNamespace="nchelp.org/meteor">
        <saml:AttributeValue>FAA</saml:AttributeValue>
      </saml:Attribute>
    </saml:AttributeStatement>
    <saml:Condition NotBefore="2012-02-07T18:45:24+0000" NotOnOrAfter="2012-02-07T22:45:24+0000"/>
  </saml:Assertion>
  <ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
    <ds:SignedInfo>
      <ds:CanonicalizationMethod Algorithm="http://www.w3.org/TR/2001/REC-xml-c14n-20010315"/>
      <ds:SignatureMethod Algorithm="http://www.w3.org/2000/09/xmldsig#dsa-sha1"/>
      <ds:Reference URI="">
        <ds:Transforms>
          <ds:Transform Algorithm="http://www.w3.org/2000/09/xmldsig#enveloped-signature"/>
          <ds:Transform Algorithm="http://www.w3.org/TR/2001/REC-xml-c14n-20010315#WithComments"/>
        </ds:Transforms>
        <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
        <ds:DigestValue>SibNPLz4qlAVHO43gFSM1KfbQCA</ds:DigestValue>
      </ds:Reference>
    </ds:SignedInfo>
    <ds:SignatureValue>gMlavNAmR3RSXmvjuls8r0Ge9sInaRlwqX7/JBrJXqDBU26ZmWlnqQ==</ds:SignatureValue>
  </ds:Signature>
</AssertionSpecifier>
<AccessProvider>
  <MeteorInstitutionIdentifier>LTI_AP33</MeteorInstitutionIdentifier>
  <ID>LTI_AP33</ID>
  <IssueInstant>2012-02-07T18:45:24+0000</IssueInstant>
  <UserHandle>faa</UserHandle>
</AccessProvider>
<SSN>101011001</SSN>
<ds:Signature xmlns:ds="http://www.w3.org/2000/09/xmldsig#">
  <ds:SignedInfo>
    <ds:CanonicalizationMethod Algorithm="http://www.w3.org/TR/2001/REC-xml-c14n-20010315"/>
    <ds:SignatureMethod Algorithm="http://www.w3.org/2000/09/xmldsig#dsa-sha1"/>
    <ds:Reference URI="">
      <ds:Transforms>
        <ds:Transform Algorithm="http://www.w3.org/2000/09/xmldsig#enveloped-signature"/>
        <ds:Transform Algorithm="http://www.w3.org/TR/2001/REC-xml-c14n-20010315#WithComments"/>
      </ds:Transforms>
      <ds:DigestMethod Algorithm="http://www.w3.org/2000/09/xmldsig#sha1"/>
      <ds:DigestValue>bJFYMAQBVKQg06wIoJf479M/9Ts</ds:DigestValue>
    </ds:Reference>
  </ds:SignedInfo>
  <ds:SignatureValue>O1hwGVJNYxnXKIcvI9y8cniHi/eNVmtiehzUb4LeawEsK9tTbWTJTDw==</ds:SignatureValue>
</ds:Signature>
</MeteorDataRequest>

```

SAML 1.0 Draft

When Meteor was first developed, the SAML 1.0 specification was still in a draft stage. Meteor implements this draft version of SAML 1.0, not the final SAML 1.0 specification. The following table lists differences between Meteor 3's SAML 1.0 draft specification and Meteor 4's SAML 2.0 specification.

	SAML 1.0 Draft (Meteor 3)	SAML 1.0 Final	SAML 2.0 (Meteor 4)
Namespace	<code>http://www.oasis-open.org/committees/security/docs/draft-sstc-schema-assertion-27.xsd</code>	<code>urn:oasis:names:tc:SAML:1.0:assertion</code>	<code>urn:oasis:names:tc:SAML:2.0:assertion</code>
Date Time Format	<p>yyyy-MM-dd'T'HH:mm:ssZ (parseable by Java's SimpleDateFormat)</p> <p>In Meteor 3.2, the Hour field only contains hours up to 11. Meteor 3.2 cannot distinguish between AM and PM</p>	<code>xsd:dateTime</code>	<code>xsd:dateTime</code>
SAML Conditions tag	<code><Condition></code>	<code><Conditions></code>	<code><Conditions></code>

SAML 1.0 Draft to Final XSLT

```
<?xml version="1.0" encoding="UTF-8"?>
<!--
  Meteor 3.3.4's implementation of SAML was created before the SAML 1.0 spec was finalized.
  This stylesheet transforms standard SAML 1 into Meteor SAML 1.
-->
<xsl:stylesheet version="1.0"
  xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
  xmlns:saml="urn:oasis:names:tc:SAML:1.0:assertion"
  xmlns:fn="http://www.w3.org/2005/xpath-functions"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">

