



Homeland Security

**Reference Manual
For the
Student and Exchange Visitor Information System Batch
Interface**

August 24, 2005

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1. INTRODUCTION

This Reference Manual provides information for the batch data exchange, or batch interface, between the Student and Exchange Visitor Information System (SEVIS) and the institutions' internal systems (user systems). The user systems are either in-house systems or third-party products used by the schools and program sponsors to collect and maintain information on foreign students, exchange visitors, and dependents.

Note: This manual does not address the technical specifications for developing the batch interface. Refer to the Application Program Interface (API) posted on the ICE.gov website (<http://www.ice.gov/graphics/sevis/schools/batch.htm>) for the technical information.

Appendix A, Acronyms, provides a list of acronyms and abbreviations used in this document.

1.1 Purpose

The purpose of SEVIS is to facilitate timely reporting and monitoring of foreign students and exchange visitors in the United States. SEVIS is an Internet-based application for electronically tracking and reporting on foreign students and exchange visitors in the United States. SEVIS enables schools and program sponsors to transmit data electronically to the Immigration and Naturalization Service (INS) and Department of State (DOS) throughout a student's or exchange visitor's program in the U.S.

1.2 Scope

SEVIS' scope includes the range of activities associated with the capture of data surrounding student and exchange visitor pre-arrival activities, arrival, status while in the U.S., and program completion.

1.3 Reference Documents

The following references were used to compose this document:

- Application Program Interface (API):
http://www.ice.gov/graphics/sevis/pdf/SEVISAPIRELEASE50FINAL_20050623.doc

2. DESCRIPTION

The batch data exchange (batch interface) process described in this document is the method for automated exchange of data between SEVIS and schools and program sponsors using the Internet.

2.1 System Overview

Schools and program sponsors may use two different methods for interfacing with SEVIS, real-time interactive (RTI) or batch data exchange.

- RTI enables authorized users to access SEVIS over the Internet using a login ID and password. Users may perform many tasks, such as input school and/or program data; print forms; create student, exchange visitor, and dependent records; and update student, exchange visitor, and dependent records.
- The batch data exchange enables authorized organizations to utilize systems external to SEVIS to create and update student, exchange visitor, and dependent (visa types F, M and J) records and to upload the records to SEVIS. Organizations may develop systems in-house or purchase third-party products to communicate with SEVIS and upload and download information (system-to-system).

SEVIS real-time interactive (RTI) provides batch registration functionality for the schools and program sponsors. (See section 2.2.2, Register for Batch Processing, for instructions detailing the batch registration process.) Schools and program sponsors will extract their student, exchange visitor and dependent data from their system into an XML file that conforms to the appropriate SEVIS XML Schema. This XML file will be transmitted to SEVIS using the batch interface.

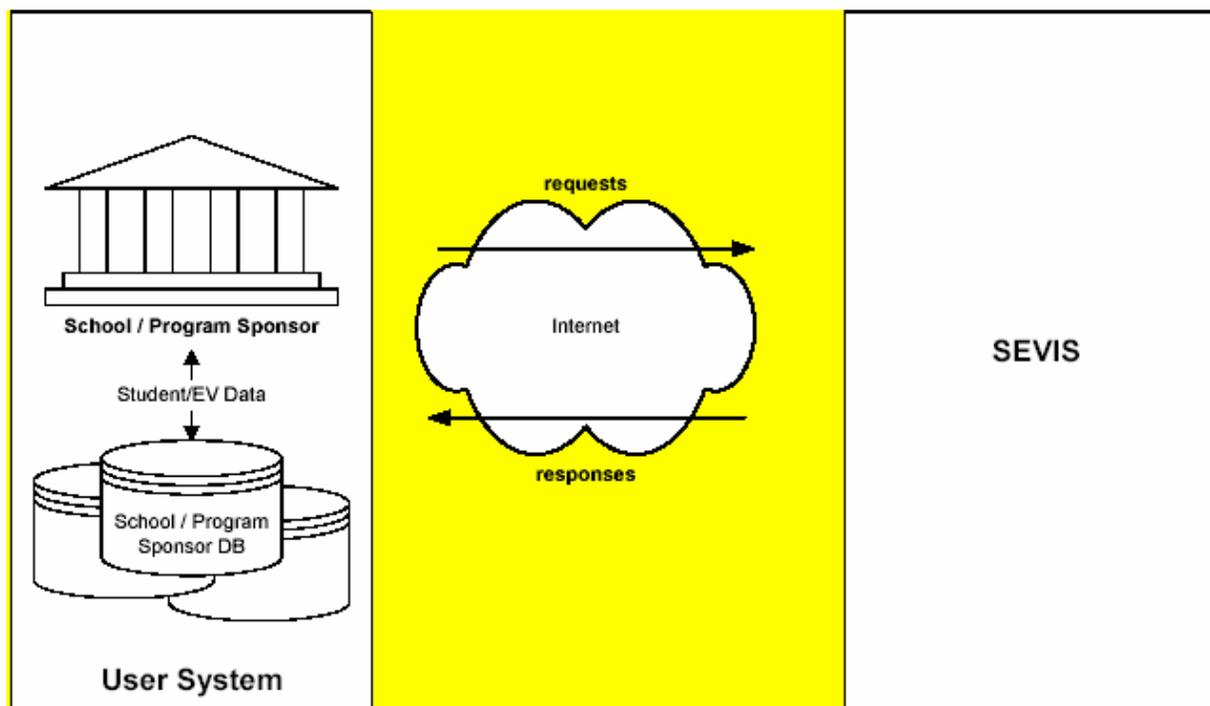
SEVIS will validate the uploaded XML document, process the records in the document, and create a compressed file for later retrieval by the user systems. The compressed file will include the following:

