OpenID Certification

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What is OpenID Certification?

- OpenID Certification enables OpenID Connect implementations to be certified as meeting the requirements of defined conformance profiles
- An OpenID Certification has two components:
  - Technical evidence of conformance resulting from testing
  - Legal statement of conformance
- Certified implementations can use the “OpenID Certified” logo

What value does certification provide?

- Technical:
  - Certification testing gives confidence that things will “just work”
  - No custom code required to integrate with implementation
  - Better for all parties
  - Relying parties explicitly asking identity providers to get certified
- Business:
  - Enhances reputation of organization and implementation
  - Shows that organization is taking interop seriously
  - Customers may choose certified implementations over others

What can be certified now?

- Five conformance profiles of OpenID Provider implementations defined:
  - Basic OpenID Provider
  - Implicit OpenID Provider
  - Hybrid OpenID Provider
  - OpenID Provider Publishing Configuration Information
  - Dynamic OpenID Provider

Who has achieved OpenID Certification?

- Certifications listed at http://openid.net/certification/
- 90 profiles certified for 28 implementations by 26 organizations
- Recent additions:
  - Spark Platform, NEC, SecureAuth, Clareity Security, University of Chicago (for Shibboleth overlay!), Auth0, and Okta
- Each entry in table a link to zip file containing test logs and signed legal statement of conformance
  - Test results available for public inspection

Organization	Implementation	OP Basic	OP Implicit	OP Hybrid	OP Config	OP Dynamic
Auth0	Auth0	24-May-2016			24-May-2016	
Dominick Baier & Brock Allen	IdentityServer3 v1.6	8-May-2015	8-May-2015	8-May-2015	8-May-2015	
Clareity Security	Identity Provider v6.3.4	4-May-2016				
ClassLink	ClassLink OneClick 2015	3-Nov-2015			3-Nov-2015	
Deutsche Telekom	Telekom Login	29-Sep-2015			22-Sep-2015	
ForgeRock	OpenAM 13	13-Apr-2015	13-Apr-2015	13-Apr-2015	13-Apr-2015	
Google	Google Federated Identity	20-Apr-2015	21-Apr-2015	23-Apr-2015	15-Apr-2015	
Thierry Habart	SimpleIdentityServer V1.0.0	9-Dec-2015			11-Dec-2015	
Thierry Habart	SimpleIdentityServer V2.0.0	19-Jan-2016	19-Jan-2016	19-Jan-2016	19-Jan-2016	19-Jan-2016
Roland Hedberg	pyoidc 0.7.7	26-Sep-2015	26-Sep-2015	26-Sep-2015	26-Sep-2015	26-Sep-2015
Cal Heldenbrand	Spark Platform	2-Oct-2015	2-Oct-2015	2-Oct-2015	5-Oct-2015	
Microsoft	ADFS on Windows Server 2016	13-Sep-2015	13-Sep-2015		7-Apr-2015	
Microsoft	Azure Active Directory				8-Apr-2015	
NEC	NC7000-3A-OC	7-Mar-2016				
Nomura Research Institute	phpOIDC	10-Apr-2015	10-Apr-2015	10-Apr-2015	10-Apr-2015	10-Apr-2015
Nomura Research Institute	Uni-ID	10-Apr-2015				
PayPal	Login with PayPal				15-Apr-2015	
Okta	Okta OP	25-May-2016	26-May-2016	26-May-2016	26-May-2016	
Peercraft ApS	Peercraft	19-Jan-2016	19-Jan-2016	19-Jan-2016	19-Jan-2016	19-Jan-2016
Ping Identity	PingFederate	10-Apr-2015	10-Apr-2015	10-Apr-2015	9-Apr-2015	
Privacy Vaults Online (PRIVO)	PRIVO-Lock	23-Oct-2015			25-Nov-2015	
Justin Richer	MITREidConnect	13-May-2015			13-May-2015	13-May-2015
Salesforce	Summer 2015 Release				14-May-2015	
Michael Schwartz	Gluu Server 2.3	2-Jul-2015	2-Jul-2015	8-Jul-2015	2-Jul-2015	2-Jul-2015
SecureAuth	SecureAuth IdP 8.2	25-Feb-2016	25-Feb-2016	25-Feb-2016	7-Mar-2016	
Filip Skokan	node-oidc pre	10-Dec-2015	10-Dec-2015	10-Dec-2015	10-Dec-2015	10-Dec-2015
University of Chicago	OIDC OP Overlay for Shibboleth IdP v3.2.1 version 1.0	25-Feb-2016			25-Feb-2016	
ViewDS	Cobalt V1.0	28-Jan-2016	2-Feb-2016		28-Jan-2016	
Matias Woloski	Auth0	6-Feb-2016			8-Feb-2016	

How does OpenID Certification work?

