

## NIST/ITL CSD Biometric Conformance Test Software Web

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## 1. Disclaimer

#### NIST/ITL BioCTS Web

#### October 2010

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# 2. NIST/ITL CSD Support for Biometrics Standards and Conformance Testing

NIST/ITL Computer Security Division supports the development of biometric conformance testing methodology standards and other conformity assessment efforts through active technical participation in the development of these standards and the development of associated conformance test architectures and test suites. These test tools are developed to promote adoption of these standards and to support users that require conformance to selected biometric standards, product developers and testing labs.

## 3. BioCTS Overview

BioCTS is a traditional desktop based application developed in Microsoft<sup>®</sup> C# used as either the installer Graphical User Interface, or Command Line to test conformance to Biometric Data Interchange Records. There are two Conformance Test Architectures (CTAs):

- Tests Implementations of ANSI/NIST-ITL 1-2011 and ANSI/NIST-ITL 1-2011 Update: 2013
- Tests Implementations of select ISO/IEC 19794-X Generation 1 & 2 Data Formats, ANSI/INCITS, and several PIV Profiles of Standards

The software tests 1000s+ of files in a single Batch Test, allows editing of files, and provides charts, and detailed test results in text and XML formats.

## 4. Overview

BioCTS Web is a Web-Based application that runs BioCTS Conformance Test Suites (CTSs) within an Active Server Page (ASP) running Microsoft<sup>®</sup> .NET software (ASP.NET). Once installed on a server, BioCTS Web allows for remote testing through a web browser. This document details the steps needed to install BioCTS Web on an end-user computer, running Microsoft<sup>®</sup> Windows<sup>®</sup> 7, for evaluation.

### 4.1. Requirements

Required Windows<sup>®</sup> Features that must be turned on:

- Internet Information Services
  - o Web Management Tools
    - IIS Management Console
  - World Wide Web Services
    - Application Development Features
      - .NET Extensibility
      - ASP.NET
      - ISAPI Extensions
      - ISAPI Filters
    - Common HTTP Features
      - Default Document
      - Directory Browsing
      - HTTP Errors
    - Health and Diagnostics
      - HTTP Logging
      - Request Monitor
    - Performance Features
      - Static Content Compression
    - Security
      - Request Filtering

Additional Required Software:

- Web Deploy (<u>http://www.iis.net/downloads/microsoft/web-deploy</u>)
  - x86 English Download: <u>http://go.microsoft.com/fwlink/?LinkID=309495</u>
  - o x64 English Download: <u>http://go.microsoft.com/fwlink/?LinkID=309497</u>

## 5. Guide

### 5.1. Download and Installation

Steps to Install Internet Information Services for Windows<sup>®</sup>, using Microsoft<sup>®</sup> Windows<sup>®</sup> 7

1. Open Control Panel, Click on Programs and Features

😋 💽 🗢 💷 🕨 Control Panel 🕨 All	Control Panel Items 🕨	-	Search Control Panel
Adjust your computer's setting	gs		View by: Small icons 🔻
🏲 Action Center	🛱 Administrative Tools	📑 AutoPlay	🐌 Backup and Restore
Biometric Devices	🏘 BitLocker Drive Encryption	💶 Color Management	Credential Manager
💾 Date and Time	🌏 Default Programs	🔲 Dell Touchpad	📑 Desktop Gadgets
📇 Device Manager	na Devices and Printers	🖳 Display	lase of Access Center
F Folder Options	🚺 Fonts	閪 Getting Started	🝓 HomeGroup
🗾 IDT Audio Control Panel	🚨 Indexing Options	🔂 Internet Options	🕌 Java
🕮 Keyboard	📨 Location and Other Sensors	Mail (32-bit)	Ø Mouse
💺 Network and Sharing Center	🛄 Notification Area Icons	🛃 NVIDIA Control Panel	🧠 NVIDIA nView Desktop Manager
Performance Information and Tools	s 🧧 Personalization	🧱 Phone and Modem	Power Options
Programs and Features	P Recovery	🔊 Region and Language	🐻 RemoteApp and Desktop Connections
Sound	Speech Recognition	😧 Symantec LiveUpdate (32-bit)	🔞 Sync Center
🕎 System	🛄 Taskbar and Start Menu	📧 Troubleshooting	🎎 User Accounts
📑 Windows CardSpace	🕍 Windows Defender	🔗 Windows Firewall	🖼 Windows Mobility Center
🖉 Windows Update			

Figure 1 - Selecting Programs and Features

Control Panel Home View installed updates Turn Windows features on or	Uninstall or change a program To uninstall a program, select it from the lis	st and then click Uninstall, Change, or Re	pair.	
Off Install a program from the	Organize	Publisher	Installed On Size	Version

