A secure data transmitter component for the SwissDec ELM/SalaryDeclaration V4 system

SwissDecTX 4.08

Our first customer has passed all certification tests for his salary application on June 26, 2009 and obtained the official SwissDec 2.2 certification on September 7, 2009. Since then, fifteen more applications successfully passed the SwissDec certification tests across all regions of the country for SwissDec version 2.2, 3.0 and now 4.0.

The SwissDecTX transmitter satisfies all SwissDec technical transmission requirements including data validation, digital signature, encryption, interoperability tests, transmission logging, as well as rich response formatting to HTML! SwissDecTX is 100% ready for production with SwissDec ELM v4.

Axel Rietschin Software Developments http://www.softwarecomponents.ch

Goals

- Makes salary data transmission (*much*) easier
- Implement all SwissDec security requirements
  (digital signatures, encryption, error handling, result formatting…)
- Easily accessible (any language or environment)
- Fully "SwissDec certifiable" – guaranteed!
- Easy integration with existing applications: DLL, COM, .NET, scripting, command-line…, Delphi, PROGRESS, VB6… we've done all this already!

What SwissDecTX is not

- Not a payroll application
- Not an end-user program
- Not an XML salary data generator

➡ You create the data (e.g. ICHAGCompany.xml)
SwissDecTX sends it to the Web Service,
using SwissDec protocols and strong security.

What is SwissDecTX?

- Secure SwissDec salary data transmitter for…
  - .NET managed code (C#, VB.NET,…)
  - COM (interoperability with VB6, Delphi, PROGRESS…)
  - Classic DLL binding (C, C++, WINDEV,…)
  - Command-line interface (any dev. environment)
- Takes care of XML validation (XSD schemas)
- Takes care of all transmission technical issues
- Optional disk-based transmission log
- Point and click GUI configuration tool
- Command-line utility, XML Helpers, XSLT formatting

