



Steward Technical and Organizational Policies V2

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Governed By	Technical Governance Board

1. General Security Policies

1. A Steward **MUST** maintain and follow IT security policies and practices that are integral to maintain protection of all services provided in association with the Sovrin Steward Agreement (“Steward Services”). These policies **MUST** be mandatory for all employees of the Steward involved with providing the Steward Services. The Steward shall designate its CIO or another officer to provide executive oversight for such policies, including formal governance and revision management, employee education, and compliance enforcement.
2. A Steward **MUST** review its IT security policies at least annually and amend such policies as the Steward deems reasonable to maintain protection of its Steward

Services.

3. Because Node administrators are a potential threat vector, a Steward MUST maintain and follow its standard mandatory employment verification requirements for all new hires involved with providing its Steward Services and will extend such requirements to wholly-owned subsidiaries involved with providing its Steward Services. In accordance with the Steward's internal process and procedures, these requirements MUST be periodically reviewed and include, but may not be limited to, criminal background checks, proof of identity validation, and additional checks as deemed necessary by the Steward. Each Steward company is responsible for implementing these requirements in its hiring process as applicable and permitted under local law.
4. Employees of a Steward involved with providing its Steward Services MUST complete security and privacy education annually and certify each year that they will comply with the Steward's ethical business conduct, confidentiality, security, privacy, and data protection policies. Additional policy and process training MUST be provided to persons granted administrative access to components that are specific to their role within the Steward's operation and support of its Steward Services.
5. If a Steward hosts its Node in its own data center, the Steward's security policies MUST also adequately address physical security and entry control according to industry best practices.
6. If the Steward hosts its Node using a third-party Hosting Provider, the Steward MUST ensure that the security, privacy, and data protection policies of the Hosting Provider meet the requirements in this document.
7. A Steward MUST make available to the Sovrin Foundation upon request evidence of stated compliance with these policies and any relevant accreditations held by the Steward, including certificates, attestations, or reports resulting from accredited third-party audits, such as ISO 27001, SSAE SOC 2, or other industry standards.

2. General Node Policies

A Steward Node:

1. MUST be available to run as a Validator Node or Observer Node on any of the formal ledgers that make up the Sovrin Network.
2. MUST run a release of the Sovrin Open Source Code as approved and designated by the Technical Governance Board (TGB).
3. MUST facilitate an upgrade to a new version of the Sovrin Open Source Code within three (3) business days of a new release that has been: a) recommended by the Sovrin TGB, and b) accepted by a vote of any other relevant Sovrin Governing Body (such as the Steward Council).
4. MUST register all Node configuration data required by the Pool Ledger in a timely manner, keeping information up to date within three (3) business days of changes.
5. MUST have at least two (2) IT-qualified persons assigned to administer the node, and at

least one other person that has adequate access and training to administer the Node in an emergency, such as the network being unable to reach consensus or being under attack. See the [Sovrin Crisis Management Plan](#) for details.

6. MUST supply contact info for all administrators to the Sovrin Foundation, whose accuracy is tested at least quarterly (e.g., by sending an email and/or text that doesn't bounce).
7. MUST maintain a system backup or snapshot or image such that recovering the system from failure could be expected to take one hour or less.

3. Node Technical Policies

The following requirements apply to Steward Nodes on the Sovrin Main Network. Nodes on any other Sovrin Test Network should be similar, but requirements may be downgraded from MUST to SHOULD.

1. MUST run on robust server-class hardware.
2. If a Node is run on a VM, the Steward:
 - a. MUST run on a mainstream hypervisor that receives timely patches from its vendor or community.
 - b. SHOULD apply hypervisor patches on a regular basis.
3. The Node MUST run in an OS that is dedicated to the validator, i.e., a single-purpose (physical or virtual) machine that MUST run Sovrin Open Source Code, MAY run other software approved by the TGB, and MUST NOT run any other software. Software required to support the node, such as monitoring, backup, and configuration management software, are approved as a general category. However, Stewards should discuss with the TGB any software packages that transmit between the Steward Node and the outside.
4. MUST run a server with compatible versions of the operating systems supported by the Hyperledger Indy Node requirements as documented in the release notes.
5. MUST have adequate compute power (in late 2019, 8 or more cores is considered adequate).
6. MUST have adequate RAM (in late 2019, 32 GB of RAM is considered adequate).
7. MUST have at least 1 TB, with the ability to grow to 2 TB, of reliable (e.g., RAIDed) disk space, with an adequately sized boot partition.
8. MUST have a high-speed connection to the internet with highly available, redundant pipes (as of late 2019, 100 Mbps was considered adequate).
9. MUST have at least one dedicated NIC for Sovrin Validator Node consensus traffic, and a different NIC to process external requests. Each NIC must have a stable, static, world-routable IP address.
10. MUST be implemented in a way that does not endanger Sovrin's high availability architecture, which is pool-based rather than node-based. Nodes should not take more responsibility for high availability than what is contemplated by the Node Selection

Algorithm. For example, they should listen at exactly one pair of network addresses (see 2.9 above), using exactly one set of keys to respond to Sovrin/Indy protocol traffic at any one time, and adhere to a minimal failover recovery delay period specified by the Sovrin Foundation (or 30 seconds if not specified).