2. Click on Turn Windows features on or off in the left panel

Figure 2 - Selecting Turn Windows Features on or off

3. With an internet connection, Check **Internet Information Services**, as well as any feature not checked that is mentioned in the Requirements Section above, wait for them to install

		Windows Features			-
View installed updates	Uninstall or ch	Turn Windows features on or off	0		
Turn Windows features on or off	Organize 💌	To turn a feature on, select its check box. To check box. A filled box means that only par	o turn a feature off, clear its t of the feature is turned on.	8== ▼ FM	0
Install a program from the network	Name	Games     Indexing Service     Internet Explorer 10		On Size Version	
	d	Internet Explorer 10     Internet Information Services     Internet Information Services Ho	E Stable Web Core		
		Media Fe Internet Information Se     Microsot along with support for     Microsot ASP and CGI, and local	rvices provides support for Web an ASP.NET web sites, dynamic conter and remote management.	d FTP servers, nt such as Classic	
	-	Print and Document Services     Remote Differential Compression     RIP Listener	i la	- 5	
		R Services for NFS	OK Cancel		
	*				+

Figure 3 - Enabling Internet Information Services

4. Navigate to the IIS website and download Web Deploy 3.5, installing after the download completes (<u>http://www.iis.net/downloads/microsoft/web-deploy</u>)

5. After everything is installed, start the IIS Manager by pressing the Start button and typing "inetmgr" into it

Programs (1)		
💱 inetmgr		
♀ See more results		
inetmgr	×	Shut down 🕨

Figure 4 - Start Command to Launch IIS Manager

N Internet Information Services (IIS) Manager	
	🖅 🖂 🚱 🗸
File View Help	
Connections Home Filter: • @ Go · Show All Group by: Area • : • ASP.NET Asp.NET NET NET Authorizat Compilation Pages Globalization Providers Session State SMTP E-mail	Actions Manage Server Restart Start
IS Authentic Compression Default Document Default Document Default	Version et al. (1997) et al. (1997
Ready	

6. After starting the IIS Manager, it should look similar to the following



7. Expand the Left Panel under Connections until the section Sites is visible, click Add Web Site...

🛐 Internet Information Services (IIS) Manager	
	📴 🛛 🟠 🔞 🗸
File View Help	
Connections HOme Filter:	Actions Manage Server Restart Start Stop View Application Pools View Sites Deploy Server Package Change .NET Framework Version
Authentic Compression       Default       Directory       Error Pages       Handler       HTTP       ISAPI and       ISAPI Filters         Logging       MIME Types       Modules       Output       Request       Server       Worker         Management       Imagement       Ima	Help     Online Help
Ready	• <b>1</b> .:



8.	The following features were used to test BioCTS We	b
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Internet Information Services (IIS)	) Manager		-	
File View Help	-	Add Web Site		
Connections	Filter. ASP.NET Authorizat Com Authorizat Com Providers Sessi IS IS Authentic Com Logging MIM Management IS Features View (F	Site name:       Application pool:         BioCTSWeb       DefaultAppPool         Content Directory       Physical path:         C:\inetpub\www.voot\BioCTSWeb          Pass-through authentication          Connect as       Test Settings         Binding          Type:       IP address:         Port:          http       All Unassigned         Host name:          Example: www.contoso.com or marketing.contoso.com         V       Start Web site immediately         OK       Cancel	sand trols E	Actions       Manage Server       Restart       Start       Stop       View Application Pools View Sites       Deploy       Stop Strong Server Package       Import Server of Site Package       Change .NET Framework Version       Help Online Help
Ready				S.



9. After the Web Site has been added, the BioCTS Deployment Package can be imported. Click on BioCTS Web, then Import Application on the right

Internet Information Services (IIS) Manager	
Image: Sites → BioCTSWeb →	📴 🛛 🟠 🔞 🗸
File View Help	
Connections	Actions
BIOCISWED Home	🔉 Explore
▲ ····································	Edit Permissions
A G Stes ASP.NET	Edit Site
🛛 🔊 😓 🕹 🔚 🞱 🔚 🚱	Bindings Basic Settings
NET INET INET INET INET INET Profile INET Profile Connection Machine Key	View Applications
Authorizat Compilation Pages Globalization Levels Settings Strings	View Virtual Directories
	Manage Web Site
Pages and Session State SMTP E-mail	😂 Restart
Controls	Start
211	Stop
	Browse Web Site Browse *:8080 (http)
Authentic Compression Default Directory Error Pages Handler HTTP ISAPI Filters Logging	Advanced Settings
Document Browsing Mappings Kespon	Configure
	Limits
MIME Types Modules Output Request SSL Settings	Deploy 🔿
Carning Filtering	Export Application
Management · · · · · · · · · · · · · · · · · · ·	Import Application
	Help     Opling Help
	• • •
Keady	<b>*i</b> .:)

