

# National eduroam Federation Policy

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## Notation

Notation adopted in this document is as defined in IETF RFC 2119.

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119.

## 1. Background to this document

### 1.1. What is eduroam ?

- 1.1.1. "eduroam" is a global service enabling a user from an eduroam identity provider (IdP) institution to automatically access the network of a visited eduroam service provider (SP) institution by virtue of the user's remote authentication by their IdP (home institution).
- 1.1.2. eduroam is a "trust federation", with policy compliance the basis of trust between an eduroam SP (institution providing network access) and an eduroam IdP (institution performing user authentication).
- 1.1.3. eduroam may be used for wired or wireless network access. For wireless access, a standard SSID "eduroam" is broadcast at each eduroam SP.
- 1.1.4. Standardised network naming, and user-device pre-configuration including credential storage, enables automatic authenticated network access by eduroam IdP users when they visit eduroam SP locations.

### 1.2. National eduroam and "National eduroam Federation"

- 1.2.1. Institutions participate in eduroam globally (hereafter called Global eduroam) through their participation in a "National eduroam Federation".
- 1.2.2. National eduroam infrastructure, operated by the National eduroam Federation's "National Roaming Operator" (NRO), provides eduroam interoperability between eduroam SPs and IdPs at a national level.
- 1.2.3. Institutions participating in a National eduroam Federation MUST comply with the National eduroam Policy owned and maintained by the NRO.
- 1.2.4. <National eduroam Federation> is the National eduroam Federation for participating institutions in <country>.
- 1.2.5. <NREN>, <country's> national research and education network (NREN) provider, is the National Roaming Operator (NRO) for <National eduroam Federation>.

### 1.3. Regional eduroam

- 1.3.1. Regional eduroam infrastructure, providing eduroam interoperability between National eduroam Federations within a defined geographic/economic region, may be deployed and operated by designated National eduroam NROs from those regions.
- 1.3.2. A Regional eduroam Federation may be formed by virtue of a Regional eduroam Authority Structure and Policy for the National eduroam Federations within the Region. EU and APAC operate Regional eduroam Federations.
- 1.3.3. eduroam AU and eduroam HK jointly operate Regional eduroam infrastructure for the APAC region.

### 1.4. Global eduroam

- 1.4.1. Global eduroam is governed by the Global eduroam Governance Committee (GeGC), which

is coordinated by the GEANT Association and is comprised of representatives from Regional eduroam Confederations.

- 1.4.2. There are two representatives from the APAC eduroam Confederation on the GeGC. Elections are conducted periodically to for the representative positions on the GeGC. Responsibilities of those delegates are defined in the APAC eduroam Confederation Terms of Reference.

## 1.5. Global and National eduroam Policy

- 1.5.1. The GeGC's "Global eduroam Compliance Statement" [1] describes the policy regarding a National eduroam Federation's participation in Global eduroam. It describes requirements and recommendations pertaining to a National eduroam NRO's role and responsibilities.
- 1.5.2. National eduroam NRO's MUST comply with "Global eduroam Compliance Statement" [1], hereafter referred to as the "Global eduroam Policy".
- 1.5.3. NREN, the <National eduroam Federation> NRO, is a signatory to the Global eduroam Policy.
- 1.5.4. This document, the "<National eduroam Federation> Policy", hereafter referred to as "This Policy", owned and maintained by <NREN>, describes requirements and recommendations pertaining to each <National eduroam Federation> institutional participant's roles and responsibilities.
- 1.5.5. This Policy is intended to both satisfy the Global eduroam Policy requirements and to describe <National eduroam Federation> specific requirements and recommendations to support <NREN>'s operational objectives for <National eduroam Federation> (as outlined in Appendix C).
- 1.5.6. Appendices A and B of the Global eduroam Policy describe administrative and technical requirements for institutional participation in eduroam, and are included as Appendix A and B of This Policy.
- 1.5.7. A <National eduroam Federation> institutional participant (hereafter referred to as "The Institution", "Institution", "<National eduroam Federation> Participant" or "Participant") MUST comply with This Policy.

