

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

# SwissDecTX 4.07

*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.*

# 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

The screenshot shows a Windows application window titled "SwissDecTX Transmitter 1.13 - Configuration & Test Tool". The window has a menu bar with the following items: Configuration, Interoperability, Transmission, Async. Transmission, EIV Generator, Transmission Log, and About. The main content area is divided into several sections:

- Web Service URL:** A text box containing the URL: `https://tst.itserve.ch/itserve/lohnstandard/testing/refapps2/receiver-webservice/20051002-0.0/SalaryDeclarationService`
- Monitoring ID:** A text box containing the text: `tester`
- SwissDec Root CA Certificate (obtained from SwissDec):** A dropdown menu showing the selected certificate: `CN=Swissdec, C=CH`
- Client Certificate (Transmitter) obtained from SwissDec:** A dropdown menu showing the selected certificate: `SERIALNUMBER=3, CN=Test, O=Swissdec, C=CH`
- Server Certificate (Receiver) obtained from SwissDec:** A dropdown menu showing the selected certificate: `SERIALNUMBER=4, CN=RefApp Receiver, O=Swissdec, C=CH`
- SwissDecTX Transmitter License:** A dropdown menu showing the selected license file path: `C:\Users\Axel\Documents\Visual Studio 2008\Projects\SwissDec\Issued Licenses\SwissDecTX.Demo.lic`

At the bottom of the window, there is a checkbox labeled "Encrypt outgoing communications" which is currently unchecked, and a "Quick Test" button.

# Test: Interoperability

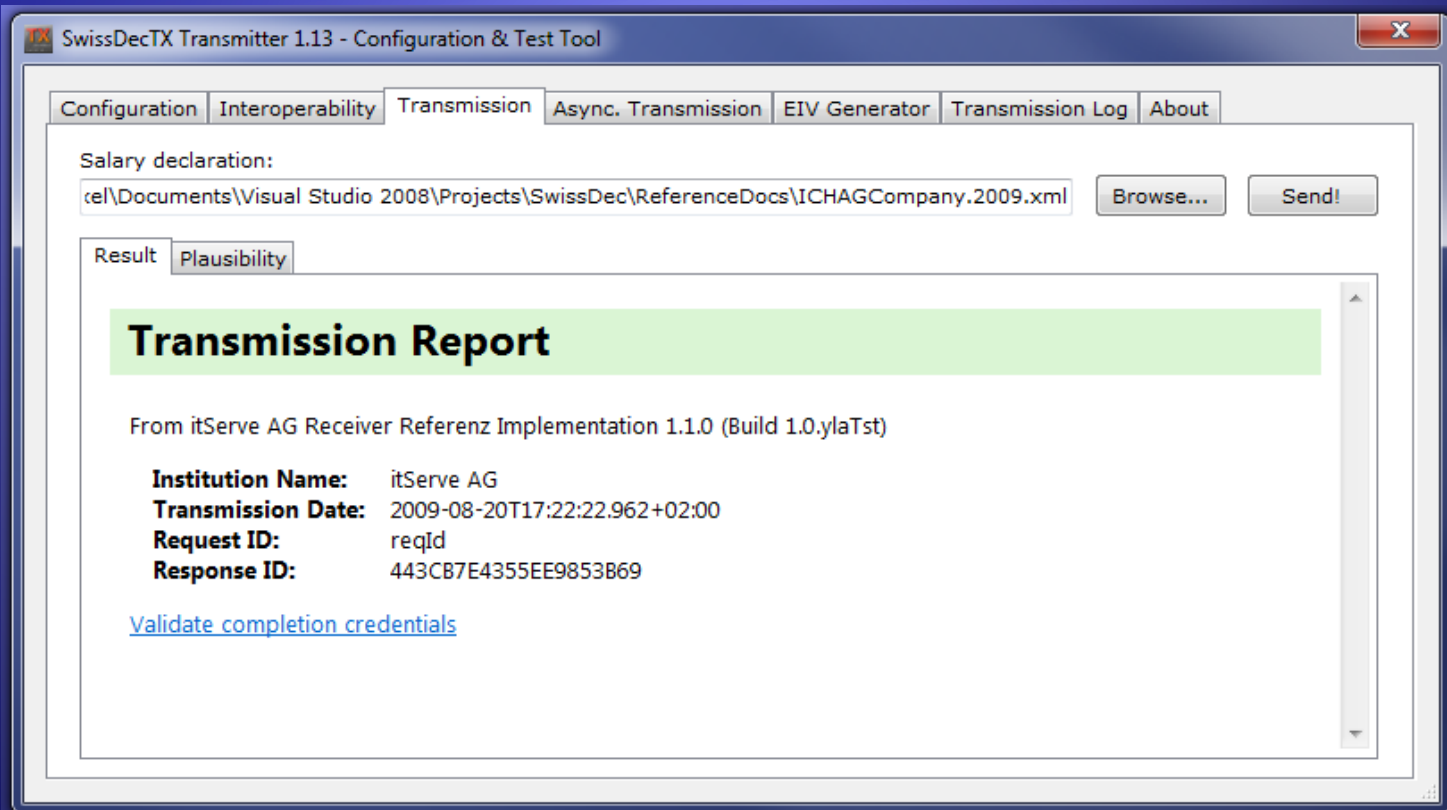
The screenshot shows the 'Interoperability' tab of the 'SwissDecTX Transmitter 1.13 - Configuration & Test Tool'. The interface includes several input fields and a 'Test!' button. The results of the test are displayed in a 'Result' box on the right.

