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InCommon Federation Operating Policies and Practices

INCOMMON: FEDERATION OPERATING POLICIES AND PRACTICES

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This document describes at a high level how the InCommon organization is structured and how it operates in accordance with the Limited Liability Company Agreement of InCommon ("Company Agreement") and Bylaws of the InCommon ("Bylaws") to support the entire InCommon Federation ("Federation"). Specific details and logistics are left to the discretion of the InCommon Operations Manager ("OM").

InCommon Federation Participants ("Participants") should review this document to guide assessment of potential risks, if any, which might be incurred by their participation in the Federation. By reviewing the policies and practices of the Federation, Participants and potential Participants can evaluate the level of assurance of the Federation's services to ensure trustworthy operations and determine whether they meet a Participant's minimum requirements.

The InCommon Assurance Program enhances Federation services by defining standards and requirements that Participants can meet in order that their Identity Provider Operations may offer more trustworthy assertions of identity intended to reduce risk for Service Providers.

Complete evaluation of the entire Federation's infrastructure and level of assurance or the infrastructure and level of assurance of other federations with which InCommon is peering is out of scope for this document and would need to include evaluation of all relevant participants' policies and practices. Please contact the InCommon office for clarification or additional information regarding this document or other Federation matters. Further information about InCommon's services may be found at <http://www.incommon.org>

1 Role of the InCommon Organization

The InCommon Company Agreement and Bylaws define the mission of InCommon and its Federation and the principles and governance structure under which InCommon and the Federation operates. This Federation Operating Policies and Practices document (FOPP) outlines the activities undertaken by InCommon on behalf of its Federation Participants.

The administrative and operational functions of InCommon are carried out under direction of the OM in accordance with the Company Agreement. These responsibilities include development of the Federation Participant community (including through expanding such community through peering with other federations that share the same mission as InCommon such as Research and Education federations in other countries (each a "Co-Federation")), processing applications, identifying and authenticating eligible organizations and their trusted officers, processing participant Metadata, facilitating the exchange of Metadata between Participants in InCommon and participants in Co-Federations ("Co-Federation Participants"), overseeing the operation of InCommon service platforms, dispute resolution, termination processes, accounting and billing, and other duties as assigned by the InCommon Steering Committee or the officers of InCommon.

1.1 The InCommon Assurance Program

In support of the InCommon Assurance Program, InCommon is responsible for coordinating the development of identity assurance standards, accepting and protecting Participant audit and assessment documentation, managing the certification review process, and ensuring that accurate declaration of certifications is provided to Federation Participants.

InCommon defines certification to mean that:

- The Participant has submitted all necessary documentation that shows that its specified Identity Provider Operations have undergone rigorous assessment by a qualified independent auditor;
- The Participant represents that the documentation is accurate and demonstrates conformance with one or more IAPs; and that
- InCommon reviews the documentation for completeness and conformance with the Assurance Program but does not perform any independent verification of Participant's auditor qualifications or the facts or conclusions set forth in the submitted documents.

2 Organizational Structure

2.1 Management

Responsibility for management of the business and affairs of the InCommon LLC is vested with the InCommon Steering Committee ("Steering Committee") as described in the Company Agreement. Specific authority may be delegated by the Steering Committee to appointed subcommittees of the Steering Committee or the OM.

The Steering Committee approves this FOPP as an accurate reflection of InCommon Federation operations. Any change to this FOPP will be communicated to each Participant Administrator via email within 15 business days of the change being approved by the Steering Committee.

2.2 Committees

The Steering Committee may designate subordinate or advisory committees to make decisions, develop position papers, and/or provide advice on particular matters of importance to the Federation as outlined in the Bylaws. At least one member of the Steering Committee will participate in each advisory committee to ensure good communication between the committee and the Steering Committee. Additional membership in such committees will be defined by the Steering Committee and typically will be drawn from the Participant community. Other individuals may be asked to participate based on their particular knowledge of the subject matter. Other committees may be formed as detailed in the Bylaws. Current committees are listed on the InCommon website.

2.3 Meetings

The Steering Committee meets no less frequently than once per year, typically by conference call. Minutes are kept of the Steering Committee meetings and, except for confidential personnel or financial matters, are available to Federation Participants upon request.

Advisory and other committees meet as needed, typically by conference call. Minutes need not be kept.

2.4 Offices and Records

The InCommon Federation office's contact information is:

InCommon
c/o Internet2
100 Phoenix Drive, Suite111
Ann Arbor, MI 48108
Email address: admin@incommon.org
Telephone: 734-913-4250
Website: <http://www.incommon.org>

All records of InCommon are managed by this office.