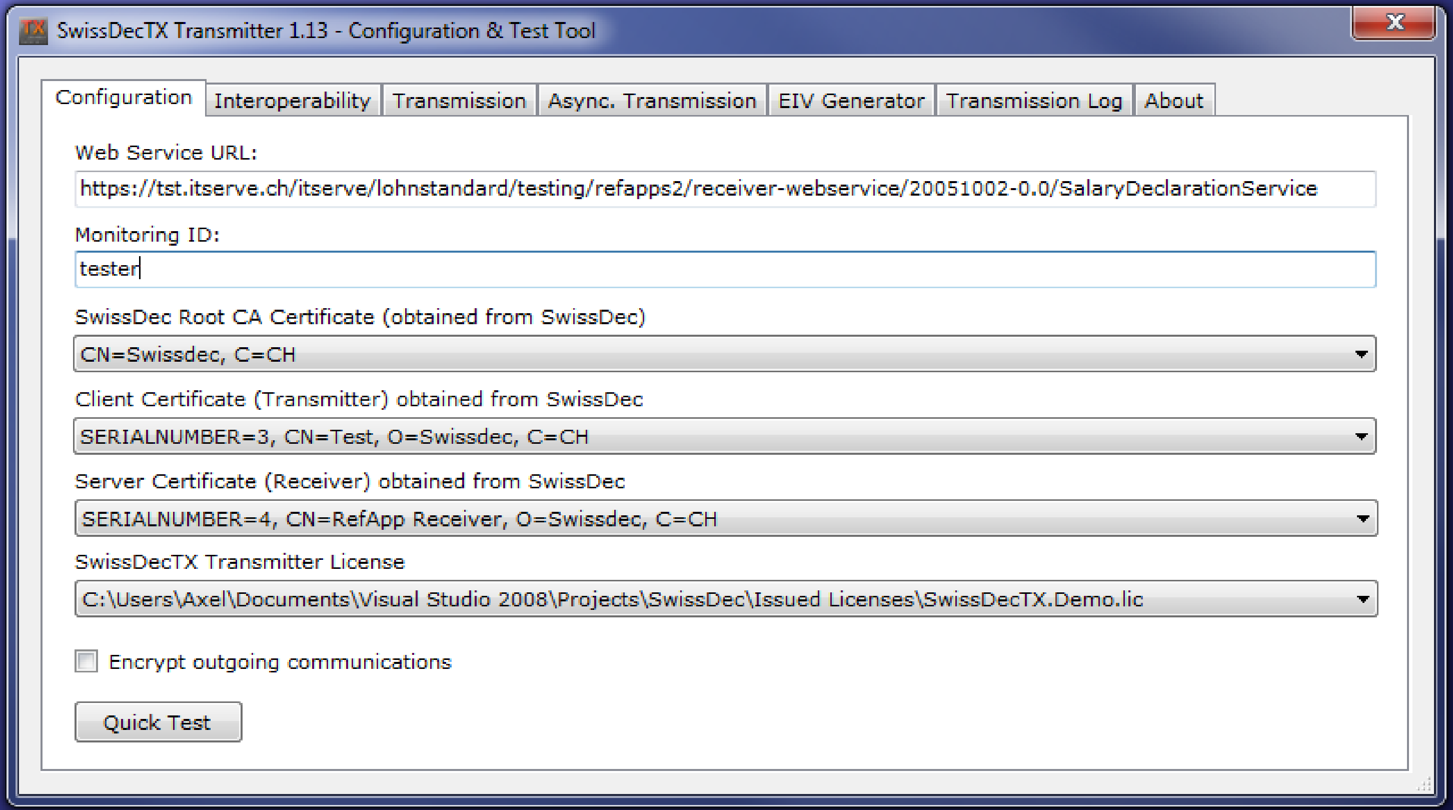
Communication

- SOAP + WS-Security
- Supports HTTP and HTTPS (with authentication)
- Supports HTTP Proxy (with proxy authentication)
- X509 client and server certificates
- Message signing and time stamping
- Message encryption & decryption
- Verification of replies (signatures, timestamps)
- “EIV” file generation, raw SOAP messages & replies

Configuration

- GUI configuration tool
  - Certificate installer / selector
  - Web Service URL configuration, quick interop test (suitable for the certification), transmission tests, optional log
  - Encryption option
- Settings saved to registry
  - Opportunity to configure at setup time
  - Most settings available programmatically
- Command-line tool supports certificate installation

Configuration & Test Tool



SwissDecTX Transmitter 1.13 - Configuration & Test Tool

Web Service URL:
https://tst.itserve.ch/itserve/lohnstandard/testing/refapps2/receiver-webservice/20051002-0.0/SalaryDeclarationService

Monitoring ID:
tester

SwissDec Root CA Certificate (obtained from SwissDec)
CN=Swissdec, C=CH

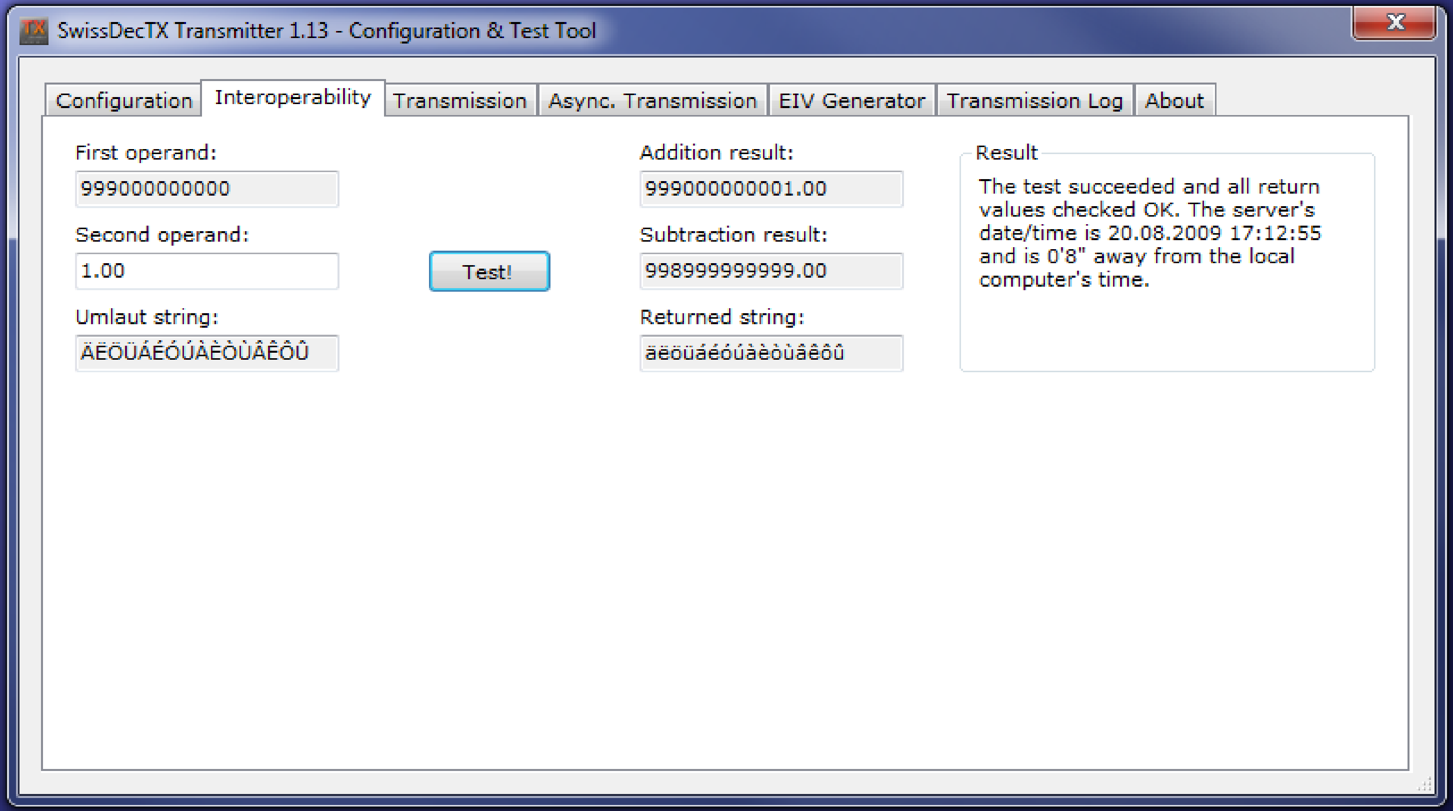
Client Certificate (Transmitter) obtained from SwissDec
SERIALNUMBER=3, CN=Test, O=Swissdec, C=CH