## 1.6. Authority, Compliance & Policy Revision

- 1.6.1. The authority for This Policy is <NREN>. <NREN> is responsible maintaining This Policy and for monitoring The Institution's compliance with the requirements of This Policy.
- 1.6.2. The Institution's connection to the <National eduroam Federation> National Infrastructure operated by <NREN> requires and is interpreted as acceptance of This Policy by The Institution.
- 1.6.3. If <NREN> identifies non-compliance with This Policy, <NREN> will notify The Institution's designated eduroam administrator by email of the breach and describe the required resolution. Where such notifications are not acted upon in a timely manner, <NREN> reserves the right to block The Institution's participation in eduroam.
- 1.6.4. In case of non-compliance where immediate action is deemed necessary by <NREN> to protect the integrity and security of eduroam, <NREN> reserves the right to block The Institution's participation immediately without prior notice and advise The Institution's eduroam administrator of the action, breach and required resolution.
- 1.6.5. Revision of This Policy will be subject to <NREN> internal review and approval before being submitted to the <NREN> eduroam Advisory Committee for the purpose of consultation with <National eduroam Federation> Participants, and subsequent endorsement.
- 1.6.6. Following endorsement by the <NREN> eduroam Advisory Committee, the revised <National eduroam Federation> Policy will be released to all <National eduroam Federation> Participants. Participants will be provided a three month transition period to consider changes, seek clarification and provide feedback, and advise of their acceptance

or lack of acceptance of the revised <National eduroam Federation> Policy.

- 1.6.7. During the transition period Institutions are required to continue to comply with the incumbent policy unless the policy item is superseded by the revised policy in which case compliance with either is acceptable. By the conclusion of the transition period Institutions **MUST** comply with the revised policy.
- 1.6.8. At the conclusion of the transition period, Institutions which have notified lack of acceptance of the revised policy will be removed from <National eduroam Federation> participation.
- 1.6.9. In case of any event or behaviour constituting a threat to the security of eduroam, where immediate action is deemed necessary by <NREN> to protect the security of Participants, <NREN> reserves the right to suspend <National eduroam Federation> immediately and take appropriate action. If such a threat requires revision of This Policy, <NREN> reserves the right to adopt a process with unspecified variation from that described by 1.6.5 to restore <National eduroam Federation> in a timely fashion.

## 1.7. eduroam Trademark and Logo

- 1.7.1. In accordance with the Global eduroam Policy, <NREN> has registered the eduroam trademark and logo in <Country>.

## 1.8. Further Information

- 1.8.1. A list of references and links to more information about eduroam is provided in Appendix D.

# 2. <National eduroam Federation> Membership and Participation

## 2.1. General rules for participation in <National eduroam Federation>

- 2.1.1. An Institution operating as an eduroam IdP **MUST** also operate as an eduroam SP.

## 2.2. <National eduroam Federation> Member Categories

- 2.2.1. The <National eduroam Federation> Member category “**IdP+SP Participant**” refers to an Institution operating as an eduroam IdP and SP. IdP+SP Participants **MUST** host their own RADIUS server and route <National eduroam Federation> authentication and user traffic to the internet via their subscribed <NREN> service.
- 2.2.2. The <National eduroam Federation> Member category “**SP-Only Participant**” refers to an Institution operating as an eduroam SP only. SP-Only Participants **MAY** host their own RADIUS server or use RADIUS server provided by another Institution (typically an IdP+SP Participant). SP-Only Participants hosting their own RADIUS server **MAY** connect to the <National eduroam Federation> National Infrastructure directly or via another Institution's RADIUS server. SP-Only Participants **MAY** route authentication and/or user traffic via their subscribed <NREN> service, or via another Institution's subscribed <NREN> service, or via another ISP.
- 2.2.3. <NREN> is responsible for providing support to <National eduroam Federation> Members to achieve and maintain eduroam deployment and operability compliant with This Policy, including operational auditing and monitoring, other administrative functions as outlined in Appendix C.

## 2.3. Membership eligibility and rules: IdP+SP Participant

- 2.3.1. Eligibility for Membership of <National eduroam Federation> as an IdP+SP Participant is limited to institutions which are <NREN> customers and have a current <NREN> Access Agreement [2] in force and such <NREN> customers' eligible users as defined under that Agreement.

- 2.3.2. IdP+SP Participants MUST comply with policy items (roles, responsibilities, operational requirements) described in This Policy for both eduroam IdPs and SPs.
- 2.3.3. New IdP+SP Participants MUST follow the <National eduroam Federation> joining process for IdP+SP Participants established and administered by <NREN>.
- 2.3.4. IdP+SP Participants MUST bear the cost of any network access provided via eduroam by the Institution.

