Corda Network Rulebook

R3
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Introduction

This Corda Network Rulebook, as adopted by R3, Corda Network's certificate authority, defines the rules governing activity on Corda Network that are mandatory for all Corda Network Participants.

R3 reserves the right, in its sole discretion, to modify the terms of this Corda Network Rulebook from time to time. If R3 makes material changes, R3 will provide Participant with at least fifteen (15) business days advance notice of such changes.

The Parties acknowledge and agree that this Rulebook shall at all times be governed by the Corda Network Foundation's Certificate Policy & R3's Certificate Practice Statement.

1. Admission Criteria

1.1. Introduction

Please note: this is not a guide to onboarding, but the rules that underpin the process. If you wish to see the onboarding process for Corda Network, please refer to the process guide online: https://corda.network/participation/index/ which may change from time to time. This should be read together with this Rulebook.

Any legal entity who wishes to use Corda Network must first create a node (a java virtual machine run-time environment that hosts Corda services and CorDapps), then obtain a Participation Certificate, which will give their node access to the Network. Once a legal entity obtains a Corda Network Participant Certificate, it becomes a "Corda Network Participant" and it uses a "Corda Network Node."

There are two kinds of Corda Network Participants: Participants (who have legal contracts with R3) and Sponsored Participants (who have access to Corda Network via a Participant's legal contract).

Requests for all Participation Certificates will always come through Participants; as such, Sponsored Participants will not request Certificates directly from R3, but via the sponsoring Participant whose legal contract allows them to access the Network.

R3's provision of access to the Corda Network shall not be considered as a substitute for a Participant's own "Know Your Customer" procedures.

1.2. Policy

Each Participant Certificate shall be issued only to legal entities, and not individuals. The following information must be provided by all Participants (either for themselves or on behalf of Sponsored Participants) upon request, as part of the network onboarding process:

- Legal Entity Name
- Legal Entity Address
- Contact Name
- Contact Email Address
- Contact Phone Number
- Unique Legal Entity Identifier – (GLEIF ID, EIN, CRN, etc.)
- Website Domain (Optional)

R3 has established a sanction review process for all entities, "R3's sanctions screening process". Entities that fail R3's sanctions screening process will not be allowed to receive a Participation Certificate.

The sanction lists as of the effective date of this Rulebook are as follows, which may change in R3's sole discretion in the future. In addition, sanctions reviewed include not only against respective entities but also jusirdictions that such entities may be incorporated in and/or operate out of:

United Kingdom Her Majesty's Treasury Sanctions, Office of Foreign Assets Control Non-Specially Designated National Entities, Office of Foreign Assets Control Sanctions, Office of Foreign Assets Control Specially Designated Nationals, United Nations Consolidated List, Bureau of Industry and Security, Excluded Parties List System, Financial Action Task Force (FATF), Office of the Superintendent of Financial Institutions Consolidated List—Canada, Consolidated list of Persons, Groups and Entities subject to EU Financial Sanctions, Section 311 of the USA Patriot Act, Office of the Comptroller of the Currency (OCC) Unauthorized Banking List.

Participants that enter into a Sponsored Participant Terms of Use with R3 should not rely on R3's sanctions screening process with respect to their Sponsored Participants. Sponsoring Participants are responsible for reasonably assuring themselves as to and verifying the identity of Sponsored Participants, and conducting such due diligence and sanctions checks as necessary to ensure that all such entities meet tolerance standards as required by the applicable Business Network.

2. Allowable Identity Names on Corda Network

Participation Certificates will be issued based on the information provided in the Certificate Signing Request. "Certificate Signing Request" or "CSR" means a request made by a Participant to R3 to digitally sign its Participation Certificate. Any changes to information contained in the Participant Certificate, including updating the legal entity name or contact information, will require the Participation Certificate to be revoked and re-issued by R3 in consultation with the Participant via the Node Operator Email Address. R3 will deal with requests to re-issue Participation Certificates as soon as reasonably practicable. Participants will not be prevented from using existing Participation Certificates during the re-issue period where the relevant change is procedural and/or in the ordinary course, eg to reflect a change in name, place of incorporation etc.

2.1. Overview

Each Corda Network Node must have a Corda Network Participation Certificate. Legal names registered with R3 are to be submitted in the form of an X.500 name that must include 4 fields:

1. Organisation (O)
2. Organisation Unit (OU)
3. Locality (L)
4. Country (C)

X.500 names may include up to 6 fields (optional additional fields are: (5) State (S), and (6) Common Name (CN)), explained in greater detail below. Data fields in the X.500 name must be sorted in the order specified in the Corda protocol.

The maximum number of characters in the X.500 name (across all 6 fields, including field names, such as "O=", "OU=", "L=") is **128 characters**.