- An XML transaction log which will:
 - Include the unique record identifier provided by the school or program sponsor and the status (successful or failure) of applying the data to SEVIS
 - Append a SEVIS ID to records that successfully created a student, exchange visitor, or dependent record through the batch process
 - Include error codes for any records not successfully processed. See the API (Appendix B, SEVIS Batch Process Error Codes), for error codes generated during the batch process.
- Adobe Portable Document Format (PDF) files containing Forms I-20 or Forms DS-2019

Exhibit 1, SEVIS Batch Process Overview, provides a high-level representation of the batch process and the data exchanged between SEVIS and the system of a school or program sponsor.

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Exhibit 1: SEVIS Batch Process Overview



Schools and program sponsors may use the batch interface to upload data to SEVIS during the hours in which the e-Gov environment is available (Monday 6:00 a.m. . Saturday 12:00 a.m. EST). Batch data files will be processed during the non-production hours of the e-Gov environment. All files received by 9:59 p.m. EST should be available to the user systems the next business day.

The key equipment and software components identified for the user-system environment include the following:

- Laser-quality printer (minimum resolution of 600x600 dpi required for successful printing of PDF forms)
- Digital certificate issued by VeriSign®
- School or program sponsor's own hardware and software
- Internet Access

The SEVIS Batch-file Transfer Processing section on the ICE SEVIS Website contains links to the *Application Program Interface (API)* and the *Appendix to the API*, information necessary to use the batch interface. These documents include the current versions of the SEVIS Lookup (Codes) Tables, the SEVIS XML Schemas, and user support documentation. The SEVIS

Website also contains relevant presentations relating to the batch interface.

2.2 Security and Integrity

The Internet is a public network of millions of computers, all sharing information. On the Internet, communications move back and forth across public lines and through numerous connections. As with any public line, eavesdropping is possible. To enforce data transmission security and data integrity, the SEVIS batch interface performs several security checks. These include:

- The use of digital certificates to authenticate the sender.
- Secure Sockets Layer (SSL) is used to authenticate schools and program sponsors, and to secure the data prior to transmitting over the public Internet. Because SSL is built into all major browsers and web servers, installing a digital certificate turns on the SSL capabilities.
- Username and password assigned to Principal Designated School Officials (PDSO), Designated School Officials (DSO), Responsible Officers (RO), and Alternate Responsible Officers (ARO).
- Accountability for the designated officials or responsible officers of an institution to adhere to the security requirements for using the SEVIS Batch interface. This accountability must be acknowledged when the PDSO, RO, or ARO register to use the SEVIS Batch interface.

Any data sent to SEVIS through the batch interface must be sent from a school or program sponsor. Third parties **are not** authorized to send data to the SEVIS system.

During the batch interface registration process, the school or program sponsor must provide SEVIS their organization's digital certificate. If the digital certificate information is successfully verified and the school or program sponsor is in a valid status in SEVIS, the user system can begin utilizing the SEVIS batch interface.