  <xsl:output
    method="xml"
    encoding="UTF-8" />

  <xsl:template match="//saml:NameIdentifier">
    <xsl:element name="saml:NameIdentifier" namespace="http://www.oasis-open.org/committees/security/docs/draft-sstc-schema-assertion-27.xsd">
      <xsl:attribute name="Name"><xsl:value-of select="."/;></xsl:attribute>
      <xsl:attribute name="SecurityDomain">nchelp.org/meteor</xsl:attribute>
    </xsl:element>
  </xsl:template>

  <xsl:template match="saml:Assertion">
    <xsl:element name="saml:Assertion" namespace="http://www.oasis-open.org/committees/security/docs/draft-sstc-schema-assertion-27.xsd">
      <xsl:copy-of select="@*[name() != 'xmlns:xsi' and name() != 'xsi:type']"/>
      <xsl:call-template name="timestamp-transform">
        <xsl:with-param name="time" select="@IssueInstant"/>
      </xsl:call-template>
      <xsl:apply-templates />
    </xsl:element>
  </xsl:template>

  <xsl:template match="//saml:AuthenticationStatement">
    <xsl:element name="saml:AuthenticationStatement" namespace="http://www.oasis-open.org/committees/security/docs/draft-sstc-schema-assertion-27.xsd">
      <xsl:copy-of select="@*[name() != 'xmlns:xsi' and name() != 'xsi:type']" />
      <xsl:attribute name="AuthenticationMethod">http://nchelp.org</xsl:attribute>
      <xsl:call-template name="timestamp-transform">
        <xsl:with-param name="time" select="@AuthenticationInstant"/>
      </xsl:call-template>
    </xsl:element>
  </xsl:template>
```

```

        <xsl:apply-templates/>
      </xsl:element>
    </xsl:template>

    <xsl:template match="//saml:Conditions">
      <xsl:element name="saml:Condition" namespace="http://www.oasis-open.org/committees/security/docs/draft-sstc-schema-assertion-27.xsd">
        <xsl:call-template name="timestamp-transform">
          <xsl:with-param name="time" select="@NotBefore"/>
        </xsl:call-template>
        <xsl:call-template name="timestamp-transform">
          <xsl:with-param name="time" select="@NotOnOrAfter"/>
        </xsl:call-template>
      </xsl:element>
    </xsl:template>

    <xsl:template match="//saml:Attribute">
      <xsl:element name="saml:Attribute" namespace="http://www.oasis-open.org/committees/security/docs/draft-sstc-schema-assertion-27.xsd">
        <xsl:copy-of select="*[name() != 'xmlns:xsi' and name() != 'xsi:type']" />
        <xsl:attribute name="AttributeNamespace">nchelp.org/meteor</xsl:attribute>
        <xsl:apply-templates />
      </xsl:element>
    </xsl:template>

    <xsl:template match="//saml:AttributeValue">
      <xsl:element name="saml:AttributeValue" namespace="http://www.oasis-open.org/committees/security/docs/draft-sstc-schema-assertion-27.xsd">
        <xsl:copy-of select="*[name() != 'xmlns:xsi' and name() != 'xsi:type']" />
        <xsl:apply-templates />
      </xsl:element>
    </xsl:template>

    <xsl:template match="saml:*">
      <xsl:element name="saml:{local-name()}" namespace="http://www.oasis-open.org/committees/security/docs/draft-sstc-schema-assertion-27.xsd">
        <xsl:copy-of select="*" />
        <xsl:apply-templates/>
      </xsl:element>
    </xsl:template>

    <xsl:template match="@* | node()">
      <xsl:copy>
        <xsl:apply-templates select="@* | node()"/>
      </xsl:copy>
    </xsl:template>

    <!--
      Converts xsd:dateTime data type into Meteor's custom date time datatype
      (parsable by Java's SimpleDateFormat)
    -->
    <xsl:template name="timestamp-transform">
      <xsl:param name="time"/>
      <xsl:variable name="timezone">
        <xsl:choose>
          <xsl:when test="contains($time,'Z')+0000"></xsl:when>
          <xsl:otherwise><xsl:value-of select="concat(substring( $time, string-length($time) - 5, 3), substring( $time, string-length($time) - 1))"/></xsl:otherwise>
        </xsl:choose>
      </xsl:variable>
      <xsl:attribute name="{name($time)}"><xsl:value-of select="concat(substring( $time, 1, 19), $timezone)"/></xsl:attribute>
    </xsl:template>
  </xsl:stylesheet>

```

Data Provider Request

Meteor 3 data provider requests differ from Meteor 4 according to the following table. There are subtle differences between Meteor 3.2 and Meteor 3.3 that are noted as well.

	Meteor 3.2	Meteor 3.3	Meteor 4
ID attribute	Required.	Required for compatibility with Meteor 3.2	Replaced by MeteorInstitutionIdentifier
IssueInstant date time format	No IssueInstant tag	yyyy-MM-dd'T'HH:mm:ssZ (parseable by SimpleDateFormat)	xsd:dateTime

Meteor 4.0 to Meteor 3.3 XSLT