- Organization decides what profiles it wants to certify to
  - For instance, “Basic”, “Config”, and “Dynamic”
- Runs conformance tests publicly available at http://op.certification.openid.net/
- Once all tests for a profile pass, organization submits certification request to OpenID Foundation containing:
  - Logs from all tests for the profile
  - Signed legal declaration that implementation conforms to the profile
- OpenID Foundation verifies application is complete and grants certification
- OIDF lists certification at http://openid.net/certification/ and registers it in OIXnet at http://oixnet.org/openid-certifications/

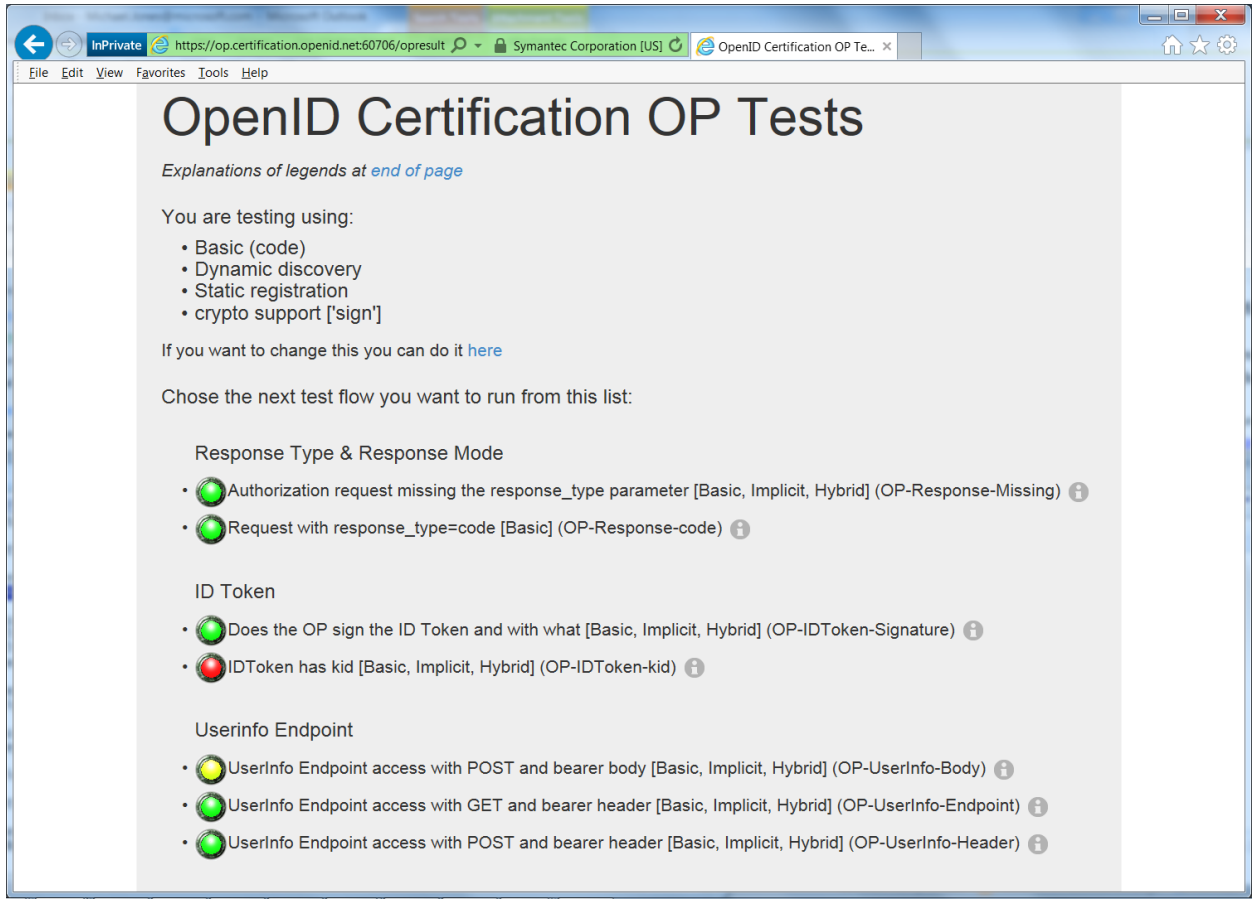
Use of Self-Certification

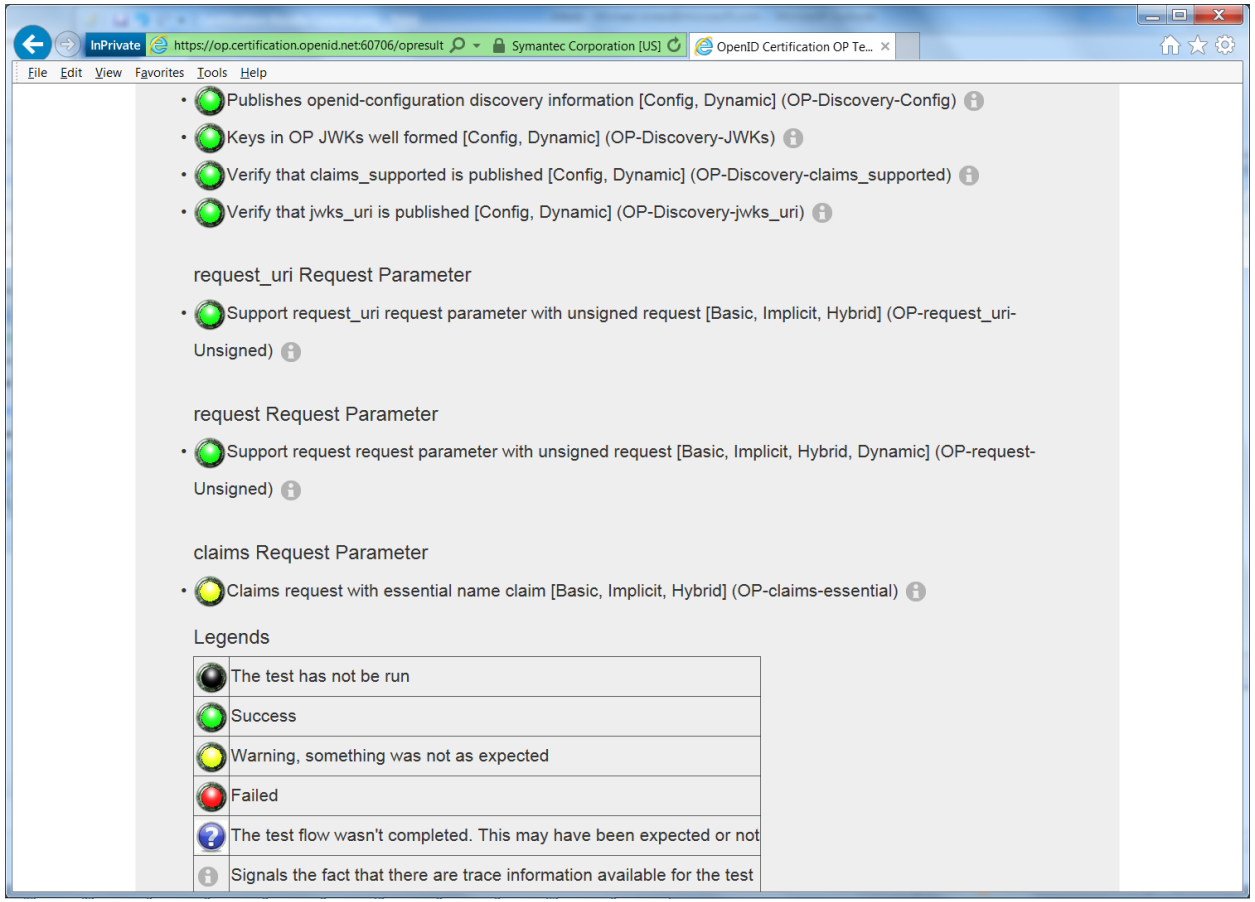
OpenID Certification uses self-certification