## **2.4. Membership eligibility and rules: SP-Only Participant**

- 2.4.1. Eligibility for Membership of <National eduroam Federation> as an SP-Only Participant is open to any institution with a requirement, business case or other impetus for delivering network access to visitors from IdP+SP Participant Institutions.
- 2.4.2. SP-Only Participants MUST comply with policy items (roles, responsibilities, operational requirements) described in This Policy for eduroam SPs.
- 2.4.3. New SP-Only Participants MUST follow the <National eduroam Federation> joining process for SP-Only Participants established and administered by <NREN>.
- 2.4.4. <National eduroam Federation> SP-Only Participants MAY reach agreement with other Institutions (typically those IdP+SP Participants deriving benefit for their users) regarding cost recovery of network access provided via eduroam.

## **2.5. <National eduroam Federation> NRO and Member Liability and Indemnity**

- 2.5.1. <NREN> as NRO operating <National eduroam Federation> in compliance with the Global eduroam Policy, and Institutions participating in <National eduroam Federation> in compliance with This Policy, MUST be deemed to be doing so on a 'best efforts' basis.
- 2.5.2. Other National eduroam NRO's operating <National eduroam Federation>s in compliance with the Global eduroam Policy, and institutions participating in eduroam in compliance with their National eduroam Policy, MUST be deemed to be doing so on a 'best efforts basis'.
- 2.5.3. <NREN> as NRO and Institutions participating in <National eduroam Federation> MUST indemnify totally all participants in providing and using eduroam with regard to liability for any impact as a result of a loss, disruption or use of the eduroam service.

# **3. <National eduroam Federation> Member Roles and Responsibilities**

## **3.1. eduroam Identity Provider (IdP)**

- 3.1.1. The role of an eduroam identity provider is to authenticate users for whom it provides identity management and authentication credentials. Authentication of users via eduroam, enabling the user to access the SP's network, MUST comply with the Institution's <NREN> Access Agreement.
- 3.1.2. The IdP must comply with the Global eduroam Policy administrative and technical requirements for eduroam IdPs described in Appendix A.
- 3.1.3. The IdP MUST publish and require agreement by its users to comply with its institutional network acceptable use policy (AUP).
- 3.1.4. The IdP MUST configure its RADIUS server for mutual authentication by its user's client devices by validation of the IdP's RADIUS server x509 certificate and must make available the associated CA certificate if not automatically installed in client devices.
- 3.1.5. The IdP MUST enable its users to configure <National eduroam Federation> authentication locally and confirm successful authentication via eduroam prior to use of eduroam while travelling.
- 3.1.6. The IdP MUST provide information to users regarding end-user responsibilities for use of

eduroam and MUST accept responsibility for the behaviour of their users (i.e. users they authenticate). The responsibilities communicated to users MUST include:

- The IdP's AUP must be complied with when accessing an SP's network via eduroam. The SP's AUP SHOULD be read. Where the IdP and SP AUPs differ or conflict, the more restrictive SHOULD apply. (A user not complying with a SP's AUP may be denied access by the SP and non-compliance notified to the user's IdP by the SP.)
- Configuration and confirmation of authentication via eduroam SHOULD be performed initially at the user's home institution (their IdP);
- Configuration of authentication by the IdP SHOULD require mutual authentication (by user-device validation of the IdP RADIUS server certificate);
- User Credentials SHOULD be protected and not shared;
- Any loss or compromise of credentials, suspected or confirmed, SHOULD be reported to the IdP eduroam administrator promptly;
- Any faults or issues encountered in using eduroam SHOULD be reported to the IdP and/or the SP;
- User device security SHOULD be correctly maintained e.g. security patches applied and anti-virus measures in place. A device detected by the SP as exposing security vulnerabilities MAY be denied network access.

3.1.7. The IdP MUST have and execute authority in taking appropriate action against its users in case of abuse reported by an SP, including denying an individual user's authentication via eduroam.

### 3.2. eduroam Service Provider (SP)

3.2.1. The role of the SP is to provide network access to a visitor as a result of the visitor's successful authentication via eduroam.

3.2.2. The SP MUST comply with the Global eduroam Policy administrative and technical requirements for eduroam SPs described in Appendix B.

3.2.3. The SP MUST publish its network access Acceptable Use Policy (AUP) for reference by visiting eduroam users.

3.2.4. Implementation of a dedicated VLAN for eduroam users that provides isolation from the SP's institutional network and tailoring of network access services is RECOMMENDED.

