

SCION Registry Policy

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1. Introduction

SCION networks are required to use globally unique numbers to identify Isolation Domains (ISDs), whereas it is operationally desirable to use globally unique numbers to identify SCION Autonomous Systems (ASes). These need to be assigned by a Registration Authority (RA) in order to assure their uniqueness.

ISDs are identified with a 16-bit number, which means there are a maximum of 65,536 values.

SCION ASes are identified by a 48-bit number, which means there are a maximum of 281,474,976,710,656 (281.47 trillion) values. Whilst SCION AS numbers only need to be unique within each ISD, there are benefits to making them globally unique such as when an AS is a member of more than one ISD.

The SCION RA is responsible for assigning and registering ISD and SCION AS numbers to user organisations, and this role will be assumed by the SCION Association from Anapaya from 1 August 2026.

This document outlines the registration policies for assigning these numbers, as discussed and agreed by the SCION Registry Committee; created by the SCION Board of Directors on 20 August 2025. These policies are intended as guidelines and are expected to evolve as adoption increases and in response to operational requirements.

SCION-enabled networks must be members of at least one Isolation Domain (ISD) that are identified with globally unique 16-bit numbers. SCION-enabled networks are also identified with 48-bit Autonomous System (AS) numbers for which there are benefits in making these globally unique such as when a SCION AS belongs to more than one ISD.

To ensure the assignment and registration of globally unique ISD and SCION AS numbers, there is a requirement to maintain and operate a Registration Authority (hereafter referred to as the 'Registry'). The registry operations are managed by the SCION Association and governed by the Registry Committee, as from 1 January 2026.

2. Registry Committee

The Registry Committee ensures there is community oversight and governance of the RA. Its responsibilities and membership are listed in its [Charter](#).

The Registry Committee may amend these registration policies with 30 days notice.

3. ISD Assignments

An ISD number is the 16-bit global identifier for an ISD and MUST be globally unique. It is represented in decimal notation.

The following table gives an overview of the ISD number allocation:

ISD range	Size	Description
0	1	The wildcard ISD
1-15	16	Reserved for documentation and sample code (analogous to RFC 5398)
16-63	48	Private use (analogous to RFC 6996) Can be used for testing and private deployments
64-4095	4,032	Public ISDs (3840-4095 will be allocated to Anapaya for future assignment)
4096-65535	61,440	Reserved for future use

3.1 Assignment policy

ISD numbers will be assigned on the following basis:

- **Geopolitical ISDs** - An ISD number may be assigned to identify a country or territory listed in ISO 3166-1, a sub-division of a country or territory listed in ISO 3166-2, or a recognised geopolitical region (e.g. EU). The assignment must be approved by the Registry Committee who must be satisfied that a sub-RA has been established with governance that fully represents the local community and meets the other requirements for operating an ISD. These numbers will be assigned from the range reserved for this purpose.
- **Organizational ISDs** - These ISD numbers should be assigned in ascending order without gaps from the range reserved for this purpose. Eligible assignments include intergovernmental organisations (e.g. UN, ITU), national or local governments, and industry associations or service providers. Other assignments will be determined on a case-by-case basis with advice from the Registry Committee.

Applicants for an ISD number must also meet the following requirements:

1. An applicant must be a single organisation that will be responsible for the operation of the ISD (typically a Voting AS member).
2. An applicant must provide a valid use case along with governance details that include the proposed Voting AS members and Certificate Authority.
3. An applicant must provide the registration information listed in the Appendix.
4. An applicant must commit to create a Trusted Root Configuration (TRC) and lodge this with the RA within 1 year of being assigned an ISD number, otherwise the RA has the right to revoke the number. The TRC may be published by the RA upon request.
5. An initial assignment fee may be payable upon the issue of an ISD number, along with an annually recurring fee to support the costs of operating the RA (see Registry Fees).

3.2 Transfer

The registrant of an ISD number may transfer this to any other organisation that is a Voting AS member of the same ISD, with the agreement of both parties and the approval of the SCION Association.

The Voting AS members of an ISD may - in accordance with the governance process of the ISD - collectively request that the registration of an ISD number is transferred to another Voting AS member of the ISD.

The Voting AS members of an ISD may - in accordance with the governance process of the ISD - collectively request that the registration of an ISD number is transferred to another organisation that is not a member of that ISD. This would typically be in exceptional circumstances such as the transfer of ISD governance and operations to another entity.

New registrants must still comply with all registration requirements.

3.3 Reclamation

The RA will have the right to withdraw an ISD number for any of the following reasons:

- Failure to create and publish a Trusted Root Configuration (TRC) within 1 year of being assigned an ISD number.
- In the event a registrant organisation becomes defunct, the ISD can no longer be governed by its Voting AS members, or a TRC expires without renewal for 1 year.
- Non-payment of registration fees.

Reclaimed ISD numbers will be reserved for a period of 5 years and may not be re-assigned. They may be recovered at any time during this period by the original or a successor registrant with a bona-fide connection to the ISD number, with the approval of the Registry Committee and provided they comply with registration requirements.

4. SCION AS Assignments

A SCION AS number is the 48-bit identifier for an AS. Numbers in the lowest 32-bit range (0-4294967295) should be represented in decimal notation, with other numbers represented in hexadecimal notation.

Although they play a similar role, there is no relationship between SCION AS numbers and BGP ASNs as defined by RFC 4271. However, public BGP ASNs may be mapped to SCION AS numbers where the first 16 bits are 0 and the remaining 32 bits are identical to the public BGP ASN.

