*Connecting the Systems that Power Education*

# SIFWorks® ADK® for .NET Version 2.3.0

## Release Overview

Release 2.3.0
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# Contents

# 1. Overview

Release 2.3.0 of the Edustructures SIFWorks® Agent Developer Kit (ADK®) for Java incorporates support for the Schools Interoperability Framework 2.0 specification, several bug fixes, and adds a few new features.

This document is divided into two parts: *Release Overview* and *What's New*. If you've developed SIF Agent software using earlier versions of the ADK, please be sure to read the *Notices* and *Breaking Changes* sections in particular to learn about changes that may impact existing code.

# 2. Release Overview

## Notices

**.NET 1.1 no longer supported**

The SIFWorks ADK, versions 2.0 and later requires .Net 2.0. In this release of the ADK, all references to .Net 1.1 have been removed from the ADK example code and documentation. This release takes full advantage of .Net 2.0 features, such generics and nullable types.

**SIFWorks Enterprise ZIS Developer Edition**

The retail version of SIFWorks ADK for .NET includes a license to the SIFWorks Enterprise ZIS Developer Edition. The Developer Edition is restricted to in-house use within your organization only and is provided to aid in the development and testing of SIF Agent software. See the SIFWORKS.txt file, in the directory where you installed the ADK, for instructions on downloading, installing and running the SIFWorks Enterprise ZIS.

# 3. Known Issues

This beta release of the ADK supports SIF 1.x and SIF 2.x. However, there are a few areas within SIF 1.x and SIF 2.x support that are not yet complete. This section lists the known issues that will be addressed in the General Availability release of the ADK.

## Issues with SIF 2.x Support

The following SIF 2.0 features are not yet supported in the ADK.

i. SIF_ExtendedQuery

ii. The SIF_Action flag on SIF Action lists

iii. The XML data type (used in <SIF_ExtendedElement> and other elements that support embedded XML)

## Issues with SIF 1.x support

The SIFWorks ADK can parse and write objects in both SIF 1.x and 2.x formats. However, at this time, there are a number of objects that are not yet supported in their 1.x format. Here is the list, by namespace name, of classes that have incomplete support for SIF 1.x

**Edustructure.SifWorks.Dw namespace**

AggregateStatisticFact

**Edustructure.SifWorks.Food namespace**

FoodServiceTransactionDetails, FoodServiceTransactionPayMethod, StudentMeal, StaffMeal

**Edustructure.SifWorks.Hrfin namespace**

EmployeeCredential, FinancialIncomeStatement

**Edustructure.SifWorks.Instr namespace**

Activity, Assignment, LearningResource

**Edustructure.SifWorks.Library namespace**

LibraryPatronStatus

**Edustructure.SifWorks.Trans namespace**

BusPositionInfo, BusRouteInfo, StudentTransportInfo

### Mappings

This release of the ADK does not support mappings xpaths that use a SIF 1.x xpath. Mappings must be specified in the 2.x xpath. In addition, the Mappings APIs are not finalized in the Beta and will change slightly for the final release.

# 4. Upgrading from 1.5

The SIFWorks ADK has had some minor changes to some of its core APIs to better support SIF 2.0 and .Net 2.0. An agent that was built using the SIFWorks 1.5 ADK will need to have some minor code changes to correct compiler errors before it will com-

pile against the 2.0 edition of the ADK. This section highlights many of the code changes that may need to be done to agents written using prior versions of the ADK.

## Changes to SIF Versions supported

The SIFWorks 2.0 ADK has removed support for the 1.0r1 and 1.0r2 versions of SIF. This edition of the ADK fully all previous certified versions of SIF, which include SIF 1.1 and SIF 1.5r1. The ADK also supports SIF 2.0 and all 2.x versions of SIF.

## Agent Provisioning Changes

### SIFDTD ElementDef constants

In the 1.5 version of the ADK, the SIFDTD class contained a const field that held the ElementDef for each Element or Attribute in the SIF Specification. These constants have been moved to DTD classes within each namespace. For example, if you referenced SIFDTD.STUDENTPERSONAL in your code, the corresponding constant is now at StudentDTD.STUDENTPERSONAL.

### Provisioning Changes

In the 1.5 version of the ADK, the provisioning APIS, such as zone.SetSubscriber() and zone.SetProvider(), accepted three arguments. The third argument was a constant from the ADKFlags class that further defined the provisioning options. In the 2.0 version of the ADK, the second argument has changed to accept a specific ProvisioningOptions instance, such as PublishingOptions. Here is an example.

