



DRAFT

Eclipse Higgins 1.0 Release Review v1.1

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Eclipse Higgins Project

Mission

Higgins is an open source Internet identity framework designed to integrate identity, profile, and social relationship information across multiple sites, applications, and devices

Higgins is not a protocol, it is software infrastructure to support a consistent user experience that works with all popular digital identity protocols, including WS-Trust, OpenID, SAML, XDI, LDAP, and so on



Features

Higgins features are packaged into seven Solutions in three categories

Identity Selector Applications (exemplarily applications)

An identity selector is an end-user application that allows a user to accept i-cards. An i-card is a rectangular icon displayed in the user interface of an Identity Selector that represents a set of claims (attributes) about some entity (typically a person, but it could also be an organization, application, service, digital object, etc.) I-cards are accepted from card issuing sites (known as Identity Providers or IdPs). The selector allows the user to create self-issued i-cards, manage their set of cards (a bit like a wallet), and to use these cards to authenticate to relying sites, or to local applications. These i-cards are visualized in a user interface that allows the user to review, manage and in some cases edit some of the information associated with the card.



Features (cont)

Specific Identity Selector Applications (exemplarily applications)

- **Firefox-embedded Selector Solution** - for Firefox on Windows, Linux, and OSX (Requires hosted I-Card Service Component)
- **GTK and Cocoa-based Selector Solution** - for Firefox (or other applications) on Linux, FreeBSD and OSX (client-based native code app)
- **RCP-based Selector Solution** - for Eclipse RCP Applications (client-based Java app; requires JRE 1.4 or higher)



Features (cont)

Identity Web Services

There are two types of identity web services:

Identity Provider's (IdP's) that allows users to sign into service providers (relying parties) using their credentials provided by some identity provider system

Relying Parties (RP's) that allow service providers to accept credentials provided by an identity provider system



Features (cont)

Specific Identity Web Services

- **STS IdP Solution** - WS-Trust Identity Provider (webapp and web service)
- **SAML2 IdP Solution** - SAML2 Identity Provider (webapp and web service)
- **Extensible Protocol RP Website Solution** - I-Card enabled Relying Party site (webapp) [supersedes: RP Website Solution]



Features (cont)

Higgins Global Graph (HGG)

- **Higgins Global Graph** - The Higgins Global Graph provides a foundation for achieving data portability, interoperability and unification for identity, profile, preference and social relationship data about people, things or concepts

This data includes *identity* information related to identification, authentication, etc. It also includes attributes such as preferences, interests, and associated objects like events and things, wishlists. Lastly it includes *relation* attributes representing friends and other kinds of associations with other people, organizations, etc. An important kind of relation, called a *correlation*, models a link between different representations of the same person in different contexts (systems)

- **Higgins Data Model** - Data model of the Higgins Global Graph. It provides a thin, common representation for identity, profile and relationship data to enable interoperability and data portability across heterogeneous sites and systems.
- **IdAS Solution - Identity Attribute Service (local java component) and Context Provider plugins** The IdAS implements the Higgins Data Model and can be extended using Context Providers that connect the IdAS to various systems or data stores. (IdAS is a bus architecture)



Non-code Aspects

DocuOverview

Higgins continues to upgrade its online documentation and website to make Higgins more accessible and easy to adopt

- Updated Component wiki pages
- Made JavaDoc available on Java Component download pages - need to clean up remaining warnings
- Added Solutions wiki pages (A Solution is a group of Components for a specific use)
- Made extensive use of wiki to facilitate open communications



Non-code Aspects (cont)

Higgins has placed significant emphasis on outreach from the beginning of the project

- Dozens of Higgins presentations have been given at conferences and workshops. The list from just 2007 includes:
 - January 22 - Liberty tutorial day, San Francisco
 - January 26 - Berkman Mobile Independent Identity un-conference, San Francisco
 - February 5-9 - RSA Conference, San Francisco, Higgins demo presentation
 - February 11-15 - Internet2, Minneapolis
 - February 13-16 - ITU-T focus group on Identity Management, Geneva
 - February 15-16 - Identity Management and Information Protection in the Digital World - Can We Meet the Challenge?, Victoria, BC, Canada
 - February 21-22 TII/Vanguard, Dallas - Mike Milinkovich spoke



Non-code Aspects (cont)