11. MUST have a system clock that is demonstrably in sync with well-known NTP servers.
12. SHOULD have a power supply consistent with high availability systems.

4. Node Security Policies

A Steward:

1. MUST maintain Steward keys on a separate machine from the machine that runs their node. This machine, called the “CLI (Command Line Interface) system”, uses Steward keys to authorize the Node to participate in the pool, and is thus the basis for trust for the node and the Steward’s identity on the network. The CLI system is not required to have high-end hardware, but in terms of IT best practices for *security*, it must meet or exceed the standards for the Node (see following items).
2. MUST provide certification that their Node runs in a locked datacenter with appropriate levels of security, including the specifications that they target (e.g., SSAE 16 type II compliance; other standards may also be acceptable).
3. MUST assert that their Node is isolated from internal systems of a Steward (because the Validator Node is publicly visible and thus an inappropriate candidate for access to privileged internal networks).
4. MUST assert that their Node, and its underlying systems, uses state-of-the-art authentication for remote access (at least SSH with key plus password plus source IP firewall rule, and two-factor authentication wherever possible).
5. MUST NOT allow access (remote or local) to the Node or CLI systems by anyone other than assigned admins.
6. MUST apply the latest security patches within one (1) week or less (24 hours or less is recommended).
7. MUST attest that the Node runs on a server protected by a firewall that, at minimum:
 - Disallows public ingress except on ports used by the Node software (different machines may choose to expose ledger features on different ports, so no standard port setup is required).
 - Optionally enables SSH, Remote Desktop, and similar remote access tools but constrains ingress for these tools in some way that excludes the public but allows access for admins.
 - Locks down egress ports to limit the ability to jump from Node to some other location.
8. MUST run the Steward security check tool as requested, and MUST receive TGB approval of the results before the Node is authorized to participate in consensus.
9. MUST run the Steward security check tool from time to time as requested by the TGB

and provide the test results report to the TGB within three (3) business days.

5. Node Operating Policies

A Steward:

1. MUST equip at least two (2) technical points of contact responsible for administering the Steward Node with an SMS-capable device for alerting.
2. SHOULD aim to achieve at least 99.9% (three nines) uptime for their Node (this amounts to about 1.4 minutes of downtime per day or 9 hours per year).
3. SHOULD coordinate downtime with other Stewards in advance via a mechanism as determined from time to time by agreement between the Sovrin TGB and any other relevant Sovrin Governing Body.

6. Node Selection Algorithm

1. The selection of active Validator Nodes at any point in time, at least on the Sovrin Main Network, MUST be governed by the [Node Selection Algorithm](#) as specified by the Sovrin TGB.
2. Non-technical inputs or policy decisions implemented by the Node Selection Algorithm MUST be approved by the Sovrin Board of Trustees.
3. At any point in time, the Node Selection Algorithm MUST represent the TGB's best efforts at designing an algorithm that applies the Core Principles of the Sovrin Governance Framework. Recognizing the inherent tension and tradeoffs between some of the Core Principles, the design of this algorithm should give priority to balancing:
 - a. The Decentralization by Design principles, in particular the principles of Diffuse Trust and High Availability.
 - b. The Security by Design principles, in particular the principles of System Diversity and Secure Failure.
4. A human-readable, understandable, and explainable description of the current design of the algorithm as approved by the TGB MUST be published by the TGB in the official Sovrin Code Repository and made publicly visible via a web page on the Sovrin Foundation website.

7. Permissioned Test Network Policies

1. On the Permissioned Test Network:
 - a. Steward MUST operate at least one Node but MAY operate more than one Node.
 - b. Any number of Nodes MAY be hosted the Steward's choice of Hosting Provider.
 - c. It is NOT REQUIRED to run the Node Selection Algorithm.
2. All access to the Permissioned Test Network MUST be governed by Permissioned Write

Access (note that this does not permit Personal Data to be written).

3. To be a Transaction Endorser for the Permissioned Test Network, an Organization MUST be either:
 - a. The Sovrin Foundation.
 - b. A Steward on the Permissioned Test Network.
 - c. A Transaction Endorser authorized by Steward on the Permissioned Test Network.
4. If at any time for any reason Personal Data is discovered on the Permissioned Test Network:
 - a. The Sovrin Foundation MUST be notified immediately.
 - b. Within 48 hours of notification, the Sovrin Foundation MUST reset the Permissioned Test Network to erase the Personal Data.

8. Reporting Policies

1. A Steward MUST report to the responsible Sovrin Governing Body any substantive change to the configuration or location of a Node within five (5) business days of the change.

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