Server Certificate (Receiver) obtained from SwissDec
SERIALNUMBER=4, CN=RefApp Receiver, O=Swissdec, C=CH

SwissDecTX Transmitter License
C:\Users\Axel\Documents\Visual Studio 2008\Projects\SwissDec\Issued Licenses\SwissDecTX.Demo.lic

☐ Encrypt outgoing communications

Test: Interoperability



First operand: 999000000000

Second operand: 1.00

Umlaut string: ÄËÖÜÁÉÓÚÀÈÒÙÂÊÔÛ

Addition result: 999000000001.00

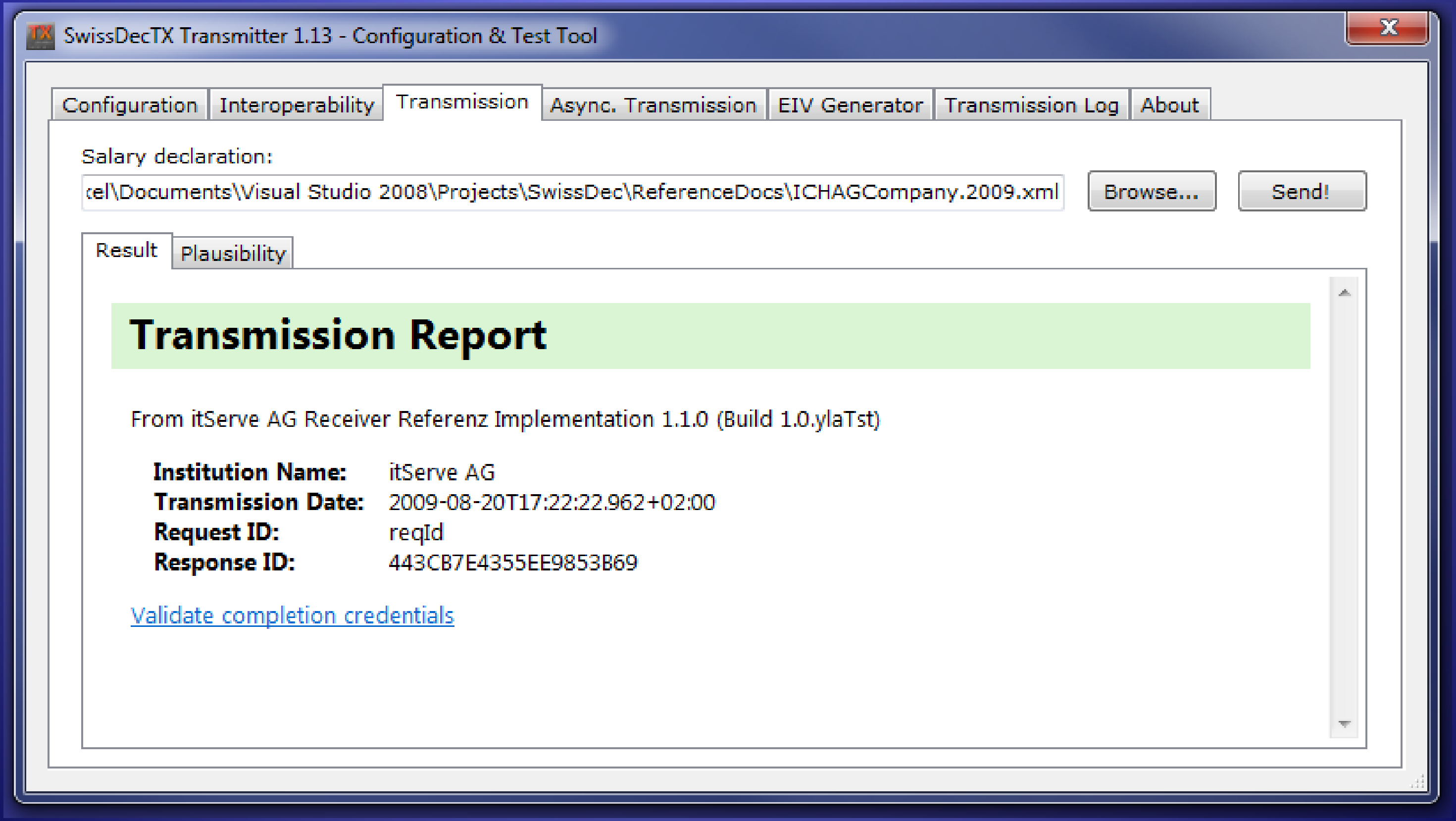
Subtraction result: 998999999999.00

Returned string: äëöüáéóúàèòùâêôû

Result

The test succeeded and all return values checked OK. The server's date/time is 20.08.2009 17:12:55 and is 0'8" away from the local computer's time.