2.5 Personnel

The InCommon Company Agreement minimally requires at least two officers: the Operations Manager and the Secretary. Other officers may be appointed by the Steering Committee. The OM will provide guidelines and direction for the operational aspects of the Federation's support organization. Operational functions are staffed and performed by Internet2.

Internet2 hires and manages personnel who provide legal, administrative, communications, operational, and other support to the OM.

3 Policies, Requirements, and Standards

The Steering Committee approves all policies, requirements, and standards that apply to the InCommon support organization and its Federation Participants. Current governing documents, available from the InCommon office above and on the website, include:

- Limited Liability Company Agreement of InCommon
- Bylaws of the InCommon LLC
- InCommon Federation: Federation Operating Policies and Practices (this document)
- InCommon Federation: Participation Agreement
- InCommon Federation: Common Identity Attributes
- InCommon Federation: Participant Operational Practices
- InCommon Identity Assurance Assessment Framework
- InCommon Identity Assurance Profiles Bronze and Silver
- InCommon Metadata Registration Practices Statement
- eduGAIN Policy Framework Constitution

Additional documents, guidelines, and other papers are also available on the InCommon website.

4 Application for Participation in InCommon

Organizations that wish to participate in InCommon must be eligible under the requirements defined in section 4.1. Applications must be submitted and will be processed as described in section 4.2.

4.1 Eligibility Criteria

4.1.1 Eligibility to Become a Participant

InCommon currently has three classes of Participants:

- (1) Higher Education (accredited post-secondary institutions and their central offices). To qualify as a Higher Education participant, an organization must be:
 - A two- or four-year degree-granting institution that is accredited by an agency on the U.S. Department of Education's list of recognized Regional Accrediting Agencies as listed on the InCommon website (URL found in section 2.4); or
 - A state higher education system office or other central coordinating office which either governs or manages a collection of accredited, degree-granting institutions. The entity must be commissioned, established, or recognized by a local, state, or national government to perform this activity or must be a cooperative venture organized by and for the benefit of higher education institutions for the above purposes. Documentation substantiating these criteria may be required, and determinations will be made on a case by case basis.
- (2) Research Organizations. InCommon acknowledges that Research Organizations are critical partners in the research and education efforts supported by InCommon. A Research Organization is defined as a lab, facility, or center related to a particular federal research agency and listed on an official publicly available government listing to InCommon's satisfaction. The InCommon-approved listings of eligible government labs and centers will be maintained on the InCommon website. A Research Organization may sponsor into the Federation any Sponsored Partner Organization by formal letter of sponsorship from the active InCommon Executive Contact at the Research Organization.
- (3) Sponsored Partners of any participant in the first two classes. A Sponsored Partner is any entity that is sponsored for participation in the Federation by a participating category 1 or category 2 organization. A Sponsored Partner typically provides online resources, research data, informational, or other services to the sponsoring higher education organization. A sponsorship letter must be received by InCommon from the sponsoring category 1 or category 2 Participant's designated Executive Contact, either by email or postal mail. For details see the InCommon website.

The InCommon Steering Committee may choose to set eligibility criteria for additional types of organizations or may vote on the approval of any applying organization under special circumstances (see section 2.1).

Distributed university or corporate systems are expected to require independent universities or businesses to become separate Participants in the InCommon Federation. Examples of such distributed systems include statewide university systems and large conglomerate corporations where each university or business unit is authorized to commit to and enter into legal agreements on behalf of its own organizational entity. Federations and other

complex membership systems will be eligible for InCommon Federation participation on a case-by-case basis.

4.1.2 Eligibility for the Assurance Program

All Participants in the Higher Education or Research Organization categories above and all not-for-profit Sponsored Partner category Participants are eligible for the Assurance Program with the exception of Sponsored Partners that offer consumer-oriented commercial identity services.

Any eligibility questions will be referred to the OM. The OM will determine if the application requires Steering Committee approval.

The Steering Committee may request that additional information be supplied by the applicant. If the Steering Committee deems the applicant eligible, the OM will continue with application processing. In the case that neither the OM nor the Steering Committee approves an applicant, InCommon will notify the applicant of this result in a timely manner.

4.2 Submitting and Processing an Application

4.2.1 Application to become a Participant

Interested organizations may apply for participation by submitting an online application or by submitting a signed Participation Agreement for review. InCommon may request additional information concerning the nature or qualifications of the applying organization.

Eligible applicants will be accepted for participation when a signed copy of the Participation Agreement has been received by the InCommon office and has been countersigned by InCommon.

