

## Meteor v4.0 Release Notes

### Executive Summary

Meteor® version 4.0 includes several significant enhancements that allow your organization greater security and the ability to offer additional services. By upgrading to version 4.0, users can take advantage of several key features:

- **New Functionality:** Data Providers can provide links to their online payment, deferment, and forbearance processing services, which will provide students with greater flexibility for the successful repayment of their loans.
- **New Data Elements:** Several new data elements have been added to enhance the user experience for both schools and their students. These new data elements will enable Access Providers to provide more data to the student as well as offer the potential for new or enhanced services.
- **Revised User Interface:** With the rebranding of Meteor in 2011, all of the default screens for Meteor needed to be updated with the new logo and color scheme. We've made significant improvements to the navigation and organization of the screens, utilizing design elements that are intended to provide the users with a streamlined experience for managing their loans.
- **Built for Growth:** Meteor v4.0 is designed with future growth in mind. A new translation layer builds in the ability to make modifications to the data messaging tools of Meteor, allowing future data elements to be added without the need for all providers to upgrade to the most current version.
- **Increased Web Services Security:** Secure authentication is a paramount requirement in order to allow access protected resources at a Service Provider. Federation authentication is the dominant movement in identity management today and a concept employed by Meteor since its inception. Federations have seen significant success, gaining momentum in financial services, higher education, government, and other industry segments. SAML has been broadly implemented by all major Web access management vendors and appears in major application server products. It is commonly found among Web services management and security vendors. SAML v2.0 builds on the early success of the prior versions by unifying the building blocks of federated identity and is a critical step towards full convergence for federated identity standards. Meteor v4.0 offers all of the capabilities of SAML 2.0 coupled with SOAP and strong encryption standards for providers, presenting secure Web services by limiting access to only legitimate consumers to prevent confidentiality and integrity breaches.

Upgrading to the latest version of the software has never been easier. Take advantage of several new technical documents to walk your IT staff through the upgrade process (Visit [www.MeteorNetwork.org](http://www.MeteorNetwork.org) to download the code). Additionally, to support your organization, the National Student Clearinghouse will offer a series of Webinars with the Meteor developer to answer all of your organization's business and technical questions and guide you through installation.

In coordination with the National Student Clearinghouse's upgrade to Meteor v4.0, the Meteor services provided by the Clearinghouse (IndexProvider 3.3 and 4.0, RegistryProvider 4.0, LDAP registry) have been migrated from the original Meteor-owned server to the Clearinghouse's fully redundant and load balanced infrastructure for increased availability and scalability.

For more information, please contact Tim Cameron, Meteor Project Manager, at [cameron@studentclearinghouse.org](mailto:cameron@studentclearinghouse.org).

## Description of New Enhancements

### Business Enhancements

Description	Functionality Provided/Benefit(s)
Support of GradPLUS Loan Type	Prior versions of the Meteor code did not make changes to the Best Source and Duplicate Loan Logic to specifically handle GradPLUS loans. This enhancement adds an award type for FFELP GradPLUS and DL GradPLUS loans as well as enabling the Access Provider logic to better support this loan program type.
Support of online deferment and forbearance processing through a customized hot link	The Meteor Data Provider Response schema now allows a Data Provider to return a URL to their online deferment and forbearance processing services.
Support of online payment processing through a customized hot link	The Meteor Data Provider Response schema now allows a Data Provider to return a URL to their online payment processing service.
Revisions to the Best Source Logic	The Best Source Logic was updated to accommodate the GradPLUS award type as well as Grant and Scholarship data. This also lays the foundation for the potential inclusion of NSLDS FAT files as a new Data Provider type.
Revisions to the Duplicate Loan Logic	The Duplicate Loan Logic was updated to accommodate the GradPLUS award type as well as Grant and Scholarship data. This also lays the foundation for the potential inclusion of NSLDS FAT files as a new Data Provider type.
Enhanced support of the LoanLocator® link	This enhancement provides the end user with greater details on outstanding awards that are not returned as detailed data. Prior releases limit the LoanLocator link display to inactive Meteor Data Providers. These enhancements allow active Meteor Data Providers to display their LoanLocator link if that provider fails to respond for any reason (e.g., a communication error) or if the Data Provider knowingly did not return all available data (e.g., an alternative loan holder opted out of authorizing their servicer to provide their data through Meteor).
Improved user interface for the Award Details, Repayment Summary, and Repayment Details screens; new screen to display total deferment and forbearance time used	Alterations to the user interface (UI) were required to better organize the data display, upgrade the UI to utilize the new Meteor logo and color scheme, make the UI more user friendly, and integrate all of the new data elements that are available in the new schema.