Test: Transmission



Salary declaration: cel\Documents\Visual Studio 2008\Projects\SwissDec\ReferenceDocs\ICHAGCompany.2009.xml

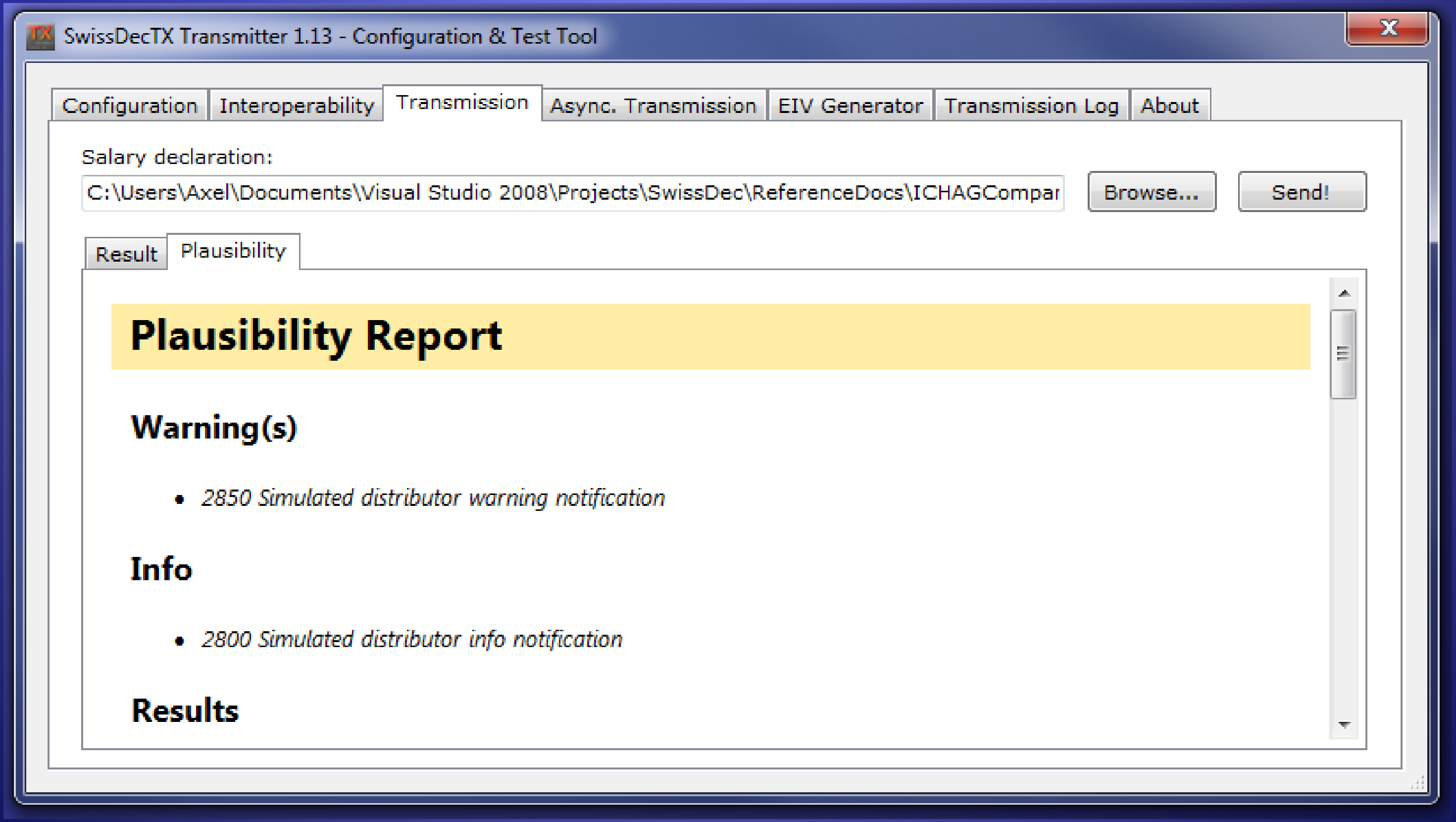
Transmission Report

From itServe AG Receiver Referenz Implementation 1.1.0 (Build 1.0.ylaTst)

Institution Name: itServe AG
Transmission Date: 2009-08-20T17:22:22.962+02:00
Request ID: reqId
Response ID: 443CB7E4355EE9853B69

Validate completion credentials

Test: Plausibility Report



Salary declaration: C:\Users\Axel\Documents\Visual Studio 2008\Projects\SwissDec\ReferenceDocs\ICHAGCompar

Plausibility Report

Warning(s)