2.2. Choosing the X.500 name

R3 shall check that all X.500 names meet the following requirements:

- Organisation, Organisational Unit, Locality and Country attributes are present.
- Organisation attribute represents a real legal entity's name.
- The Country attribute is a valid ISO 3166-1 two letter code in upper-case.
- The X.500 name is unique to all other pre-existing X.500 names on the network (this is a check done during onboarding; the Participant cannot check prior to joining).

Overall, the completion of the fields within the X.500 in an incorrect manner is one of the most common points of error in joining Corda Network, so take care to fill this out correctly. As part of standard onboarding checks for Corda Network, R3 may verify that these details have been accurately populated and reject requests where the population of these fields does not appear to be correct.

For guidance on writing a legal entity name please see the table below:

FIELD	MANDATORY	MAX LENGTH (CHARS)*	VALIDATION	PURPOSE
Organisation (O)	Y	110	As per Section 2.2, and additionally: No double-spacing.	The O field defines the owning organisation of the Participation Certificate. . This should be set to the **legal name** of the organisation, as it appears in the official register within the jurisdiction in which the entity is registered/incorporated. More details are provided in section 2.2.1.
Organisation Unit (OU)	Y	64	As per above, and may not contain Stopwords	This field is generally used to denote sub-divisions or units in the Organisation (O). It may be used (for example)to separate Corda Network Nodes used for different purposes by the same Organisation (O). .
Locality (L)	Y	64	As per above	The local jurisdiction in which the entity is registered or operates.
Country (C)	Y	2	2-digit ISO code	The country in which the entity is registered/incorporated.

State (S)	N	64	As per above	If the country in which the entity is registered/incorporated operates a State or Province system (e.g. USA, Australia and Canada) the State of registration/incorporation may be added here.
Common Name (CN)	N	64	As per above, and may not contain Stopwords	An optional field available to each operator of a Corda Network Nodefor use at its discretion. Often used for home website urls.

*Note that the total maximum length of all 6 fields must remain under 128 characters.

2.2.1. Selecting the right Legal Entity for the "O" field in the node's X.500 name

The name in the 'O' field should match the exact name in a recent search of the government registry in which it is registered. This search should be recent and in any event not older than [1 year.]

If R3 cannot find evidence of the company through either looking in government trade registers or in trusted 3rd party legal entity databases, it reserves the right not to issue the relevant Participation Certificate. Participants may submit evidence of a company's existence, but it must be recent [as defined above] and from a government trade register. R3 may need to confirm this with its own sources.

Here are a few examples of filling out the whole X.500 name. Take a careful look at the O field selected - this is the cause of most errors!

Example 1:

FIELD TITLE	EXAMPLE
Organisation (O)	R3 Limited
City (L)	London
Country (C)	GB
Organisation Unit (OU)	Ops
State	
Common Name (CN)	
Node Operator Email Address	info@r3.com

This is the correct legal entity name, as evidenced in the UK government trade register, Companies House here: https://find-and-update.company-information.service.gov.uk/company/10103259

Here are some examples of government trade registers:

COUNTRY	LINK
Australia	https://connectonline.asic.gov.au/RegistrySearch/faces/landing/SearchRegisters.jspx?_adf.ctrl-state=jx0kwgy52_4
Chile	https://www.conservador.cl/portal/indice_comercio
France	http://www.sirene.fr/sirene/public/accueil?sirene_locale=en
Finland	https://virre.prh.fi/novus/home?execution=e1s1

Hungary	https://www.e-cegjegyzek.hu/?cegkereses
India	http://www.mca.gov.in/mcafoportal/viewCompanyMasterData.do
Philippines	https://www.bnrs.dti.gov.ph/web/guest/search
Singapore	https://www.bizfile.gov.sg/ngbbizfileinternet/faces/oracle/webcenter/portalapp/pages/BizfileHomepage.jspx
South Africa	https://eservices.cipc.co.za/Search.aspx
UK	https://beta.companieshouse.gov.uk/
US	https://www.sec.gov/edgar/searchedgar/companysearch.html

Please also refer to this website for a non-comprehensive list (including url links) for other countries' company registers: https://en.wikipedia.org/wiki/List_of_company_registers#cite_note-194

2.2.2. Constraints on Characters and Unicode

The total X.500 name (including field names such as "O=", "OU=", "L=") is required to be under 128 characters.

The free text fields in the X.500 name must obey the following constraints:

1. Consist only of characters from the following Unicode code blocks: Basic Latin, Latin-1 Supplement, Latin Extended A, Latin Extended B
2. Start with upper-case first letter
3. May not contain the null character
4. May not contain control characters
5. Must have at least two characters
6. Must be normalized to Unicode NFKC form
7. May not include the following forbidden characters: , = $ " ' \ /+
8. May not include trailing or leading whitespace
9. Must be encoded using UTF-8

2.2.3. Stopwords

"Stopwords" are character sequences that may be the result of mistaken applications or intent to confuse. Stopwords may not be used in the Organization Unit or Common Name fields of the X.500, unless sufficient justification is provided. R3 may adjust the list of stopwords at any time.