When the user system initiates a session using the batch interface, SEVIS will carry out the following security measures:

- Validate the digital certificate information with the issuing Certificate Authority (i.e., VeriSign, Inc.)
- Verify that the digital certificate presented has been registered by the school or program sponsor
- Encrypt all information communicated during the session
- Validate that all SEVIS user IDs provided in any data files are associated with the school or program sponsor

2.2.1 Digital Certificate

A digital certificate is the electronic equivalent to a passport. It is a credential, issued by a trusted authority (i.e., VeriSign®), that individuals or organizations can present electronically to prove their identity or right to access information. Institutions wishing to use the SEVIS batch

interface must procure a Class 1 certificate (128-bit encryption) from any provider. A valid digital certificate is required when using the batch interface.

The digital certificate must be associated with the PDSO, RO, or ARO of an institution. Only the PDSO, RO, ARO for the institution may register the digital certificate with DHS through SEVIS RTI. Section 2.2.2, Register for Batch Processing, contains the instructions for registering a digital certificate. The same digital certificate may be used for both student and exchange visitor transactions if the institution is approved for F, M, and J programs.

Each time a file is uploaded, the connection must include the same digital certificate that was provided at Batch Registration. Since some campuses (with their own 15-digit school code) may transmit their files from a machine at a main campus, it is acceptable for different campuses of a school to use the same digital certificate.

2.2.2 Register for Batch Processing

The PDSO, for a school must register the digital certificate for his or her school. Schools that include multiple campuses must register the digital certificate for each campus.

Note: Prior to registering the digital certificate for use with SEVIS, download the certificate files with the “.cer”. and “.pem” extensions to a secure location. The procedures to download the certificate files will vary depending on the type of browser being used.

To register a digital certificate, a PDSO will perform the following:

1. Access SEVIS and click on the name of the school that you wish to register. The SEVIS School Detail screen will display.
2. Select the **Register for Batch Processing** link and the system will display the Batch Process Registration screen.
3. After reading the information on the Batch Process Registration screen, select the **Accept** button to advance to the Upload Certificate screen.
4. Select the path name of the school’s digital certificate. Click the **Browse** button and locate the file with the “.cer”. extension.
5. Highlight the file name and click the Open button. The Upload Certificate screen will display with the path name shown in the text box.
6. Click the **Upload Certificate** button.
7. If the certificate and the PDSO’s credentials are confirmed by SEVIS, a confirmation screen will display. However, if the system cannot validate the certificate and credentials, an error message will display. Remember, only digital certificates issued by VeriSign® are valid for use with SEVIS.