Field	Value
First operand:	999000000000
Second operand:	1.00
Umlaut string:	ÄËÖÜÄËÖÜÄËÖÜÄËÖÜ
Addition result:	999000000001.00
Subtraction result:	998999999999.00
Returned string:	äëöüäëöüäëöüäëöü

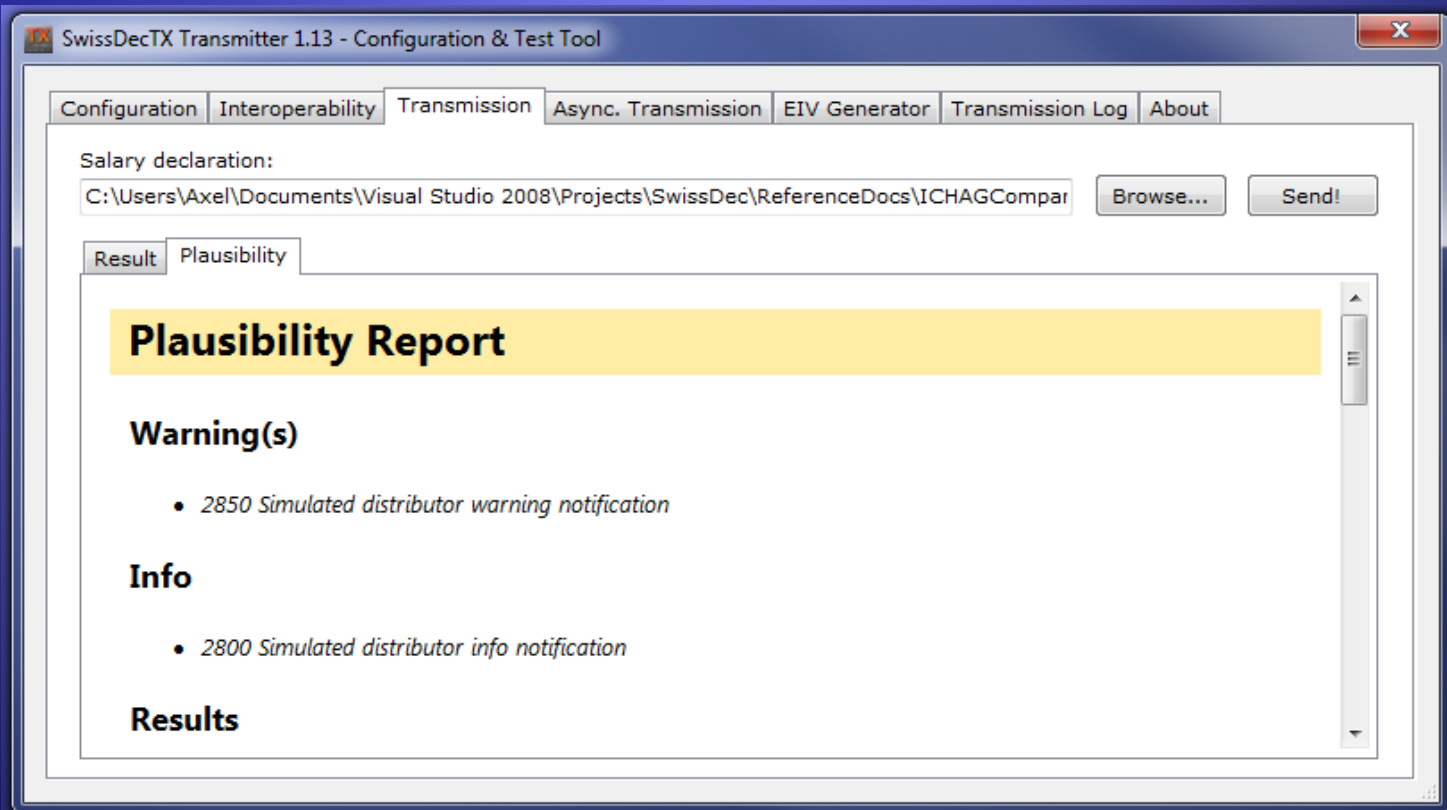
**Result**  
The test succeeded and all return values checked OK. The server's date/time is 20.08.2009 17:12:55 and is 0'8" away from the local computer's time.