Figure 8 - Importing an Application

10. Specify the path to the location where the BioCTSWebPackage was unzipped, and specify the file contained within it titled BioCTSWeb.zip, click Next

💐 Internet Information Services (IIS) Ma	nager	
G S Sites	BioCTSWeb	😰 🔟 🙆 🔹
File View Help	Import Application Package	
Connections	Select the Package	Actions
Application Pools	Filte AS Specify the location of the package (for example, C:\WebApplication.zip). Package path: C:\Users\DYAGA\Desktop\BioCTSWebPackage\BioCTSWebPackage\BioCTSWeb.zip Browse	Edit Site Bindings Basic Settings View Applications View Virtual Directories
	Page Cc	E Manage Web Site C Restart Start Stop Browse Web Site E
	Aut	Browse *:8080 (http)     Advanced Settings      Configure     Limits
	Ma Previous Next Finish Cancel	Deploy         (a)           Import Application         Import Application           Import Application         (b)           Help         Online Help
Ready		۰. ۹.:

Figure 9 - Selecting the Import Package

11. Ensure all components of the package are selected, click Next



Figure 10 - Ensuring all Components are Checked

12. Give the Application a name and path - here BioCTSWeb was used, click next

Thternet Information Services (IIS) Manager			
G Sites → B	ioCTSWeb >	<b>`</b>	📴 🖂 😭 🗸
File View Help	Import Application Package		
Connections	Enter Application Package Information		Actions Explore Edit Permissions
Application Pools	Enter information that is required to install this package:         Application Path Full site path where you want to install your application (for example, Default Web Site/Application). BioCTSWeb/ BioCTSWeb         ApplicationServices-Web.config Connection String data source=.\SQLEXPRESS;Integrated Security=SSPt;AttachDBFilename= DataDirectory aspnetdb.mdf;User Instance         Previous       Next         Finish       Cancel	E	Edit Site Bindings Basic Settings View Applications View Applications View Virtual Directories Manage Web Site Stat Stat Stat Browse Web Site Browse %8080 (http) Advanced Settings Configure Limits Deploy
Ready			•



13. After the package is imported, it will report a summary similar to this

🔓 Internet Information Services (IIS) Manager		
O     O     Image: State → BioCTSWeb →		🖾 🗟 🔞 🕢
File View Help		
Connections       Installation Progress and Summary         Application Pools       Filt         Stes       Stes         So Default Web Site       Filt         BioCTSWeb       Autr         Autr       Added 77 Files.         Autr       MIM	E	Actions           Actions           Explore           Edit Permissions           Edit Site           Bindings           Basic Settings           View Applications           View Applications           View Virtual Directories           Manage Web Site           © Restart           > Storp           Browse Web Site           © Browse Web Site           © Browse %8080 (http)           Advanced Settings           Configure           Limits           Deploy           @ Exact Applications
Ma Previous Next Finish Cancel	-	Import Application Help
Ready		Online Help

Figure 12 - Reviewing the Summary

14. When back at the IIS Manager, expand the section on the left, under Sites to show the new BioCTSWeb application under the BioCTSWeb site. It can be navigated to by selecting Browse

### from the right hand column

Internet Information Services (IIS) Manager	
Co Co Co Sites > BioCTSWeb > BioCTSWeb >	😰 🖂 🙆 •
File View Help	
Connections Connections Connection Pools Connection Pools Controls Cont	Actions Carbone Edit Permissions Basic Settings View Virtual Directories Manage Application Browse Application Browse *8080 (http) Advanced Settings Deploy Seport Application Finder Application Chine Help Online Help
Ready	• <u>1</u> .:

#### Figure 13 - Browsing to the new Application

15. BioCTS Web should be up-and-running

BioCTS Web - Conforman ×		
← → C □ localhost8080/BioCTSWeb	<b>减</b> 公	=
		20
Bio CTSWeb Biometric Conformance Test Software		
Current CTS: ISO/IEC 19794-6: 2011		
Choose File No file chosen Add more files		

Upload and Test

Figure 14 - BioCTS Web Up-And-Running

## 5.2. Running the Conformance Test Architecture

If following all of the above instructions in Installation section, BioCTS Web can be accessed by the following URL <u>http://localhost:8080/BioCTSWeb</u>

BioCTS Web currently supports a single Conformance Test Suite that tests implementations of the ISO/IEC 19794-6: 2011 standard<sup>1</sup>, but is being expanded to support of CTSs.

To use the software, click the "Choose File" button, and browse for a file to test; hitting "Add More Files" when necessary. Finally, pressing "Upload and Test" will perform the conformance testing on the specified files, and display the Overall Result, as well as a detailed test log.



Figure 15 - BioCTS Web after a test of 4 Files

<sup>&</sup>lt;sup>1</sup> ISO/IEC 19794-6: 2011 Biometric data interchange formats – Part 6: Iris image data