4.2.2 Application for participation in the Assurance Program

Eligible Participants may submit an application to be certified under the InCommon Assurance Program. Such application must include all required documentation supporting the certification requested.

The InCommon Assurance Advisory Committee (AAC) will review all documentation submitted by applicant to verify that it demonstrates conformance with the requested Identity Assurance Profiles (IAPs). If there are questions or deficiencies, the AAC will work with applicant and Participant to resolve them, if possible. Upon completion of its review, the AAC will send a recommendation to the Steering Committee for its review and final decision on certification. The AAC will describe any disagreements regarding qualifications to the Steering Committee for final resolution.

Successful applicants will be accepted for participation when a signed copy of the Participation Agreement Assurance Addendum has been received by the InCommon office and has been countersigned by InCommon.

5 Fees

InCommon fees are established by the Steering Committee. Annual fees are invoiced, based on a calendar year from January 1 to December 31. Current fee schedules are available on the InCommon website.

6 Registration, Identification and Authentication of Participant's Trusted Officers

InCommon verifies the identity of all individuals who fill the Participant's trusted roles of Executive and Administrator (see the InCommon website for definitions). By constructing an independently verifiable, out-of-band communication path with these officers, the Registration Authority establishes a sufficiently strong level of assurance that the person is who he or she declares. Details on the registry process are available on the InCommon website.

7 Registration and Management of Participant Policies, Systems, and Technical Components

The Participant's trusted Administrator will be given credentials to manage Federation Participant data and requests in a secure manner.

7.1 Types of Registered Systems: Identity Providers and Service Providers

Within the Federation, Participants may offer services as an Identity Provider for their respective user community, as a Service Provider to any participant organization's user community, or both. For instance, a Higher Education Institution serving primarily as an Identity Provider might also make online information or services available to other InCommon Participants or Co-Federations. Similarly, a Sponsored Partner that is primarily a provider of online services might also act as an Identity Provider.

Participants register identity management systems and/or service provider systems using the InCommon participant administrative interface. Higher Education Institutions and Sponsored Partners receive an initial quota for each system type and can purchase more as needed, subject to certain restrictions, as outlined in the Participation Agreement and Fee Schedule available on the InCommon website.

7.2 Relationship of Systems to Participant

Any identity management system or service provider system registered by a Participant must be under the management hierarchy of the Participant organization. The Participant is responsible for the actions of any system registered with the Federation. Participants may only register third party systems that operate services under contract to Participant and for which Participant will be responsible, in accordance with the provisions of the Participation Agreement. Such third party systems might, for example, include outsourced identity management services.

7.3 Required Information Components

7.3.1 Participant Operating Practices

A fundamental expectation of Federation Participants is that they provide authoritative and accurate attribute assertions to other Participants and that participants receiving an attribute assertion must protect it and respect any privacy constraints placed on it by the Federation or the source of that information.

To support this goal, each Participant must describe its relevant operations in a Participant Operating Practices (POP) statement and share this POP with Federation Participants. The template POP is available on the InCommon website. In some cases, multiple systems can be described in one POP. A

current version of the POP must always be available to the Federation and Participant Administrators. InCommon does not review such Participant Operating Practices against any criteria of performance. The POP is a self-asserted declaration by each Participant of its current practices. More information about POP requirements is available on the InCommon website.

7.3.2 Metadata

A Participant Administrator registers its Identity Provider and Service Provider systems through the participant administrative interface by describing components of its systems. The data are collected and digitally signed by InCommon. Secure, up-to-date, trusted information about all Participants and their systems is a core service of the Federation. InCommon will make reasonable efforts to verify submitted data, and will act in accordance with the practices outlined in the InCommon Operations reference and the Metadata Registration Practices Statement, available on the InCommon website.

InCommon collects this Metadata (the technical and administrative data that describe the participating system entities and their properties, support and facilitate the Federation's policy and operational goals). It may be removed or modified by Participant Administrators through the participant administrative interface. Changes to Metadata are updated within one Internet2 business day following the submission. Under special circumstances, Participant Executives or Administrators may make removal requests via e-mail or telephone as listed on the InCommon website. InCommon will verify these requests using trusted communication channels before processing any removal requests.

InCommon may also collect Metadata from metadata registrars of other Co-Federations and make it available to Participants for the purposes of furthering the mission of the Federation. Metadata may also be exchanged with other Co-Federations. By participating in the Federation, Participant consents to transfers of its Metadata as described in this Section 7.3.2 and its Participation Agreement. Transmission of Federation Metadata to Participants is not initiated by InCommon. Instead, Participants are expected to retrieve Metadata compiled by the Federation on a regular basis.