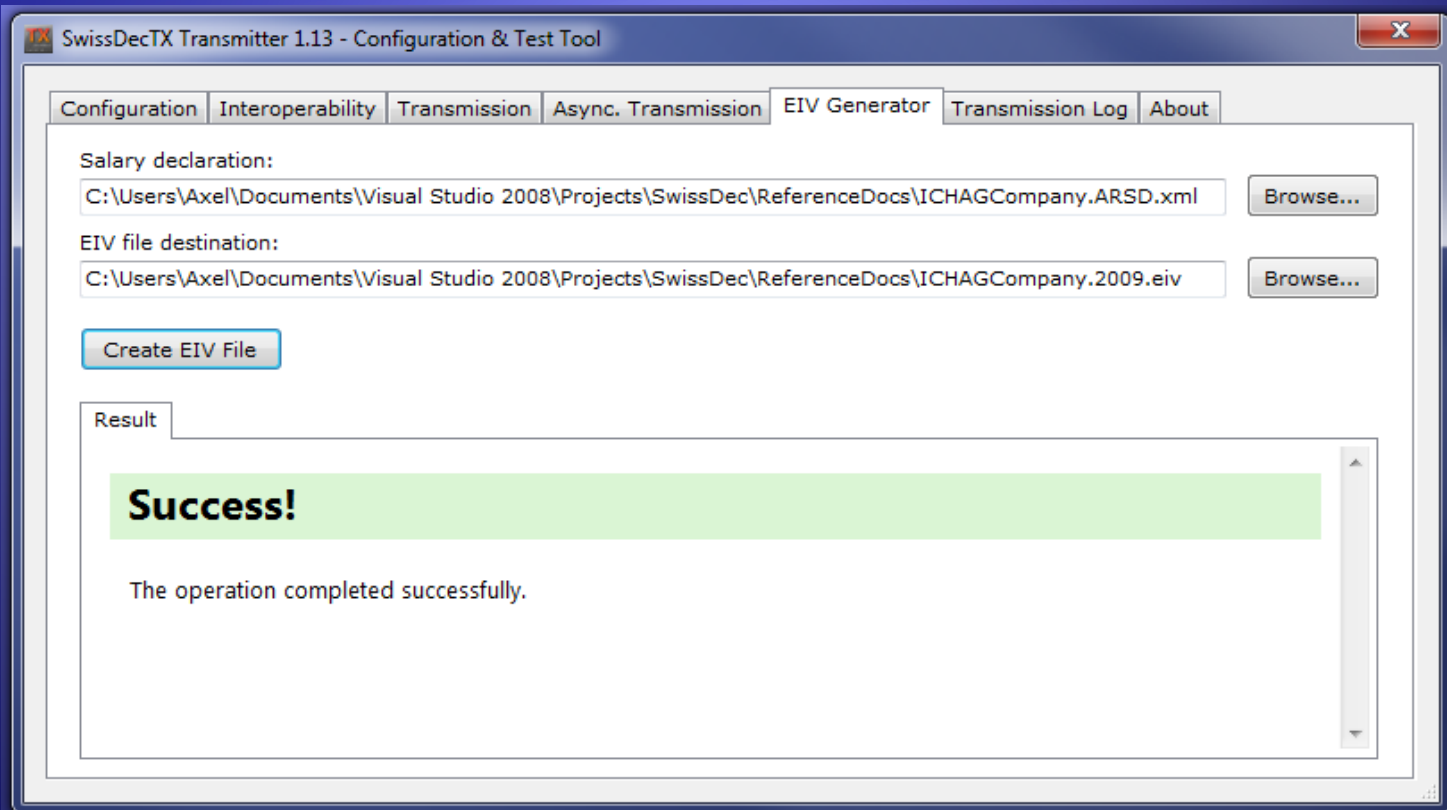
# Test: Transmission



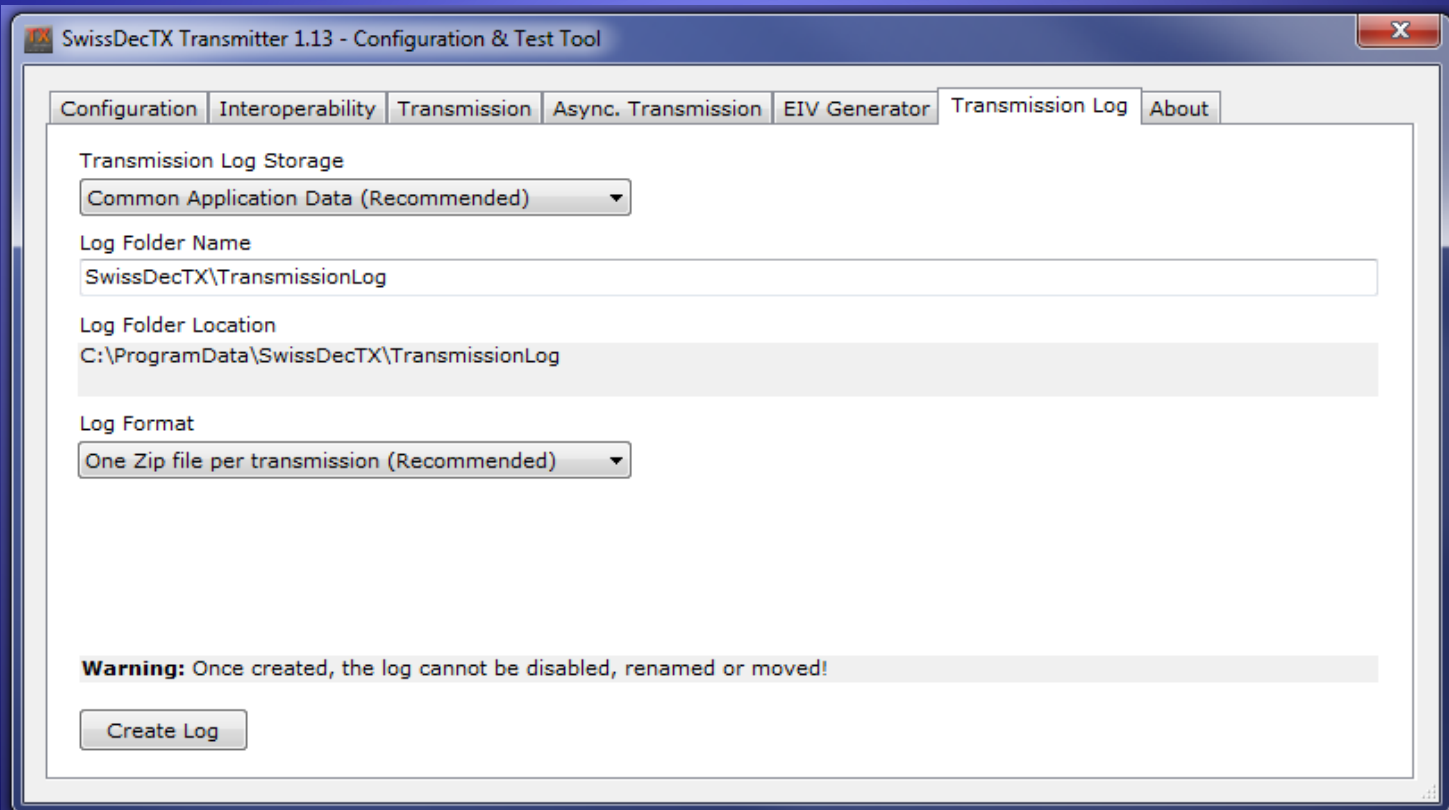
# Test: Plausibility Report



# Test: EIV File Creation



# Transmission Log Config



SwissDecTX Transmitter 1.13 - Configuration & Test Tool

Configuration | Interoperability | Transmission | Async. Transmission | EIV Generator | **Transmission Log** | About

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!