Higgins presentations in 2007 continued

- March 5-8 - EclipseCON in Santa Clara - Multiple Higgins sessions including demo and BoF
- May 14-16 - IIW 2007A - Standard Higgins Open Space event participation
- June 25-29 - Catalyst
- June 27, - Burton Group User-Centric Identity Interoperability Event 6:00-9:30 in San Francisco, CA
- July 12-13 – Fortune’s iMEME Conference
- Sep 7-8 Data Sharing Summit
- Sep 20, Digital Identity Systems Workshop, Brookline, NY
- Sep 22-26 DIDW
- Oct 23-25 Catalyst Barcelona
- Dec 3-5 - IIW, Santa Clara, CA - included Identity Interop
- Dec 13 - Financial Services Technology Consortium



Non-code Aspects (cont)

Many press releases have been made and dozens of articles and blog entries have mentioned Higgins. A list from 2007 includes

- [IBM donates new privacy tool to open source](#) CNET, January 26, 2007
- [IBM's Invisibility Cloak](#) Forbes.com, January 26, 2007
- [Privacy and Identity](#) Harriet Pearson, January 28, 2007
- [Open Source Identity projects connect with Microsoft](#) CNET, January 28, 2007
- [Bandit and Higgins Projects Bridge Multiple Identity Systems to Provide a Consistent Experience of Identity](#) Novell, January 29, 2007
- [Interesting developments in open source user-centric identity](#) MWD, January 29, 2007
- [Higgins to participate in User-Centric Identity Interoperability event at Burton Group Catalyst Conference June, 27 in San Francisco, CA](#) May 11, 2007
- [Microsoft announces another Interop Specification Available Under Microsoft's OSP](#) May 23, 2007



Non-code Aspects (cont)

Press releases from 2007 continued

- [Burton Group Catalyst Conference Testing Ground for User-Centric Identity Management](#) June 18, 2007
- [Novell donates c++ information card selector to Higgins Project.](#) June 27, 2007
- [Liberty Alliance IGF project to use Higgins.](#) July 26, 2007
- [Datasharing Summit September 7-8 in Richmond, CA](#) Come see a new Higgins demo and learn about a new Higgins-based initiative, September 4, 2007
- [Digital Identity Systems Workshop September 20 in New York.](#) Higgins Presentation and panel discussion, September 14, 2007
- [Five Questions on the Global Impact of User-Centric Security.](#) CSO Magazine article, September 20, 2007
- [Novell led Bandit Project launches "Control your Identity" campaign that uses Higgins.](#) September 24, 2007
- [Novell wins HP-IAPP Privacy Innovation Award for software it donated to Higgins.](#) October 24, 2007

Non-code Aspects (cont)

Papers have been written, and podcasts recorded

- *Higgins – Towards a Foundation Layer for the Social Web*, Clippinger
- *Interoperability in the New Digital Identity Infrastructure*, Trevithick, Rundle
- *At a Crossroads: Personhood and Digital Identity in the Information Society* (In the final stages of being published by the Organization for Economic Co-operation and Development, OECD) Blakley, Broberg Nadalin, Olds, Ruddy, Rundle, Thompson and Trevithick



API's

Higgins uses the term *component* to refer to a logical set of Eclipse projects. Components are assembled into entire *solutions*. Most of these components expose their own API (the exceptions are multiple plugins all supporting the same provider API)

- Various components have been used by Novell in their “Digital Me” product and Identity Provider product. IBM has announced that they will deliver commercial products based on Higgins components
- Oracle is considering using the IdAS API for their Identity Governance Framework project at Open Liberty, which is affiliated with the Liberty Alliance Organization
- Serena has released a commercial solution called Serena Business Mashups that uses the Higgins STS



API's (cont)

- We consider all of these component APIs to be “provisional”
- Qualifications:
 - We will be adding new components over time
 - We're early in the adoption process and have much to learn from community feedback, thus the APIs will continue to evolve
 - Working on performance of some components
 - Need to auto run the test suites



Architectural Features

- The Higgins architecture has evolved very rapidly and over multiple years
- Whereas we are adding new layers and functional capabilities, the basic architecture has been stable for at least one year
- There are multiple plug-ins in the java architecture:
 - Data stores are adapted by “context provider” plug-ins
 - New security token types are provided by plug-ins
 - New relying party security languages can be plugged in
 - Persistence of i-card objects is managed by “i-card provider” plug-ins
 - The Token Service has four kinds of plug-ins



Architectural Features (cont)

- Whereas the Java architecture extensibility is based on OSGI bundles, our long term plan is to make more use of extension points within our bundles
- All components use a common Configuration component for plug-in deployment configuration



