National Institute of Standards and Technology

Information Technology Laboratory

Information Access Division

Image Group

Biometrics Clients Lab

January 2013

**NIST’s Biometric Identity Assurance Service (BIAS) Reference Implementation**

**Disclaimer**

This software was developed at the National Institute of Standards and Technology (NIST) by employees of the Federal Government in the course of their official duties. Pursuant to title 17 Section 105 of the United States Code. This software is not subject to copyright protection and is in the public domain. NIST assumes no responsibility whatsoever for use by other parties of its source code or open source server, and makes no guarantees, expressed or implied, about its quality, reliability, or any other characteristic.

Specific hardware and software products identified in this open source project were used in order to perform technology transfer and collaboration. In no case does such identification imply recommendation or endorsement by the National Institute of Standards and Technology, nor does it imply that the products and equipment identified are necessarily the best available for the purpose.

NIST’s BIAS reference implementation is not free of bugs/issues and is not a production-ready application.

**What is this?**

This package includes two (2) components: a client application and a service application. Both pieces were written to conform to an OASIS BIAS (OASIS, 2012) conformance level 2; additionally, see INCITS 442:2010 (INCITS, 2010) for further information. A level 2 conformant application provides support for enrollment, verification (1 to 1), and identification (1 to many).

Both the service and client applications were written and tested under Microsoft Windows Server 2008 R2 x64 and Microsoft Windows 7 Ultimate x86/x64.

**Service**

The service component is written in Visual Basic.NET using Microsoft Visual Studio 2010 Professional. The BIAS Library directory contains generated code using the *svcutil* tool and the BIAS WSDL. The BIAS Service directory contains the service implementation class as well as any helper classes and the main class to get the service configured and running.

By default, the service uses C:\Temp\BIAS as its local repository to store and query biometric/enrollment data. The service, by default, runs on localhost and port 12345. To change these values, edit Constants.vb.

**Client**

The client component is written in Adobe Flex/ActionScript 3.0 using Adobe Flash Builder 4.0. This can be run from a local webserver or just as a local file. For security purposes, the service must be run on the same machine; to get around this, visit Adobe’s documentation about crossdomain.xml files.

**WSDL**

The BIAS WSDL is provided with this distribution as well as batch files to facilitate code regeneration. The BIAS WSDL is updated to reflect the OASIS BIAS Committee Specification Draft 6. The CBEFF XML schema is tailored to become code generation friendly.

**Known Issues**

1. The NBIS debug DLL doesn’t always work nicely with Visual Studio. Use the release DLL, instead.
2. Same-machine restriction – the service and client need to be running on the same operating system.
3. Microsoft Visual Studio only supports a subset of the full XML specification (http://msdn.microsoft.com/en-us/library/ms733112.aspx).
4. Run service as Administrator
   1. If unable to run service, try adding a rule in netsh to allow for a user/URL to be used (Lookup ‘netsh http add urlacl’).

**Quick Start**

1. Verify that the directory, *C:\Temp\BIAS*, exists. If it does not, run the following command (without quotes) in an elevated command prompt: “*mkdir* *C:\Temp\BIAS*”
2. Add a firewall rule to allow this application to run on a specific port. Run the following command (without quotes) in an elevated command prompt: “*netsh http add urlacl url=http://+:12345/ user=Administrator*”
3. Install Internet Information Services (IIS) through Control Panel 🡪 Programs and Features 🡪 Turn Windows on or off
   1. Copy the contents of *.\Flex Client\bin-debug\* into the *wwwroot* of your IIS installation. This is typically at *C:\inetpub\wwwroot*
4. Verify that you have the latest Adobe Flash Player installed.
5. Open Visual Studio as Administrator.
   1. From Visual Studio, open the Service’s VS Solution file.
   2. Set the startup project to the *BIAS Service* project.
   3. Run the solution
6. Open a web browser and navigate to [*http://localhost/index.swf*](http://localhost/index.swf)
7. Perform some operations.
   1. The ‘BIAS/Sample Images/’ contains sample biometric images to use with BIAS. Only WSQ and Bitmap are currently supported.

**Contact**

We would like to hear how others are using BIAS and if this implementation helped with their own. Please submit all questions, comments, suggestions, or issues to [kevin.mangold@nist.gov](mailto:kevin.mangold@nist.gov)

**References**

INCITS. (2010, July 20). *INCITS*. Retrieved from INCITS: http://www.techstreet.com/standards/incits/442\_2010?product\_id=1730066

NIST. (2013, January 14). *Biometric Web Services*. Retrieved from Biometric Web Services: http://bws.nist.gov/

OASIS. (2012, December 12). *Biometrics Identity Assurance Services (BIAS) SOAP Profile Version 1.0 -- OASIS Standard*. Retrieved from OASIS: http://docs.oasis-open.org/bias/soap-profile/v1.0/os/biasprofile-v1.0-os.html