Create Log

# Transmission Log

The screenshot shows a software window titled "SwissDecTX Transmitter 1.13 - Configuration & Test Tool". The "Transmission Log" tab is selected, displaying the log location as "C:\ProgramData\SwissDecTX\TransmissionLog" with an "Explore" button. Below this is a table with the following data:

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, ...)

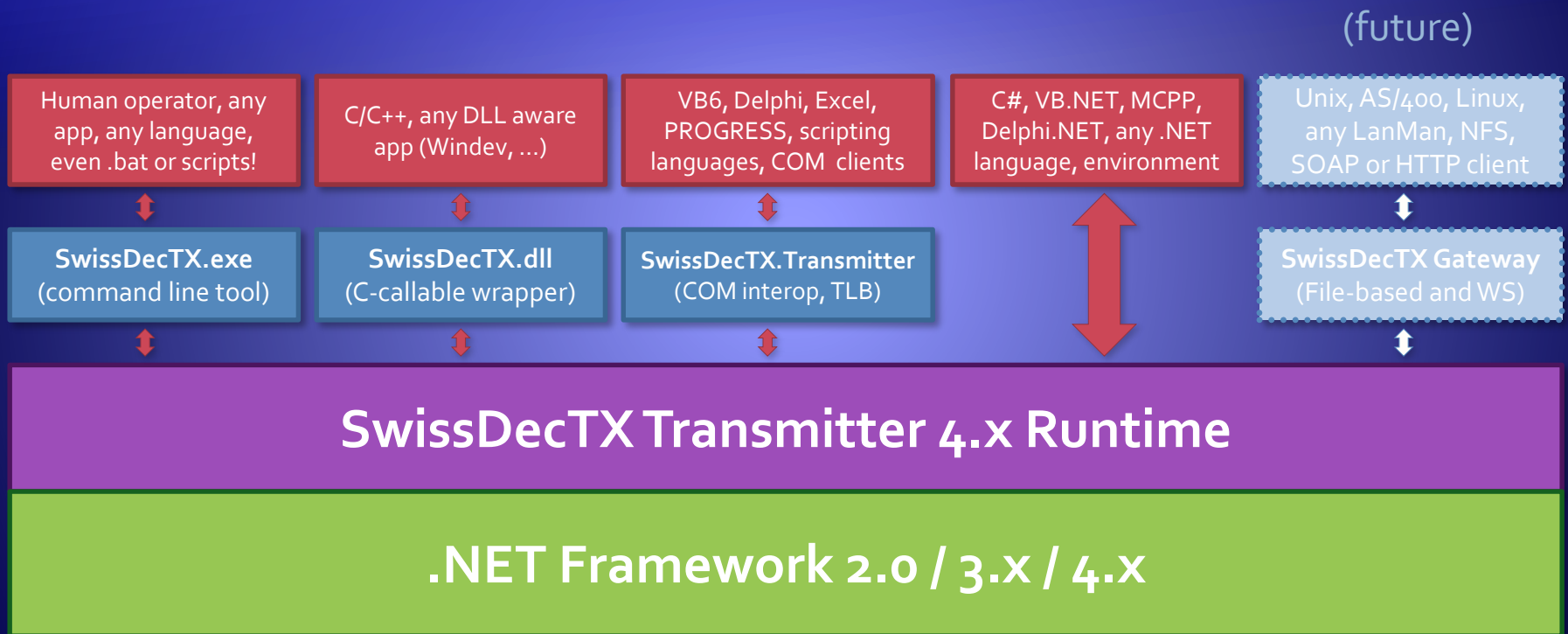
# How to use it?

- ◆ 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





# 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!

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