The following table gives an overview of the SCION AS number allocation:

AS range	Size	Description
0	1	The wildcard AS
1 - 4294967295	4,294,967,295	Public SCION ASes mapped to BGP ASNs (see assignment policy)
1:0:0 – 1:ffff:ffff	4,294,967,296	1:0:0 – 1:f:ffff will be allocated to Anapaya for future assignment. 1:10:0 – 1:ffff:ffff reserved for future use
2:0:0 –	4,294,967,296	Public SCION ASes

2:ffff:ffff		(see assignment policy)
3:0:0 - feff:ffff:ffff	280,362,580,180,992	Reserved for future use
ff00:0:0 - ff00:0:ffff	65,536	Reserved for documentation and sample code (analogous to RFC 5398)
ffaa:0:0 - ffaa:00ff:ffff	16,777,216	Private use (analogous to RFC 6996) Can be used for testing and private deployments
ffaa:0100:0 - ffff:ffff:fffe	369,350,410,239	Reserved for future use
ffff:ffff:ffff	1	Reserved

4.1 Assignment policy

SCION AS numbers will be assigned on the following basis:

An applicant may be assigned a SCION AS number from the range 1 to 4,294,967,295 if they are the holder of the equivalent BGP ASN. This will be verified with the appropriate Regional Internet Registry database.

Other assignments will be from the range 2:0:0 to 2:ffff:ffff. The minimum assignment block will be 4 bits (16 numbers), but larger blocks up to 16 bits (65,535) may be requested with a valid use case. The allocation of 16-bit blocks is to allow registrants to easily obtain more numbers within a contiguous range, although there is no technical requirement for this.

SCION AS numbers in the range 2:0:0 to 2:ffff:ffff should be reserved in 16 bit blocks in ascending order without gaps, with assignments to each registrant made from the same block to allow for expansion.

Applicants for SCION AS numbers must also meet the following requirements:

1. An applicant must be a single organisation or individual that will be responsible for the operation of the SCION AS.
2. An applicant must provide the registration information listed in the Appendix.

3. An initial assignment fee may be payable upon the issue of an ISD number, along with an annually recurring fee to support the costs of operating the RA (see Registry Fees).

4.2 Transfers

The registrant of a SCION AS number or AS block may transfer this to any other organisation or individual, with the agreement of both parties and the approval of the SCION Association.

New registrants must still comply with all registration requirements.

4.3 Reclamation

The RA will have the right to withdraw SCION AS numbers for any of the following reasons:

- In the event a registrant organisation becomes defunct.
- Non-payment of registration fees.

Reclaimed SCION AS numbers will be reserved for a period of 5 years and may not be re-assigned. They may be recovered at any time during this period by the original or a successor registrant with a bona-fide connection to the SCION AS number(s), with the approval of the Registry Committee and provided they comply with registration requirements.

5. Registry Fees

There will be no charge for any ISD and SCION AS numbers assigned prior to 1 June 2026, unless agreed by the resource holder.

Organizations that are members of the SCION Association in the Supporter and Founding tiers may each request the assignment one ISD number. There will also be no recurring fees whilst a registrant remains a member of the SCION Association in the Supporter and Founding tiers.

Organizations that are members of the SCION Association in the Adopter, Community, Supporter and Founding tiers may each request the assignment of one SCION AS number in the range 1-4294967295, and one SCION AS block of 16 numbers from the range of public SCION ASes for free. There will also be no recurring fees whilst a registrant remains a member of the SCION Association in the Adopter, Community, Supporter and Founding tiers.

Fees will not be charged for the assignment of other ISD and SCION AS numbers until 1 January 2027. After this, fees may be charged for assignment, and on an annual recurring basis.

Fee schedules will be determined and published by the Registry Committee on an annual basis. Fees for 2027 will be as follows:

Resource	Initial Assignment Fee	Annual Fee
ISD number (1 number)	CHF 2,000	CHF 1,000
SCION AS number in range 1-4294967295 (1 number)	CHF 200	CHF 100
SCION AS block in range 2:0:0-2:ffff:ffff (16 numbers)	CHF 400	CHF 200
SCION AS block in range 2:0:0-2:ffff:ffff (256 numbers)	CHF 800	CHF 400
SCION AS block in range 2:0:0-2:ffff:ffff (65,535 numbers)	CHF 1,600	CHF 800

Appendix: Registration Information

Resource Holder Details (these can be linked with multiple ISD and SCION AS numbers)		
Type	Mandatory	Status
Organization Name	Yes	Public
Company Number	Yes - if registered	Public
Sponsoring Organization	Optional	Optional
Address	Yes	Optional
Country	Yes	Public
Telephone	Optional	Optional
E-mail	Yes	Public
Administrative Contact	Yes - can be Person or Role	Public
Technical Contact	Yes - can be Person or Role	Public
Geolocation	Optional	Optional

Person Details (these can be linked with multiple Resource Holders and/or Roles)		
Type	Mandatory	Status
Name	Yes	Optional - if linked to Role
Address	Yes	Private
Country	Yes	Private
Telephone	Optional	Private
E-mail	Yes	Optional - if linked to Role

Role Details (these can be linked with multiple Resource Holders and/or Persons)

Type	Mandatory	Status
Role	Yes	Public
Address	Yes	Private
Country	Yes	Private
Telephone	Optional	Private
E-mail	Yes	Public