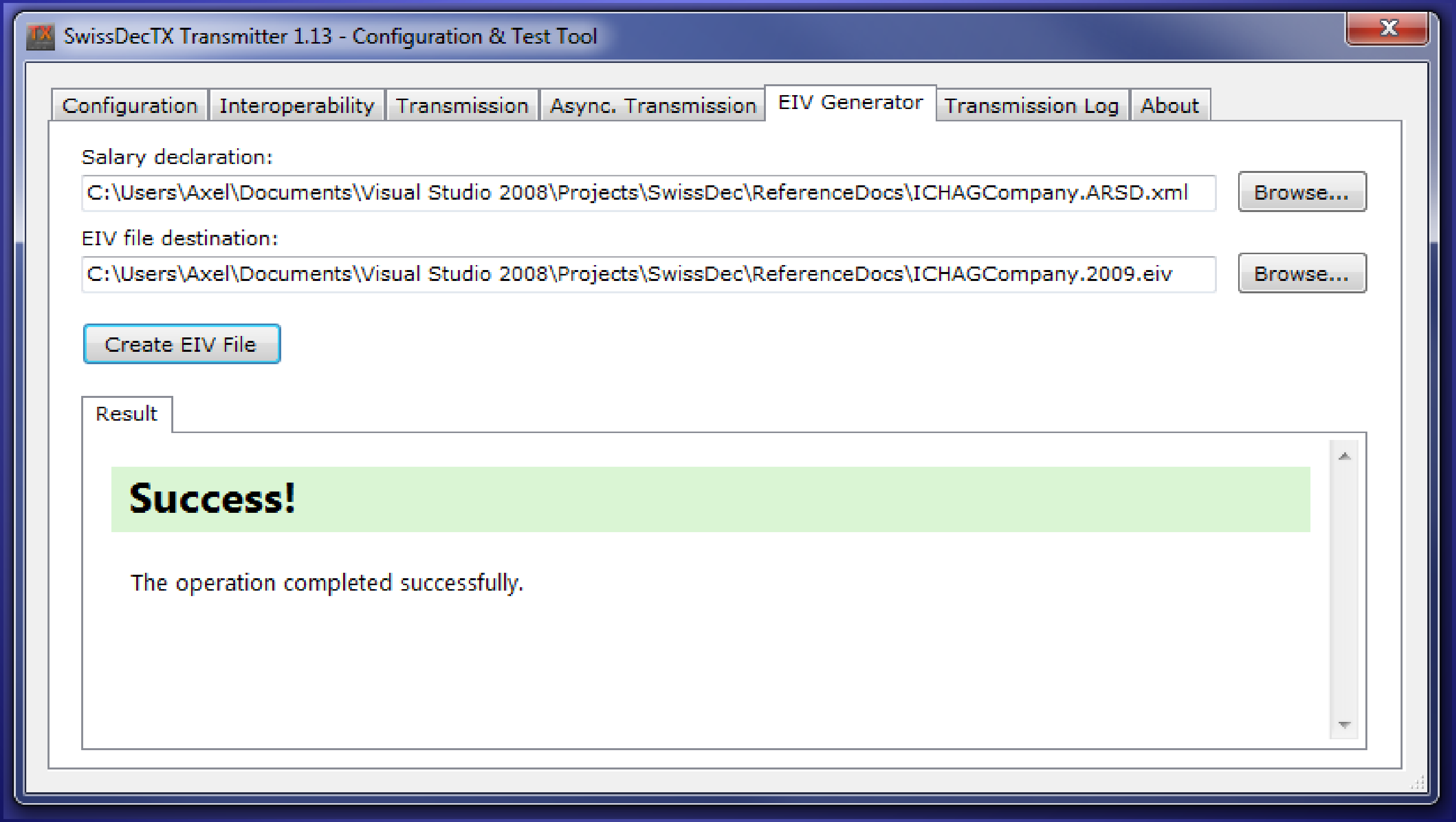
- *2850 Simulated distributor warning notification*