For additional information about how InCommon uses Metadata, please see <https://www.incommon.org/federation/metadata.html>.

7.3.2.1 X.509 Certificates in Metadata

X.509 Certificates in Metadata are provided by Participant and are used to verify Participant's message-level signature and encrypt sensitive messages intended for Participant. Such certificates may be self-signed since certificate verification is provided by the secure handling and digital signing of all Metadata by InCommon.

7.3.2.2 Declaration of Participant Assurance Program Certification

InCommon adds a declaration of certification status to the Metadata of each Participant's certified identity providers. Only InCommon can supply or modify Assurance Metadata declarations. InCommon will

remove any declaration when necessary to effect suspension of a certification or termination of a Participant from the program.

8 Dispute Resolution procedure

Should disputes regarding Federation services or the use of those services arise among Participants or between a Participant and InCommon, the following procedure is intended to affect a resolution. This procedure will evolve as the Federation gains more experience with the types of disputes that may occur.

Upon resolution, a brief description of the dispute's issues and the resolution of those will be communicated to Federation Participants by email or protected website, unless non-publication is requested by any of the disputing Participants.

8.1 Disputes Among Participants in InCommon and/or other Co-Federations

Participants are expected to make every reasonable effort to settle disputes among themselves, especially if contractual issues among the Participants are involved. If circumstances warrant, (for example, if the dispute centers on the interpretation of Attribute values or the implementation of standards) InCommon may be asked to act as referee in helping the Participants come to resolution. If an InCommon Participant has a dispute with an organization in a Co-Federation relating to services described in this document that cannot be resolved, InCommon will use best efforts to work with the Participant, any relevant inter-federation service provider and Co-Federation operator on a mutually agreed-on solution.

The OM will serve as the Referee in working with Participants. The Referee will gather as much information as possible from each disputing party and then, if necessary, ask for additional information or advice from other operational staff or advisors. The Referee will then document in writing a proposed solution and submit it to the disputing parties and, if needed, Co-Federation operators. for comment. The Referee then will submit a final draft to the Steering Committee.

8.2 Disputes Between Participant(s) and the Federation

Any Participant may submit a written Notice of Dispute to the OM regarding any aspect of the operation or services supported by the Federation. The OM will make certain that sufficient information exists to define the dispute and then shall inform the Chair of the Steering Committee. The Chair will appoint a Steering Committee Member to serve as Negotiator with the disputing Participant(s).

The Negotiator will gather all the facts and rationales for the dispute and, as necessary, seek advice from any Federation advisors or other relevant parties. The Negotiator will prepare a written report, which shall include a recommended resolution of the dispute. The report shall be submitted to the Chair of the Steering Committee within 30 days of the appointment of the Negotiator unless delayed by the required fact finding.

The Chair shall bring the report to a quorum of the Steering Committee. The Steering Committee, after reviewing the report, may ask for additional information or request the Negotiator to take into account further considerations and prepare a modified recommendation. Resolution of the dispute must be approved by affirmative vote of a quorum of the Steering Committee as defined in the Bylaws. If the Steering Committee is unable to affirm a resolution, the status quo is maintained.

The OM shall report the Steering Committee's final action to the disputing Participant(s) in writing as soon thereafter as is practical. If any disputing party believes it cannot accept the outcome of this process, its only recourse is to discontinue participation in the Federation as stated in the Participation Agreement.

9 Operations

The operation and performance of the Federation infrastructure are paramount to maintaining its trust fabric. InCommon supports certain operational services, including the secure collection and distribution of Metadata, a registration authority to identity-proof and credential Participant organizations and officers, communications and outreach, and a Help Desk. As the Federation gains more experience with federated identity and access management and as requirements for other federation services emerge, the InCommon Federation's operations will evolve to meet new functional criteria.

9.1 Operational Assurance Level

9.1.1 Central Operations

Complete procedures were developed detailing InCommon's central operations. Information security industry standards and practices¹ were used to establish the necessary level of assurance. These operations and procedures were approved by a technical advisory group of Internet2 Middleware Architects. A public listing of these procedures can be found on the InCommon website.

9.1.2 Operations Staff Credentials and Authorization

Operations staff that perform actions critical to security or trustworthiness of Federation operations or services are issued strong identity credentials, commensurate with the risk incurred by unauthorized access to such actions.

9.2 Communications and Support

9.2.1. Posting Material on the InCommon Website

All InCommon operating documents and Participant Operating Practices statements are made accessible via the InCommon website.