Examples of Stopwords:

1. Corda
2. R3
3. Node
4. Server
5. Oracle
6. Ã
7. Â
8. test (in Production Network)

2.3. Node Operator Email Address

Before a Participant Certificate can be sent to a Node seeking to join Corda Network, R3 needs a response from the Node Operator Email Address contained in the CSR (e-mail contained in the node.conf file) to confirm that:

- the email domain used in the node.conf is associated with the legal entity requesting the certificate; and
- the person submitting the CSR has access to the email inbox listed in the node.conf file

Requirements for the e-mail address

The email address used in the node.conf file (the "Node Operator Email Address") will be used for communications which R3 sends to the Participant, including those involved in identity verification and for all future communication related to Corda Network.

It must be

1) associated with the legal entity submitting the request, and
2) be an actively monitored group mailbox such as 'admin@, 'info@' or 'support'.

Individual email addresses **will not be accepted** for this email address, but can be added as an additional email address for communications, later in the onboarding process.

3. Considerations When on Corda Network

3.1.Requesting re-certification

A CSR may be rejected if the data is not constructed according to the standards set out in *Allowable Identity Names* in this document. Amended CSRs will be subject to the same service levels as new CSRs detailed in the Maintenance and Service Level Handbook.

To request a re-certification for purposes of generating new keys or to amend information on an existing and valid Participation Certificate, Participant must start a new Corda Network Node and request a new Participation Certificate. Such requests will be subject to the service levels associated with a new Participation Certificate request. The X.500 name of the new identity must be unique as a combination across all 6 fields (not the same as the previous identity). Details such as the IP address of the node can be changed without re-certification by sending a new configuration file directly to the Network Map Service server.

4. Revocation

The management of Corda Network Trust Root is done in accordance with the Certificate Policy and the Certificate Practice Statement.

4.1. Introduction

In addition to any rights set forth in the Terms of Use, but subject to the protections afforded by Clauses 3.4 and 3.5 of the Terms of Use, and only in relation to the Participant directly affected, R3 shall have the right at any time with immediate effect and without notice to:

(i) suspend a Participant's access to the Corda Network and/or the Corda Network Services;

(ii) terminate a Participant's access to to the Corda Network and / or the Corda Network Services; or

(iii) revoke a Participant's Participation Certificate,

if R3, acting reasonably, determines that:

1. The binding between the Participant and the Participant's public key defined within the Participation Certificate is no longer valid.

   Examples of circumstances that invalidate the binding are:

   1.1. Identifying information or any affiliation component of any names in the Participation Certificate becomes invalid;
   1.2. If the Participant's business right to this certificate is no longer valid (for example, a Terms of Use no longer covers this Certificate);
   1.3. There are reasonable grounds to believe the Corda Network Participant's private key has been compromised; or
   1.4. The Corda Network Participant or other authorised party (as defined in the Certificate Practice Statement) asks for their certificate to be revoked.

2. Corda Network Participant has been listed on any of the sanctions list outlined in the admission criteria above;

3. The Corda Network Participant's Participation Certificate was not issued in accordance with the Foundation's Certificate Policy or R3's Certificate Practice Statement;

4. R3's right to issue Participant Certificates expires or is revoked or terminated by the Corda Network Foundation, unless R3 has made other arrangements;

5. In the event a Participation Certificate is revoked by R3, it shall be placed on a Certificate Revocation List (CRL) and shall be included on all new publications of the certificate status information until the Participation Certificate expires.

5. Event Horizon

Participants must publish their node information to the Network Map Service at least once every 30 days to remain on the Network Map.

6. Node IP Connectivity

All nodes in the main zone must advertise at least one IPv4 address.

Corda Network Node peer-to-peer ports must be globally reachable via the internet, from any part of the internet. By implication you may not use TCP/IP firewall rules to block who connects to your Corda Network Node. Instead, access control should be done cryptographically using TLS termination and membership rule checking at the start of flow logic (i.e. before any code other than session setup runs).

7. Port Ranges

Outbound connectivity for Corda Network Nodes must support all possible ports allowed by the TCP specification. This does not imply opening all ports on the inbound path –operators of Corda Network Nodes may select a single port for their Corda Network Node and open only that port on network-level firewalls.

We recommend, but do not require, that Corda Network Nodes advertise port 31337 in the Network Map Service.

8. Corda Protocol

The "Corda Protocol" is the Corda Software defined by the open source reference implementation.

All Corda Network Participants must ensure their nodes run unmodified Corda or Corda Enterprise software versions as specified in the network parameters' minPlatformVersion field or higher.

Corda Network Nodes may additionally support and use extended versions of the Corda Protocol, however they must not reject traffic from Corda Network Nodes that are using the standard Corda Protocol.

A modification to the open source implementation in incompatible ways will be deemed to have become incompatible with the Corda Protocol and thus in violation of zone policy.