```
<?xml version="1.0" encoding="utf-8"?>
<xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform" version="1.0">
  <xsl:output method="xml" encoding="UTF-8"/>
  <xsl:template match="MeteorDataRequest/@meteorVersion"/>
  <xsl:template match="MeteorDataRequest/AccessProvider/MeteorInstitutionIdentifier">
    <xsl:element name="MeteorInstitutionIdentifier">
      <xsl:value-of select="."/>
    </xsl:element>
    <xsl:element name="ID">
      <xsl:value-of select="."/>
    </xsl:element>
  </xsl:template>
  <xsl:template match="MeteorDataRequest/AccessProvider/IssueInstant">
    <xsl:variable name="timezone">
      <xsl:choose>
        <xsl:when test="contains(.,'Z')>+0000</xsl:when>
        <xsl:otherwise>
          <xsl:value-of select="concat(substring(., string-length(.) - 5, 3), substring(., string-length(.) - 1))"/>
        </xsl:otherwise>
      </xsl:choose>
    </xsl:variable>
    <xsl:element name="IssueInstant">
      <xsl:value-of select="concat(substring(., 1, 19), $timezone)"/>
    </xsl:element>
  </xsl:template>
  <xsl:template match="@* | node()">
    <xsl:copy>
      <xsl:apply-templates select="@* | node()"/>
    </xsl:copy>
  </xsl:template>
</xsl:stylesheet>
```

Meteor 4.0 to Meteor 3.2 XSLT

```
<xsl:stylesheet version="1.0"
  xmlns:xsl="http://www.w3.org/1999/XSL/Transform">
  <xsl:output
    method="xml"
    encoding="UTF-8" />
  <xsl:template match="MeteorDataRequest/@meteorVersion" />
  <xsl:template match="MeteorDataRequest/AccessProvider/IssueInstant"/>
  <xsl:template match="MeteorDataRequest/AccessProvider/MeteorInstitutionIdentifier">
    <xsl:element name="ID" namespace="">
      <xsl:value-of select="."/>
    </xsl:element>
  </xsl:template>
  <xsl:template match="@* | node()">
    <xsl:copy>
      <xsl:apply-templates select="@* | node()"/>
    </xsl:copy>
  </xsl:template>
</xsl:stylesheet>
```

Data Provider Response

The Meteor Data Provider response for Meteor 3 should not include the new elements introduced into the Meteor 4.0 Schema (see Meteor Data Dictionary). The following also changed for Meteor 4:

- '0000-00-00' notation for empty dates has been removed since it is not a valid xsd:date.
- Award/GuarDt has been renamed Award/LoanDt
- AwardID length has increased to 21
- DataProviderType for School has changed from 'SBS' to 'S'
- New award types FFELGB and DLGB introduced:
 - If Borrower and Student SSNs are the same and Award type is FFELPLUS or DLPLUS, the award type is changed to FFELGB and DLGB

Meteor 4 Data Provider to Meteor 3 Access Provider XSLT

If implementing a 4.0 Data Provider and a request is received from a Meteor 3 access provider, use this stylesheet to transform the Data Provider Response before sending in an HPC message.

```
<xsl:stylesheet version="1.0"
  xmlns:xsl="http://www.w3.org/1999/XSL/Transform">

  <xsl:output
    method="xml"
    encoding="UTF-8" />

  <xsl:template match="//@PESCXMLVersion">
    <xsl:attribute name="PESCXMLVersion">3.0.0</xsl:attribute>
  </xsl:template>

  <xsl:template match="//Repayment/RepaymentTermRemaining | //Repayment/CurrentMonthlyPayment | //Repayment/DaysPastDue |
//Phone/PhoneValidInd | //Phone/PhoneValidDt | //Contacts/EmailValidInd | //Contacts/EmailValidDt | //Repayment/Deferment |
//Repayment/Forbearance | //Repayment/OnlinePaymentProcessURL | //Repayment/OnlineDeferForbProcessURL |
//MeteorDataProviderInfo/LoanLocatorActivationIndicator"/>

  <xsl:template match="//Award/LoanDt">
    <xsl:element name="GuarDt"><xsl:value-of select="."/;></xsl:element>
  </xsl:template>

  <xsl:template match="//Award/AwardId[string-length(.) > 19]">
    <xsl:copy><xsl:value-of select="substring(.,string-length(.) - 19 + 1)"/;></xsl:copy>
  </xsl:template>

  <xsl:template match="//DataProviderType[. = 'S']">
    <xsl:copy>SBS</xsl:copy>
  </xsl:template>

  <xsl:template match="//Contacts/Email">
    <xsl:copy><xsl:value-of select="EmailAddress"/;></xsl:copy>
  </xsl:template>

  <xsl:template match="@* | node()">
    <xsl:copy>
      <xsl:apply-templates select="@* | node()"/>
    </xsl:copy>
  </xsl:template>
</xsl:stylesheet>
```

Meteor 3 Data Provider to Meteor 4 Access Provider XSLT

If implementing a 4.0 Access Provider and a response is received from a Meteor 3 Data Provider, use this stylesheet to transform the response into Meteor 4.