Info

- *2800 Simulated distributor info notification*

Results

Test: EIV File Creation



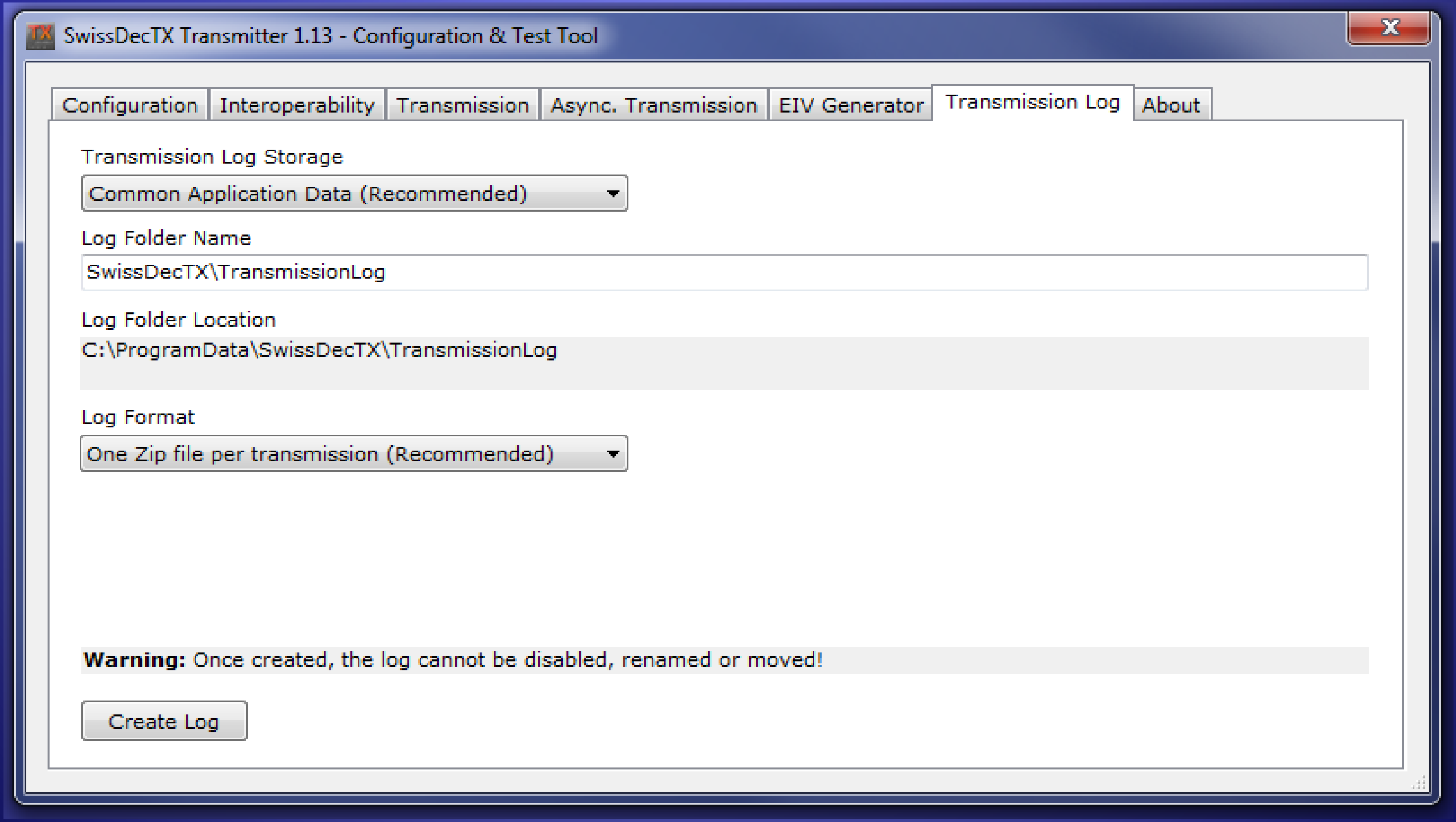
Salary declaration: C:\Users\Axel\Documents\Visual Studio 2008\Projects\SwissDec\ReferenceDocs\ICHAGCompany.ARSD.xml

EIV file destination: C:\Users\Axel\Documents\Visual Studio 2008\Projects\SwissDec\ReferenceDocs\ICHAGCompany.2009.eiv

Success!

The operation completed successfully.

Transmission Log Config



Transmission Log Storage
Common Application Data (Recommended)