- Party seeking certification does the testing
- (rather than paying a 3rd party to do the testing)

- Simpler, quicker, less expensive, more scalable than 3rd party certification
- Results are nonetheless trustworthy because
  - Testing logs are made available for public scrutiny
  - Organization puts its reputation on the line by making a public declaration that its implementation conforms to the profile being certified to

Example Testing Screen





Log from a Conformance Test

Test info

Profile: {'openid-configuration': 'config', 'response_type': 'code', 'crypto': 'sign', 'registration': 'static'}
Timestamp: 2015-04-07T02:58:53Z
Test description: Keys in OP JWKs well formed [Config, Dynamic]
Test ID: OP-Discovery-JWKs
Issuer: https://stsadweb.one.microsoft.com/adfs

Test output

```
__After completing the test flow:__
[verify-base64url]
        status: OK
        description: Verifies that the base64 encoded parts of a JWK is in fact base64url encoded and not just base64 encoded
[check-http-response]
        status: OK
        description: Checks that the HTTP response status is within the 200 or 300 range
__X:==== END ====__
```

Trace output

```
0.000288 ------------ DiscoveryRequest ------------
0.000299 Provider info discover from 'https://stsadweb.one.microsoft.com/adfs'
0.000305 --> URL: https://stsadweb.one.microsoft.com/adfs/.well-known/openid-configuration
0.426715 ProviderConfigurationResponse: {
  "access_token_issuer": "http://stsadweb.one.microsoft.com/adfs/services/trust",
  "authorization_endpoint": "https://stsadweb.one.microsoft.com/adfs/oauth2/authorize/",
  "claims_parameter_supported": false,
  "claims_supported": [
    "aud",
    "iss",
    "iat",
    "exp",
    "auth_time",
    "nonce",
    "at_hash",
    "c_hash",
    "sub",
    "upn",
    "unique_name",
    "pwd_url",
    "pwd_exp",
    "ver"
  ],
  "grant_types_supported": [
    "authorization_code",
    "refresh_token",
    "client_credentials",
    "urn:ietf:params:oauth:grant-type:jwt-bearer",
    "implicit",
    "password"
  ],
  "id_token_signing_alg_values_supported": [
    "RS256"
  ],
  "issuer": "https://stsadweb.one.microsoft.com/adfs",
  "jwks_uri": "https://stsadweb.one.microsoft.com/adfs/discovery/keys",
  "request_parameter_supported": false,
  "request_uri_parameter_supported": true,
  "require_request_uri_registration": true,
  "response_modes_supported": [
    "query",
    "fragment",
    "form_post"
  ],
  "response_types_supported": [
    "code",
    "id_token",
    "code id_token",
    "token id_token"
  ],
  "scopes_supported": [
    "logon_cert",
    "profile",
    "user_impersonation",
    "aza",
    "vpn_cert",
    "full_access",
    "email",
    "openid"
  ],
  "subject_types_supported": [
    "pairwise"
  ],
  "token_endpoint": "https://stsadweb.one.microsoft.com/adfs/oauth2/token/",
  "token_endpoint_auth_methods_supported": [
    "client_secret_post",
    "client_secret_basic",
    "private_key_jwt",
    "windows_client_authentication"
  ],
  "token_endpoint_auth_signing_alg_values_supported": [
    "RS256"
  ],
  "version": "3.0",
  "webfinger_endpoint": "https://stsadweb.one.microsoft.com/adfs/.well-known/webfinger"
}
0.846957 JWKS: {
  "keys": [
    {
      "alg": "RS256",
      "e": "AQAB",
      "kid": "f-5GWKyaV6fDdnKB7A3b0llXZ0E",
      "kty": "RSA",
      "n": "ygUNL9XXanKy_fQ1X0SMt9LRKpH3Xup11k5mivaw7thYRPrkGArJezV4x-hfk3Rm9qv6ikBGnTW0lI8FqotLcXmvIBqtbIDfSh59uts1r0QLRUVKS_2C
      "use": "sig",
      "x5c": [
        "MIIFrjCCBJagAwIBAgIKEzgGLwABAACESDANBgkqhkiG9w0BAQUFADCBgDETMBEGCgmSJomT8ixkARkWA2NvbTEZMBcGCgmSJomT8ixkARkWCWlpY3Jvc29
      ],
      "x5t": "f-5GWKyaV6fDdnKB7A3b0llXZ0E"
    }
  ]
}
0.847706 ==== END ====
```