```
<xsl:stylesheet version="1.0"
  xmlns:xsl="http://www.w3.org/1999/XSL/Transform">

  <xsl:output
    method="xml"
    encoding="UTF-8" />

  <xsl:template match="//@PESCXMLVersion">
    <xsl:attribute name="PESCXMLVersion">4.0.0</xsl:attribute>
  </xsl:template>

  <!--
  Remove any 0000-00-00 dates generated by 3.3.4 data providers for empty xsd:date elements
  -->
  <xsl:template match="//AddressInfo/AddrValidDt[. = '0000-00-00']"/>
  <xsl:template match="//Award/AwardBeginDt[. = '0000-00-00'] | //Award/AwardEndDt[. = '0000-00-00'] | //Award/LoanStatDt[. =
'0000-00-00']"/>
  <xsl:template match="//CollectionCosts/CollectionCostsDate[. = '0000-00-00']"/>
  <xsl:template match="//Default/DefAvertRqDt[. = '0000-00-00'] | //Default/DefAvertRqCureDt[. = '0000-00-00'] |
//Default/ClaimPildt[. = '0000-00-00'] | //Default/ClaimPdDt[. = '0000-00-00'] | //Default/EligibilityReinstatementDate[. =
'0000-00-00']"/>
  <xsl:template match="//DefermentForbearance/DefermentForbearanceBeginDate[. = '0000-00-00'] |
//DefermentForbearance/DefermentForbearanceEndDate[. = '0000-00-00']"/>
  <xsl:template match="//Disbursement/SchedDisbDt[. = '0000-00-00'] | //Disbursement/ActualDisbDt[. = '0000-00-00'] |
//Disbursement/DisbStatDt[. = '0000-00-00'] | //Disbursement/CancellationDate[. = '0000-00-00']"/>
  <xsl:template match="//LateFees/LateFeesDate[. = '0000-00-00']"/>
  <!-- PaymentDt is required... xsl:template match="//LastPmt/PaymentDt[. = '0000-00-00']"><xsl:copy /;></xsl:template -->
  <xsl:template match="//LoanTransfer/TransferDt[. = '0000-00-00']"/>
  <xsl:template match="//OtherFees/OtherFeesDate[. = '0000-00-00']"/>
  <xsl:template match="//Phone//PhoneValidDt[. = '0000-00-00']"/>
```

```

<xsl:template match="//Reference/DtOfBirth[. = '0000-00-00'] | //Borrower/DtOfBirth[. = '0000-00-00'] | //Student/DtOfBirth[.
= '0000-00-00'] | //Student/GradDt[. = '0000-00-00']"/>
<xsl:template match="//Repayment/NextDueDt[. = '0000-00-00'] | //Repayment/AcctBalDt[. = '0000-00-00'] |
//Repayment/PmtBeginDt[. = '0000-00-00']"/>
<xsl:template match="//ServicingFees/ServicingFeesDate[. = '0000-00-00']"/>

<xsl:template match="//Award/GuarDt"><xsl:if test=". != '0000-00-00'">
  <xsl:element name="LoanDt"><xsl:value-of select="."/></xsl:element>
</xsl:if></xsl:template>

<xsl:template match="//Contacts/Email">
  <xsl:copy>
    <xsl:element name="EmailAddress">
      <xsl:value-of select="."/>
    </xsl:element>
  </xsl:copy>
</xsl:template>

<xsl:template match="//Award[Student/SSNum = Borrower/SSNum]/AwardType[. = 'FFELPLUS']">
  <xsl:copy>FFELGB</xsl:copy>
</xsl:template>

<xsl:template match="//Award[Student/SSNum = Borrower/SSNum]/AwardType[. = 'DLPLUS']">
  <xsl:copy>DLGB</xsl:copy>
</xsl:template>

<xsl:template match="//DataProviderType[. = 'SBS']">
  <xsl:copy>S</xsl:copy>
</xsl:template>

<xsl:template match="@* | node()">
  <xsl:copy>
    <xsl:apply-templates select="@* | node()"/>
  </xsl:copy>
</xsl:template>

</xsl:stylesheet>

```