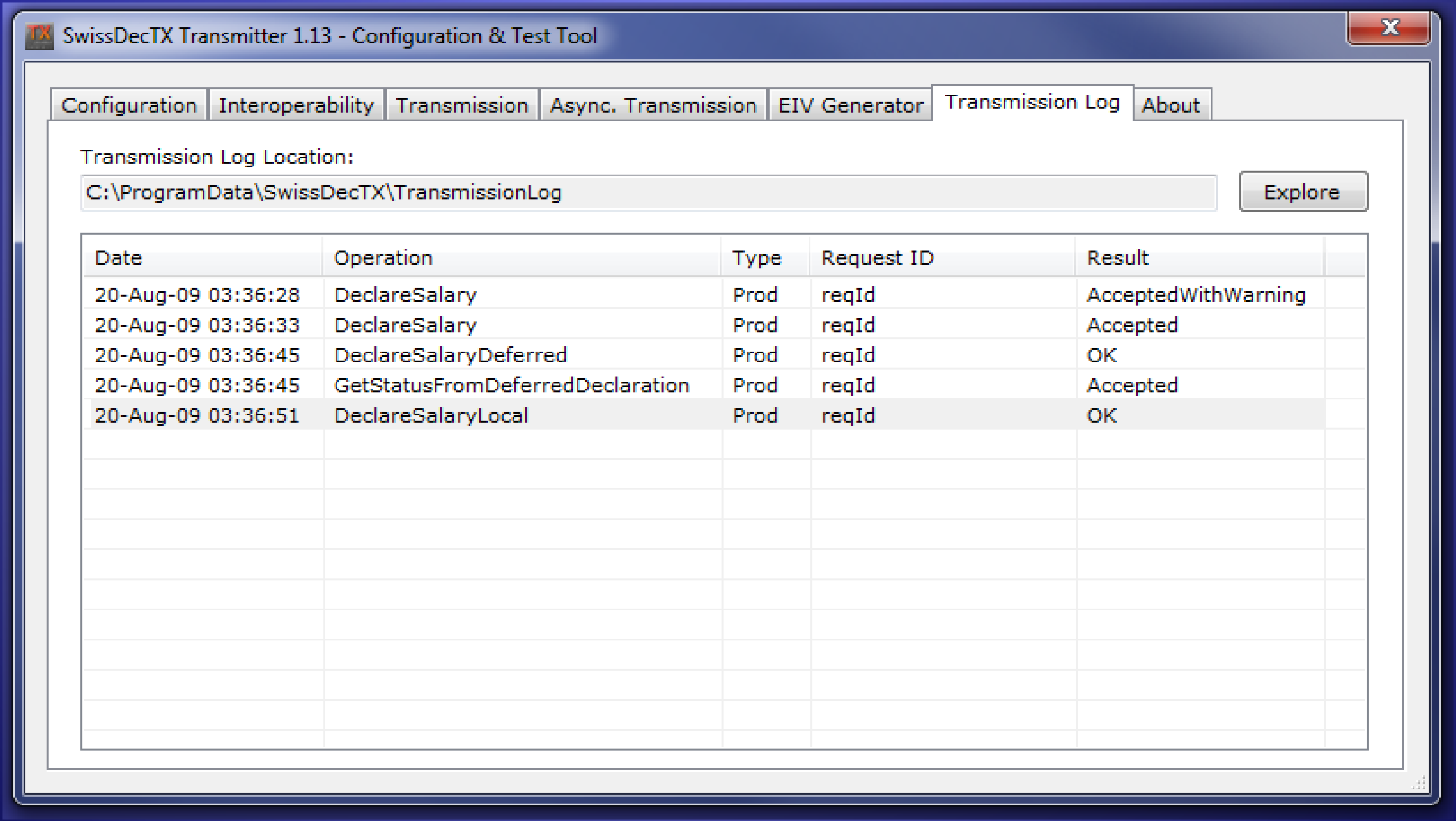
Log Folder Name
SwissDecTX\TransmissionLog

Log Folder Location
C:\ProgramData\SwissDecTX\TransmissionLog

Log Format
One Zip file per transmission (Recommended)

Warning: Once created, the log cannot be disabled, renamed or moved!

Transmission Log



Transmission Log Location:

C:\ProgramData\SwissDecTX\TransmissionLog

Date	Operation	Type	Request ID	Result
20-Aug-09 03:36:28	DeclareSalary	Prod	reqId	AcceptedWithWarning
20-Aug-09 03:36:33	DeclareSalary	Prod	reqId	Accepted
20-Aug-09 03:36:45	DeclareSalaryDeferred	Prod	reqId	OK
20-Aug-09 03:36:45	GetStatusFromDeferredDeclaration	Prod	reqId	Accepted
20-Aug-09 03:36:51	DeclareSalaryLocal	Prod	reqId	OK

Installation

- Standalone silent installer (.exe)
- Pulls pre-requisites from web (DotNetFX 2.0)
- Transmitter assemblies goes to GAC
- DLL wrapper, command-line tool and configuration tool goes to \Program Files\SwissDecTX4
- Installation location is fixed
- Tiny package (~ 1.5MB) to bundle with your product and run once at install time
- Depends only on .NET 2.0, works on .NET 3.x / 4.x

System Requirements

- Same as .NET 2.0 SP1
- Baseline: Windows 2000 SP4 or later
- Windows XP, Vista, Windows 7, Windows 8, Server versions supported, 64-bit edition available upon request
- Only depends on .NET 2.0 SP1, no need to push .NET 3.x /4.x down to XP/W2K/Vista clients
- Clients can be *anything* (native, COM, .NET, …)