9.2.2. Help Desk

InCommon provides a Help Desk for Participant administrative and technical support. The Help Desk is staffed during normal Internet2 business hours as described on the InCommon website. InCommon also supports a community electronic mailing list for building community involvement and partnerships. Any end users who inadvertently contact the Federation Help Desk will be referred to their home organization for support in online access to other Participants.

9.2.3. Other Information

¹ RFC 2527, RFC 3647, The American Bar Association PKI Assessment Guidelines, *The Computer Security Handbook 4th edition, Planning for PKI: Best Practices Guide for Deploying Public Key Infrastructure* by Housley and Polk, The Federal Bridge Certification Authority Certification Policy, and others.

Software guidelines are provided or referenced on the website, along with deployment guides, attribute policies, testing facilities, and other federation-specific information for the operation of Identity Providers and Service Providers in the Federation.

9.3 Federation Technical Infrastructure

InCommon is responsible for the secure operation of a number of technology platforms including: a Shibboleth "Discovery Service" (DS) server; a Metadata distribution service; a participant administrative interface; a Certification Authority; and other necessary infrastructure. Operation of the technical infrastructure is described in greater detail in the technical documents available on the InCommon website.

9.3.1 Discovery Service (DS)

The Discovery Service, an optional user interface component, is responsible for allowing users to specify their appropriate Identity Provider for the services they intend to use on-line. Upon selecting an Identity Provider, the user is redirected to the Identity Provider's log in service to authenticate. InCommon operates a redundant DS service and Web page on which all Identity Providers are listed.

9.3.2 Metadata Distribution

InCommon digitally signs and publishes Metadata submitted by all Participants for interoperation of Identity Provider and Service Provider systems. InCommon may also make a subset of the Metadata available to peering Co-Federations. The Metadata is maintained on redundant servers.

9.3.3 Participant Administrative Interface

Federation Participant Administrators use the Participant Administrative Interface to securely manage the data relevant to their organization's participation in the Federation. The particular tasks include submitting certificate signing requests, Participant Operating Practices, and submitting or modifying Participant Metadata.

9.3.4 Suspension of Federation Services

If InCommon suspects compromise of any of its service components, it may take immediate action to remedy the situation or verify non-compromise, including taking components out of service for a limited time for diagnosis and repair. The OM always will endeavor to minimize interruption or inconvenience to Participants. Any critical compromise will be communicated to Participants in a timely manner.

9.4 Disaster Recovery

InCommon disaster recovery practices ensure the minimum interruption of availability of Federation services in the event of a disaster. This includes providing redundant hardware and secure data backups. Public versions of disaster recovery practices are available on the InCommon website.

10 Participation Status: Renewal, Withdrawal, Termination, and Suspension

10.1 Renewal

10.1.1 Renewal of Participant Status

Renewal of Participation is automatic as long as the Participant remains in good standing and pays its fees in a timely manner.

10.1.2 Renewal of Assurance Program Certification

Renewal of certification under the InCommon Identity Assurance Program requires notification and submittal of documentation by Participant as defined in the InCommon Assurance Program description and the Assurance Addendum to the InCommon Participation Agreement.

10.2 Withdrawal or Termination

Participant may withdraw from the Federation at any time upon written notice to the InCommon office in accordance with the Participation Agreement or Assurance Addendum.

Termination by InCommon or Participant is governed by the terms and conditions of the Participation Agreement or Assurance Addendum.

In all cases of Withdrawal or Termination, the Participant will be removed from the Metadata.

10.3 Suspension of Participants' Services

10.3.1 Suspension for reasons of security

A Participant may request the suspension of any Federation services in the case of Administrator credential compromise, participant key compromise, or other security compromise within the Participant's systems. This request may be made via e-mail or telephone from the Executive or Administrator and will be verified by InCommon using trusted communication channels. Suspension may include processes such as revoking credentials, or removing or modifying Metadata.

If InCommon suspects any compromise or negligence on the part of a Participant, it will make reasonable efforts to contact Participant to resolve the issue. In the case of a significant security incident that poses an unacceptable risk to InCommon or other federation participants, InCommon may take immediate remediation actions commensurate with the impact of the incident.

10.3.2 Suspension of Assurance Certification

Suspension of certification is done when a Participant's certification is deemed temporarily unwarranted as defined in Assurance Program documentation and the Assurance Addendum. In the case of Suspension of Participant's Assurance certification, InCommon will only remove the declaration of certification status from Participant's IdP Metadata and only for the duration of the Suspension.

11 Further Risk Assessment

For additional information highlighting some of the ways in which operation of the Federation might incur risk to Participants, please read the risk assessment paper found on the InCommon website.