## Technical Enhancements

Description	Functionality Provided/Benefit(s)
Ability to handle multiple versions of the Data Provider Response schema	This enhancement allows future changes to the schema to be integrated without the need for all Data Providers to deploy concurrently. Because of the complexities of implementing a distributed network, such as Meteor, it was essential to incorporate this functionality into the software to enable future growth in terms of the type of data exchanged on the network.
Integration of Shibboleth verification into the Access Provider software	This enhancement makes Meteor compliant with current Shibboleth transitive trust authentication protocols. It allows the network to better support schools and other organizations that have implemented Shibboleth for authentication and integrates the additional attributes that are specific to the Meteor network.
Create a new Data Provider Response schema that introduces additional data elements	Several new data elements have been added to the Data Provider Response schema (see details below). These elements further expand the potential services that an Access Provider can make available to its users. Additionally, this enables the functionality.
Replace all of the custom SAML code with OpenSAML	This enhancement brings Meteor providers in line with the open standards for SAML. When the Meteor code was originally built, SAML was not fully developed and a number of assumptions and alterations were required. This upgrade replaces the custom SAML with openSAML compliance.
Upgrade Meteor to the Web Services Security standard	WS-Security is the widely accepted standard for SOAP message security. Meteor SOAP messages and SAML assertions will follow this standard, ensuring compatibility with modern technologies.
Wrap the Meteor Registry as a Web Service	Decouples the Meteor network from its dependency on the LDAP-based registry. The Meteor registry can be reimplemented using any technology without impacting providers on the Meteor network.

## New Display Elements

The new display data elements that have been added to the Meteor Data Provider Response schema are:

- Repayment Term Remaining
- Current Monthly Payment Amount
- Days Past Due
- Telephone Validity Indicator and Date
- Email Validity Indicator and Date
- Forbearance Time Used
- Deferment Time Used

## New User Interface

Meteor v4.0 contains a new user interface (UI) module. This new component separates out the business logic from the presentation layer and allows organizations that implement a custom user interface to more easily code for custom display. This also ensures complete and consistent application of all Meteor business logic for all implementations.

In addition to the new hot links for deferment, forbearance, and payment processing (described above), in instances of a delinquency, the new Meteor user interface prominently displays a message to the user indicating the number of days past due. This new message ensures that a borrower is aware of a current delinquency and can act accordingly to resolve that delinquency.

The v4.0 UI also contains a complete reskinning of all Meteor screens integrates the new Meteor logo and provides updated navigation and screen layout.

## Implementation Documentation

In addition to updating the Meteor Implementation Guide, Quick Start Guide, and User Guide, we've created several new documents for Meteor 4.0:

- **Meteor v4 Developers Guide**

The Developers Guide is a high-level document that contains a dependency tree, an outline of the build order for each of the software components, a description of each of the software components and the technologies used in the software.

- **Meteor Token Provider Implementation Guide**

The Meteor UI Provider restricts user access by requiring a Security Token be available on each request. If the Security Token is invalid or not available, the user is denied access.

A Token Provider implementation provides the user's Security Token to the UI Provider, which passes it on to the Meteor Access Provider software to query the Meteor network. A Token Provider implementation is a Java class that implements the **Token Provider** interface.

- **Shibboleth Configuration Guide**

Meteor 4.0 supports Shibboleth authentication. Shibboleth is an open source, Web single sign-on solution that is part of the Internet2 Middleware Initiative. To read more about Shibboleth and the Internet2 Middleware Initiative, see:

- <http://shibboleth.internet2.edu>
- <http://www.internet2.edu>
- The configuration guide, which describes how to configure the Meteor 4.0 UI Provider software to handle authentication using Shibboleth.

- **Meteor Data Server Abstraction Implementation Guide**

This guide provides detailed implementation instructions for the custom Meteor DataServerAbstraction. Implementations of the DataServerAbstraction interface are used by the Meteor Data Provider software to fetch and return the student loan data requested by another provider on the Meteor network. Version 4.0 of the Data

Provider software provides the following built-in implementations of DataServerAbstraction (all in the package [org.meteornetwork.meteor.provider.data](http://org.meteornetwork.meteor.provider.data)):

Class	Description
FileDataServer	Reads loan data from test XML files.
RemoteDataServer	Gets data from a remote resource using a simple HTTP GET request.
HPCDataServer	Gets data from a remote resource over HPC (for backwards compatibility with existing Data Provider installations)

If none of the above implementations satisfy the Data Provider organization's requirements, the Data Provider software can be configured to use a custom implementation of the DataServerAbstraction interface.

- **Meteor Alternate Platforms Guide**

The Meteor software is a JAVA based software. This guide will assist organizations planning to implement Meteor in an environment other than JAVA.