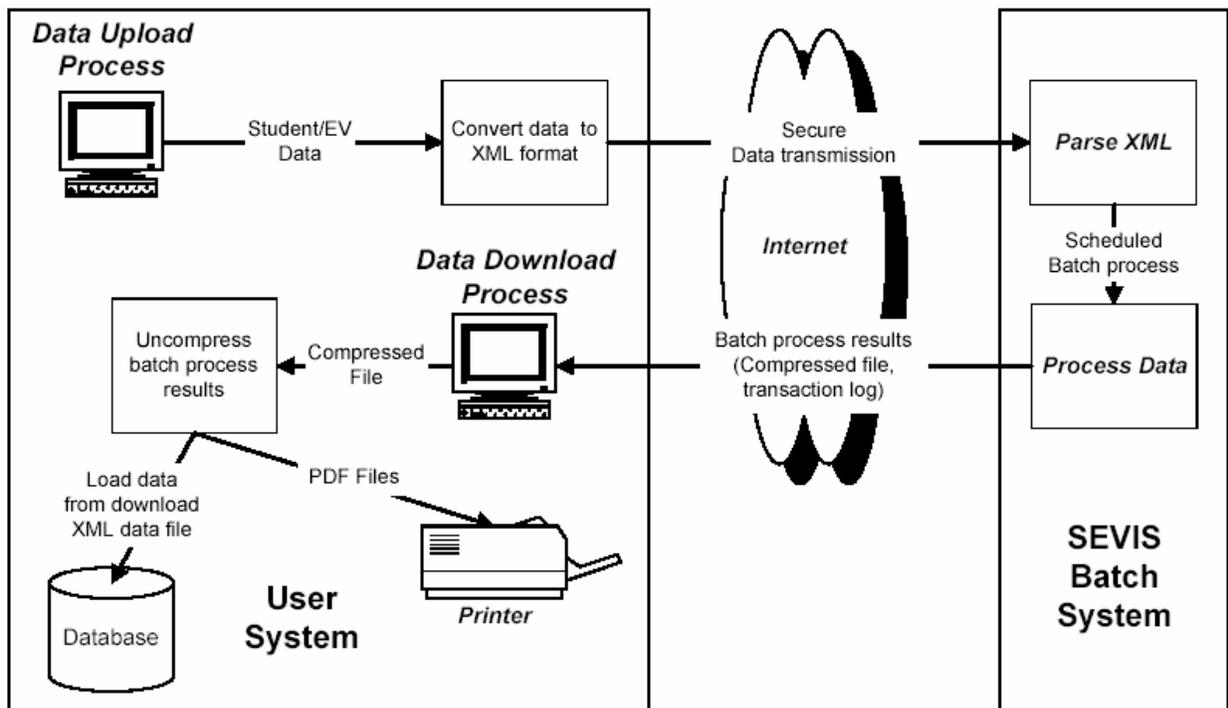
2.3 Upload and Download Processes

Connection with the SEVIS batch process is accomplished using HyperText Transfer Protocol Secure (HTTPS) which is a communications protocol designed to transfer encrypted information between computers over the Internet. For batch processing, HTTPS opens a secure session with the specified site address for SEVIS. The user system will send an XML document compliant

with the SEVIS XML schema to SEVIS. SEVIS will return an XML reply with the HTTP response indicating the result of the XML document that was sent.

Exhibit 2, Overview of the SEVIS Batch Upload and Download Process, provides a representation of the actual upload and download processes between the school, program and SEVIS. Student and EV data is converted to a file in XML format and includes the school or program ID and batch ID. Connection is made with SEVIS, and if the file is a valid SEVIS file, the data is decrypted and transmitted to the SEVIS database. SEVIS processes the file and generates an XML file containing the results of the school or EV data that was processed. That file is made available to schools and programs for download the following business day. Users connect again and download their file, including the XML transaction log results.

Exhibit 2: Overview of the SEVIS Batch Upload and Download Process



The data that is uploaded is saved to the SEVIS database and is available using SEVIS RTI. The file that is downloaded can be saved to the school or program's database and used to update their files related to student and EVs.

2.3.1 Results of the Batch Process

SEVIS generates a compressed file for each batch XML document accepted. The compressed file is referenced by the batch identifier supplied with the uploaded XML document. A school or program sponsor retrieves a compressed file that includes the:

- Transaction log in XML format

- Generated Forms I-20 or Forms DS-2019 in PDF format

2.3.2 Batch Beta Test Processing

The purpose of the batch beta test process is to determine whether a school has properly registered its digital certificate, created and uploaded an XML file following the SEVIS schema, and downloaded the results of the test.

Testing the batch process includes the following:

1. The school user creates a batch (XML) file to be uploaded.
2. The school user accesses the ICE SEVIS web site (the SEVIS Batch-file Transfer Processing section) to retrieve the *SEVIS Test Batch-File Transfer Process Instructions*, registers for Batch Beta testing following the procedures documented, and selects the appropriate link to connect to the Batch Beta Test system.
3. The school uploads the batch (XML) file to SEVIS.
4. The school's digital certificate and XML schema are validated by SEVIS and a transaction log documenting any errors identified with the batch file is created and made available to the school.
5. The school downloads the zip file containing the transaction log in XML format.
6. The school user reviews the transaction log to identify any errors, corrects the errors, and repeats the upload process for the corrected records.

3. HELP FACILITIES

To report SEVIS-related issues or problems, contact the SEVIS Help Desk at 1-800-892-4829 during the hours of 8:00 a.m. and 8:00 p.m. Eastern Time, Monday through Friday. Calls received outside these hours will be recorded for response on the next business day.

Appendix A - Acronyms

The following acronyms are used in this document:

ACRONYM DEFINITION

API	Application Program Interface
ARO	Alternate Responsible Officer
DHS	Department of Homeland Security
DOS	Department of State
EST	Eastern Standard Time
EV	Exchange Visitor
HTTPS	HyperText Transfer Protocol Secure
PDF	Adobe Portable Document Format
PDSO	Principal Designated School Official
RO	Responsible Officer
RTI	Real-time interactive
SSL	Secure Sockets Layer
SEVIS	Student and Exchange Visitor Information System
XML	Extensible Markup Language