Tool Usability

- We have created an exemplary end-user application called and “Identity Selector” in multiple flavors. Many developers have already experimented with these apps
- At the services level we’ve developed reference Identity Provider and sample Relying Party components
- Together these solutions allow developers to deploy a complete suite of applications to issue i-cards, manage i-cards and rely on i-cards
- We have participated along with dozens of other vendors and projects in four public interoperability demonstrations at industry events. We’ve worked closely with Microsoft to ensure interoperability with CardSpace™



End-of-Life

- Does not apply as this is the first release

Bugzilla

Status

NEW	<u>1</u>
ASSIGNED	<u>6</u>
RESOLVED	<u>98</u>
CLOSED	<u>129</u>
Total	<u>234</u>



Key Standards Used

- WS-Security
- WS-Trust
- WS-Federation
- SAML Assertion 1.1 and SAML2 protocol
- XRI 2.0
- XML Canonicalization and Digital Signature
- LDAP
- OWL and RDF
- XRI XRDS

- The Higgins data model and Identity Interchange Framework (X.IDIF) are being proposed for adoption by the ITU-T (The International Telecommunications Union's Standards Sector)



UI Usability

- Higgins 1.0 components with a UI are:
 - FireFox-embedded Selector Solution
 - GTK- and Cocoa-based Selector Solution
 - RCP-based Selector Solution – conforms with Eclipse UI Guidelines
- Further work is underway to harmonize the UI elements
- Internationalization support in the UI (only) is uneven, but is a goal we'll keep working toward



Schedules

- Release 1.0 was originally scheduled for Summer 2007. Due to the IP backlog and the evolving understanding of what it means to interoperate with Microsoft CardSpace™ there were delays
- Higgins has missed many milestones. The main reason is that we're developing the first framework of its kind in an industry that is changing rapidly
- Getting to 1.0 with an architecture that we're happy with is a major achievement. We expect from here forwards be more predictable in planning and execution



Schedules (cont)

Milestone	Planned	Achieved
1.0M1	Mar 17, 2005	Mar 17, 2005
1.0M2	Nov 21, 2005	Nov 21, 2005
1.0M3	Feb 15, 2006	Mar 31, 2006
1.0M4	May 1, 2006	Jul 7, 2006
1.0M5	Sep 29, 2006	Sep 29, 2006
1.0M6	Nov 30, 2006	Nov 30, 2006
1.0M7	Feb 15, 2007	Feb 15, 2007
1.0M8	April 15, 2007	Jun 26, 2007
1.0M9	June 15, 2007	Nov 2, 2007
1.0	Summer 2007	Dec 31, 2007



Communities

- Higgins has attracted and build an activity community with contributions from Parity, IBM, Novell, Google...with additional involvement from Microsoft, CA, Serena, Oracle, etc.
- Committers - Higgins has 22 committers (three were just approved during the release process)
- Contributions were also made by other members of the community



Communities Process

- Open and transparent processes using the Higgins-dev list and wiki
- Weekly developers calls
- Participation in ongoing identity interoperability events
 - IIW 2006b – December 2006, Mountain View
 - IIW 2007a – May 2007, Mountain View
 - Catalyst – June 2007, San Francisco
 - Catalyst – October 2007, Barcelona
 - IIW 2007b – December 2007, Mountain View
 - RSA 2008 – April 2008, San Francisco

Communities Process (cont)

Periodic Face-to-Face meetings approximately every 2-3 months that draw attendees from Europe (10 held to date)

- Jan 30-31 2008 - Provo
- Dec 17-18 2007 New York – Special session on multi-protocol server architecture
- Oct 2-4 Austin
- Jun 25-27 San Francisco
- Apr 30-May 3 Austin
- Jan 24-26 Provo
- Nov 16-17 2006 Cambridge
- Aug 23-25 Raleigh
- July 6-7 2006 Cambridge
- Mar 13-15 Provo



Communities Open Source Projects Using Higgins

This section lists open source solutions developed external to the Higgins project, but based on Higgins Components

- [Bandit STS/IdP Deployment](#) - Higgins-based STS/IdP service
- [Eclipse ALF Project](#)
- Other Eclipse projects (Aperi and Cosmos) are considering using Higgins



Community Process

In addition to working with standards organizations and other open source projects, Higgins coordinates and participates with a number of identity related organizations and projects

- IdCommons
 - OSIS
 - IIW
 - Identity Gang
 - Identity Schemas
 - VRM
- OASIS
- FSTC
- Liberty Alliance
- SocialPhysics - Berkman Center for Internet & Society at Harvard



IP Issues

- Because of the nature of Higgins (it supports multiple identity protocols on multiple platforms) with both client and server components, Higgins 1.0 has many more third-parity dependencies (45) than most Eclipse projects
- Note that due to IP pedigree timing issues, we are not including OpenID or Idemix protocol support in Higgins 1.0