**Example:** zone.setPublisher()

```
//
// ADK 1.5 code (C#)
//

zone.SetPublisher( this,
   SIFDTD.STUDENTPERSONAL,
   ProvisioningFlags.Provide );

//
// ADK 2.0 code (C#)
//

zone.SetPublisher( this,
       StudentDTD.STUDENTPERSONAL,
       new PublishingOptions( true ) );
```

**Example:** zone.SetQueryResults()

```
//
// ADK 1.5 code (C#)
//

zone.SetQueryResults( this,
   SIFDTD.STUDENTPERSONAL );
```

```
//
// ADK 2.0 code (C#)
//

zone.SetQueryResults ( this,
       StudentDTD.STUDENTPERSONAL,
       new QueryResultsOptions() );
```

# Message Processing Changes

## Changes to The SifMessageInfo class

The SifMessageInfo class Encapsulates information about a SIF_Message. In SIF 2.0, a few changes have been made to SIF_Request and SIF_Response messages that have caused changes to the SIFMessageInfo class.

- The "SifRequestVersion" property has been changed to "LatestSIFRequestVersion". This method examines the list of SIF_Versions requested and returns the latest SIFVersion supported by the agent, according to it's current provisioning settings. To get the complete list of all SIF_Versions requested, call the "SIFRequestVersions".

# SIF Data Object Changes

The SIF Data Object (SDO) classes that represent Objects and Elements in the SIF data model have been changed to better represent the SIF 2.0 strongly-typed data model. In SIF 2.0, some fields have been changed to use XSD datatypes, which are strongly-typed representations of data. The ADK has also updated all of its APIs to match the strongly-typed representation of that data.

For example, the StudentSchoolEnrollment object has a "EntryDate" property. In the 1.5 ADK, this method returned a string, which represented the entry date of the student as a date formatted as "yyyyMMdd". The 2.0 ADK represents this value as a strongly-typed value and EntryDate returns a DateTime instance.

## Using Dates in the ADK

The 2.0 ADK has implemented support for dates consistently by using the .Net DateTime object for all APIs that represent a date. For example, the SifMessageInfo.Timestamp property, which returns the value of the SIF_Timestamp element, now returns a DateTime object. All APIs that represent dates are implemented using DateTime objects.

The SifDate class was used in the 1.5 ADK to both represent a date and convert a date to and from a string. However the pattern in the 2.0 ADK is to represent all dates as DateTime instances. Conversion to and from a string, where necessary, is handled by instances of SifFormatter for each version of SIF supported by the ADK. Here are some examples of differences in date conversions between the 1.5 and 2.0 editions of the ADK.

**Retrieving a date from a SIF Object**

```
//
//  (C#)
// ADK 1.5: Retrieve EntryDate as a Date
//   in ADK 1.5, StudentSchoolEnrollment.EntryDate
//   returned a SIFDate
//

SifDate entryDate = studentSchoolEnrollment.EntryDate;
NullableDateTime date = entryDate.ToDate();

//
//  (C#)
// ADK 2.0: Retrieve EntryDate as a Date
//   in ADK 2.x, StudentSchoolEnrollment.EntryDate
//   returns a Nullable<DateTime>
//

DateTime? entryDate = studentSchoolEnrollment.EntryDate;
```

**Setting a date to a SIF Object from a string representation**

```
//
// ADK 1.5: Set EntryDate from a String  (C#)
//

String entryDate = "19960901";
SifDate sifDate = new SifDate( entryDate );
studentSchoolEnrollment.EntryDate = sifDate;

//
// ADK 2.0: Set EntryDate from a String  (C#)
//

String entryDate = "1996-09-01";
SIFFormatter formatter = Adk.Dtd.GetFormatter(SifVersion.SIF20);
DateTime? calEntry = formatter.toDate( entryDate );
studentSchoolEnrollment.EntryDate = calEntry;
```

**Converting a date from its SIF format to a String**

```
//
// ADK 1.5: Retrieve EntryDate as a String  (C#)
//

SifDate entryDate = studentSchoolEnrollment.EntryDate;
// SIFDate.toString() returns a string in the SIF 1.x format,
// "yyyyMMdd"
String date = entryDate.ToString();

//
// ADK 2.0: Retrieve EntryDate as a String  (C#)
//

StudentSchoolEnrollment studentSchoolEnrollment;
DateTime? entryDate = studentSchoolEnrollment.EntryDate;
```

```
// Retrieve the date in SIF 1.x format "yyyyMMDD"
SifFormatter formatter = Adk.Dtd.GetFormatter(SifVersion.SIF11);
String date = formatter.ToDateString( entryDate );

// Retrieve the date in SIF 2.x format "yyyyMMDD"
formatter = Adk.Dtd.GetFormatter(SifVersion.SIF20);
date = formatter.ToDateString( entryDate );
```

# 5. New Features in 2.0

## Support for the Cloneable Interface

All SIF Data Object (SDO) classes in the SIFWorks ADK now support the Cloneable interface. To clone an object or element, simple call the .Clone() method.

## Support for SIF Contexts

The ADK now supports the SIF Context feature of SIF 2.0