Result

PASSED

Certification of Conformance

- Legal statement by certifier stating:
  - Who is certifying
  - What software
  - When tested
  - Profile tested
- Commits reputation of certifying organization to validity of results

OpenID

CERTIFICATION OF CONFORMANCE
TO OPENID CONNECT CONFORMANCE PROFILE

Name of Entity ("Implementer") Making this Certification: Ping Identity Corporation

Software or Service ("Deployment") Name & Version #: PingFederate Summer 2015 Release

OpenID Connect Conformance Profile: Basic OpenID Provider

Conformance Test Suite Software: op.certification.openid.net as of April 10, 2015

Test Date: April 10, 2015

1. Certification: Implementer has tested the Deployment (including by successfully completing the validation testing using the Conformance Test Suite Software) and verified that it conforms to the OpenID Connect Conformance Profile, and hereby certifies to the OpenID Foundation and the public that the Deployment conforms to the OpenID Connect Conformance Profile as set forth above.
2. Maintenance: If subsequent changes to the Deployment, or other information or testing, indicates that the Deployment is not in conformance, Implementer will either correct the nonconformance (and update this Certification if necessary) or revoke this Certification.
3. Incorporation of Terms: The Terms and Conditions for Certification of Conformance to an OpenID Connect Conformance Profile, located at www.openid.net/certification, are incorporated by reference in this Certification, and Implementer agrees to be bound by such Terms and Conditions.

Implementer's Address Information	
Address:	1001 17th Street,Suite 100
City, State/Province, Postal Code	Denver, CO 80202
Country	USA
Implementer's Authorized Contact Information	
Name:	Brian Campbell
Title:	Distinguished Engineer
Phone:	720.317.2061
Email:	bcampbell@pingidentity.com

Authorized Signature:

Name: David Wasserman

Title: Assoc. Gen. Counsel

Date: Apr. 10, 2015

My Favorite Comment on OpenID Certification

- Eve Maler – VP of Innovation at ForgeRock
  - "You made it as simple as possible so every interaction added value"
- High praise! ☺

How does certification relate to interop testing?

- OpenID Connect held 5 rounds of interop testing – see http://osis.idcommons.net/
  - Each round improved implementations and specs
  - By the numbers: 20 implementations, 195 members of interop list, > 1000 messages exchanged
- With interop testing, by design, participants can ignore parts of the specs
- Certification raises the bar:
  - Defines set of conformance profiles that certified implementations meet
  - Assures interop across full feature sets in profiles

Can I use the certification site for interop testing?

- Yes – please do!
- The OpenID Foundation is committed to keeping the conformance test sites up and available for free to all
- Many projects using conformance testing for regression testing
  - Once everything passes, you're ready for certification!
- Test software is open source Python using Apache 2.0 license
  - Some projects have deployed private instances for internal testing

What's next for OpenID Certification?

- Scope of OpenID Certification expanding
- RP certification nearing launch
  - Please get involved testing the tests!
- Additional OpenID Provider profiles are also planned:
  - Refresh Token Behaviors
  - OP-Initiated Login
  - Front-Channel Logout
  - Self-Issued
  - etc.

Call to Action

- Certify your OpenID Connect OP implementations now!
- Help us test the RP tests!
- Join the OpenID Foundation and/or the OpenID Connect working group

Where can I learn more?

- Certification instructions and current results:
  - http://openid.net/certification/
- Frequently asked questions:
  - http://openid.net/certification/faq/

- My blog:
  - http://self-issued.info/
- Or drop me an e-mail:
  - mbj@microsoft.com