IP Issues (cont)

Contents of IP log

- Committers with code in repository

abussani ahodgkins ashelat dbakunysev dbuss dsanders gbyrd
jsermersh mmcintosh mkopeyka mruddy msabadell pkimlach
ptrevithick slewis slyakhov syakovlev tdoman vkokhan



IP Issues (cont)

Contents of IP log (cont) - contributions

Component	Bug #	Unix login name	Contribution size	Committer	Description (if no or multi bugs)
HBX Support	168850	ayuhimenk	about 150 lines / 5 files / 2 projects	vkokhan	
Automated Builds	169214	evyborov	small	vkokhan	No longer used
HBX Support	193700	ayuhimenk	about 250 lines / 6 files / 2 projects	vkokhan	
HBX Support	194176	ayuhimenk	small	vkokhan	
I-Card Broker	195912	ayuhimenk	small	vkokhan	
HBX Support	198367	averhovets	about 300 lines / 8 files / 2 projects	vkokhan	
I-Card Broker	198754	ayuhimenk	small	vkokhan	
HBX Support	199310	averhovets	about 400 lines / 8 files / 2 projects	vkokhan	
HBX Support	202620	averhovets	about 350 lines / 6 files / 2 projects	vkokhan	



IP Issues (cont)

Contents of IP log (cont) – contributions (cont)

Automated Builds	206492	asafronkov	about 400 lines / 2 files	vkokhan	
Automated Builds	211051	asafronkov	158 lines	vkokhan	
RP Site	212204	paskel	3000	mcintosh	
Misc	213711	dbuzoverya	small	msabadello	
Misc	213713	dbuzoverya	576 lines / 8 files	msabadello	
I-Card Broker	213989	ayuhimenk	104 files	vkokhan	
ISS Client UI RCP	214048	litie	8000	mcintosh	

IP Issues (cont)

Contents of IP log (cont) – third party dependencies

Third Party Library	CQ	Directory Location/jar	License Name/Version	Usage
Activation 1.1 (activation-1.1)	1789	Third party dependencies ↗	CDDL Ver 1.0 ↗	unmodified object
Apache Axiom 1.2 (axiom-api and axiom-impl and axio-dom)	1449	Third party dependencies ↗	Apache License, Version 2.0 ↗	unmodified object
Apache Axis 1.4 (axis-1.4)	1453	Third party dependencies ↗	Apache License, Version 2.0 ↗	unmodified object
Apache Axis 1.4 (axis-ant-1.4.jar)	1900	Third party dependencies ↗	Apache License, Version 2.0 ↗	unmodified object
Apache Axis 1.4-commons discovery.jar 0.2 (commons-discovery-0.2)	1636	Third party dependencies ↗	Apache License, Version 2.0 ↗	unmodified object
Apache Axis 1.4-commons http client.jar 3.0 (commons-httpclient-3.0)	1637	Third party dependencies ↗	Apache License, Version 2.0 ↗	unmodified object
Apache Axis 1.4-jaxrpc.jar 1.1 (jaxrpc)	1638	Third party dependencies ↗	Apache License, Version 2.0 ↗	unmodified object
Apache Axis 1.4-saaj.jar 1.2 (saaj)	1639	Third party dependencies ↗	Apache License, Version 2.0 ↗	unmodified object
Apache Axis 1.3 (axis-schema.jar)	1899	Third party dependencies ↗	Apache License, Version 2.0 ↗	unmodified object
Apache Axis 1.4-servlet.jar 2.3.1	1640	Third party dependencies ↗	Apache License, Version 2.0 ↗	unmodified object

IP Issues (cont)

Contents of IP log (cont) – third party dependencies (cont)

Apache servlet-api.jar 2.4	1940	Third party dependencies	Apache License, Version 2.0	unmodified object
Apache Axis 1.4-wsd4.jar 1.5.1 (wsdl4j-1.5.1)	1641	Third party dependencies	Apache License, Version 2.0	unmodified object
Apache Xalan 2.6.0 (Xalan-2.6.0)	1580	Third party dependencies	Apache License, Version 2.0	unmodified object
Apache XML Security 1.4 (xmlsec-1.4.0)	1397	Third party dependencies	Apache License, Version 2.0	unmodified object
ARQ (arq)	1011	Third party dependencies	Jena license	unmodified object
Backport-util-current 1.3.2 (concurrent-1.3.2)	1663	Third party dependencies	Public Domain	unmodified object
Bandit Utility 0.2.1030 (bandit.jndi and bandit-misc)	1832	Third party dependencies	Licensing Bandit Utility code is licensed under EPL	unmodified object
Commons BeanUtils 1.7 (commons-beansutils)	1387	Third party dependencies	Apache License, Version 2.0	unmodified object
Commons Codec 1.3 (commons-codec-1.3)	1385	Third party dependencies	Apache License, Version 2.0	unmodified object
Commons Collection 3.2 (commons-collections-3.2)	1361	Third party dependencies	Apache License, Version 2.0	unmodified object