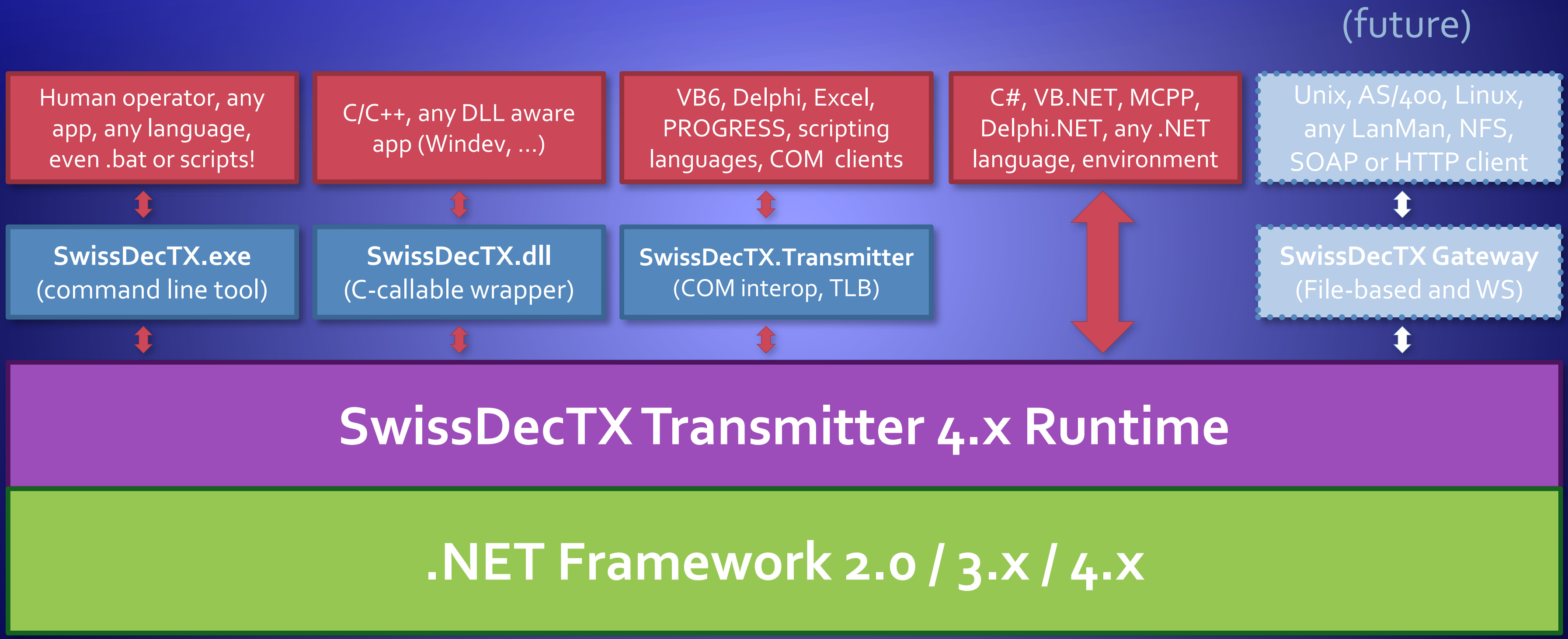
How to use it?

- Application creates XML declaration data
- Application invokes transmitter
  - Transmitter signs/encrypts/transmits data
  - Transmitter decrypts/checks/saves replies
  - Transmitter maintain transmission journal
  - Transmitter formats replies to HTML
- Application reads and displays/stores results
- Just a few lines of code to transmit/receive!

Transmit a Salary Declaration

```
try {

    var tx = new Transmitter();

    // Declare variables, create/load declaration data…

    tx.DeclareSalary(xmlDoc, out result, out messageSent, out
            messageReceived, out plausibility, out jobFinished,
            out transmissionDateUtc);

    // save / interpret results

} catch (Exception ex) {
    // Handle all errors here
}
```

Diagram



(future)

Human operator, any app, any language, even .bat or scripts!

C/C++, any DLL aware app (Windev, …)

VB6, Delphi, Excel, PROGRESS, scripting languages, COM clients

C#, VB.NET, MCPP, Delphi.NET, any .NET language, environment

Unix, AS/400, Linux, any LanMan, NFS, SOAP or HTTP client

SwissDecTX.exe
(command line tool)

SwissDecTX.dll
(C-callable wrapper)

SwissDecTX.Transmitter
(COM interop, TLB)

SwissDecTX Gateway
(File-based and WS)

SwissDecTX Transmitter 4.x Runtime

.NET Framework 2.0 / 3.x / 4.x

Development kit

- Transmitter API is fully documented (CHM file)
- Small code samples (C++, C# and VBS)
- Integrate and start transmitting in a day or less!
- Current state (03.2014)
  - Stable transmitter, in production, fully tested over more than 12'000 secure transactions on the test servers
  - Fifteen customer applications **certified** since Sept 7, 2009
  - Available now (get the demo and transmit today!)
  - SDK, language bindings, samples and documentation still evolving, optional "gateway" in development, XML Helpers

Licensing, maintenance

- Licensed “per application” regardless of number of developers or application copies sold
- **No redistribution royalties** for runtime components: **flat fee pricing model**.
- Maintenance and support plan available
- Free fully functional demo (locked to test servers)
- (Upcoming optional SwissDecTX Gateway will be licensed “per installation”, more details TBA)

Future?

- SwissDecTX v4.00, compatible with SwissDec v4 specifications, **is already available** for you to prepare for SwissDec v4 certification.
- We'll track future SwissDec specification updates and provide timely support for them, as we did for SwissDec 2.2, 3.0 and now SwissDec 4.0

About Us

- Extensive development experience, ranging from device drivers to internet-scale distributed systems
- Experience in creating and supporting custom APIs and frameworks for other developer's use
- Strongest C/C++/COM and Windows platform skills
- Strong .NET experience (since 1.0 beta1 in 2000!)
- Experience in working with small and large companies and teams

Call to action: contact us now!

Axel Rietschin Software Developments
36, Rue de Carouge
1205 Genève
(022) 321.70.22 (English and French spoken)

info@softwarecomponents.ch
http://www.softwarecomponents.ch