IP Issues (cont)

Contents of IP log (cont) – third party dependencies (cont)

Commons Digester 1.7 (commons-digester-1.7)	1386	Third party dependencies	Apache License, Version 2.0	unmodified object
Commons Lang 2.1 (commons-lang-2.1)	1456	Third party dependencies	Apache License, Version 2.0	unmodified object
Commons FileUpload 1.1.1	1781	Third party dependencies	Apache License, Version 2.0	unmodified object
Commons logging 1.04 (commons-logging-1.0.4)	1168	Third party dependencies	Apache License, Version 2.0	unmodified object
Dom4j 1.6.1 (dom4j-1.6.1)	1362	Third party dependencies	BSD style license	unmodified object
Ehcache v1.2.3 (ehcache-1.2.3)	1123	Third party dependencies	Apache License, Version 2.0	unmodified object
Google WebToolkit 1.4.60	1714	Third party dependencies	Apache License, Version 2.0	subset, object
I-Card Manager 0.7	1120	Third party dependencies	EPL 1.0	source
ICU4J 3.4 (icu4j_3_4)	1169	Third party dependencies	MIT license	unmodified object
IRI 0.3 (iri)	1173	Third party dependencies	Jena license	unmodified object
Jakarta ORO 2.0.8 (jakarta-oro-2.0.8)	1384	Third party dependencies	Apache License, Version 2.0	unmodified object



IP Issues (cont)

Contents of IP log (cont) – third party dependencies (cont)

Jena 2.4 including ARQ (jena and arq)	1011	Third party dependencies	Jena license	subset (without antler), object
LDAP (JNDI) CP 0.2.275	1118	Third party dependencies	EPL 1.0	source
Log4j 1.2.13 (log4j1.2.13)	1170	Third party dependencies	Apache License, Version 2.0	unmodified object
Mail 1.4 (mail-1.4)	1822	Third party dependencies	CDDL Ver 1.0	unmodified object
Rhino JavaScript 1.6R5 (js)	1455	Third party dependencies	Mozilla Public License Ver 11.1	unmodified object
Stax-api 1.0.1 (stax-api-1.0.1)	1791	Third party dependencies	Apache License, Version 2.0	unmodified object
OpenLDAP Version 2.3.30 (ldap)	1358	Third party dependencies	OpenLDAP Public License	unmodified object
OpenXDAS Version 5.27 (openddas-0.5.257)	1823	Third party dependencies	BSDLicense	subset object
OpenXRI Client Version 1.0.1 (openxri-client and openxri-syntax)	1412	Third party dependencies	Apache License, Version 2.0	unmodified object
Serializer 2.7 (serializer)	1747	Third party dependencies	Apache License, Version 2.0	unmodified object
wstx-asl 3.0.1 (wstx-asl-3.0.1)	1860	Third party dependencies	Apache License, Version 2.0	unmodified object



IP Issues (cont)

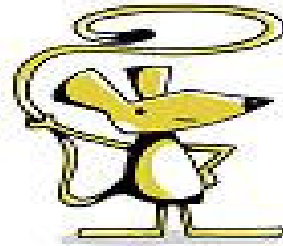
Contents of IP log (cont) – third party dependencies (cont)

Xerces Impl 2.8 (xercesImpl)	1171	Third party dependencies	Apache License, Version 2.0	unmodified object
Xerces xml-apis-1.3.03.jar (xml-apis)	1650	Third party dependencies	Apache License, Version 2.0	unmodified object
Xerces Resolver.Jar 1.1 (resolver)	1651	Third party dependencies	Apache License, Version 2.0	unmodified object



Project Plan

- Areas that we plan to target for future work can be found at http://wiki.eclipse.org/Beyond_Higgins_1.0
- Ongoing areas for work include
 - Performance
 - Automated running of tests
 - Messaging (marketing message)
- The next release of Higgins (probably 1.1) would like to shadow the Ganymede joined release in June 2008



Thank you!

Resources: www.eclipse.org/higgins