3.2.5. Implementation of a Quarantine VLAN enabling checking that the user device doesn't expose security vulnerabilities to the SP or other users of the SP's eduroam network is RECOMMENDED.

3.2.6. The SP MAY take appropriate action against users who don't comply with the SP's AUP, including denying network access and reporting the non-compliance to the user's IdP.

## 4. <National eduroam Federation> Member Support

### 4.1. Operability Testing and Monitoring

4.1.1. IdPs MUST provide <NREN> with an eduroam test account (username and password) to allow <NREN> to authenticate via eduroam for the purpose of testing, auditing and monitoring of IdP operability. The test account username SHOULD contain the string "test" to enable automatic removal of test account authentication transactions from usage reports. If the test account is disabled or the password is changed, the IdP MUST notify <NREN> in a timely manner.

4.1.2. SPs MUST configure <NREN>'s dedicated eduroam monitoring server as a trusted client in



each of the SP's RADIUS servers configured to forward authentication requests to the <National eduroam Federation> National Infrastructure to allow <NREN> to issue authentication requests to each server for the purpose of testing, auditing and monitoring of SP operability.

## 4.2. Support and Troubleshooting

- 4.2.1. Institutions MUST provide end-user support and perform issue escalation as specified in Appendix A and B respectively of the Global eduroam Policy [1].
- 4.2.2. SPs MUST provide support to visitors from <National eduroam Federation> and global eduroam IdPs as required to access network services at the SP via eduroam.
- 4.2.3. Institution eduroam administrators MAY request support from <NREN> eduroam staff in case of end-user or infrastructure issues that cannot be resolved locally.
- 4.2.4. Institutions MUST cooperate with <NREN> in performance of eduroam operability testing associated with providing end-user or institutional support.

## 4.3. Institutional Contacts

- 4.3.1. Institutions MUST provide <NREN> with contact details of at least two designated technical contacts. One of those contacts SHOULD be a group email address.
- 4.3.2. Institutions MUST provide <NREN> with contact details of one designated security contact for notification of security issues; this MAY be the same person designated as a technical contact.
- 4.3.3. Institutions MUST provide <NREN> with contact details of one designated management contact for notification by <NREN> of policy issues and notification of institutional non-compliance with This Policy or user non-compliance with AUPs.
- 4.3.4. Any changes to institutional contacts MUST be notified to <NREN> in a timely manner.
- 4.3.5. Institutions MUST have at least one technical contact subscribed to <NREN> "eduroam participants" mailing list [5].

## 4.4. Authentication Transaction and Network Access Logging

- 4.4.1. Institutions MUST log all authentication requests as specified in Appendix A and B.
- 4.4.2. Institutions MUST configure RADIUS servers to accurately record timestamps (e.g. configure to use NTP), and log timestamps SHOULD adopt UTC.
- 4.4.3. Authentication transaction logs MUST NOT include user passwords.
- 4.4.4. Institutions MUST notify users, via a dedicated eduroam webpage, that the IdP, SP and <NREN> log user authentications.
- 4.4.5. Institutions MUST advise users, via a dedicated eduroam webpage, that SPs log network accesses and that such logs may be correlated with authentication transaction logs to allow a user's IdP to identify the user performing the network access.
- 4.4.6. Institutions MUST describe, via a dedicated eduroam webpage, how logs are stored and protected so as to comply with state or national legislation.
- 4.4.7. Institutions MUST restrict access to <National eduroam Federation> authentication transaction or network access logs to authorised staff. Logs MAY be disclosed to other Institutions and/or to <NREN> in order to resolve Policy and/or AUP compliance issues, and to <NREN> for <National eduroam Federation> operational purposes.

## 4.5. Institution eduroam Webpages

- 4.5.1. Institutions MUST publish the following information via dedicated eduroam webpages:

- (1) text that confirms best effort compliance This Policy (including a link to This Policy published on the <National eduroam Federation> NRO's eduroam website);
- (2) a link to the institution's network access AUP;
- (3) the contact details for local eduroam support;
- (4) a link to the <National eduroam Federation> NRO's eduroam website.

4.5.2. IdPs MUST publish the following information via dedicated eduroam webpages:

- (1) recommendation for users to configure eduroam connectivity at their home institution;
- (2) guidelines on eduroam username and password, and a summary of the <National eduroam Federation> authentication methods that may be used;
- (3) a link to the CA certificate required to validate the IdP server certificate;
- (4) platform specific device configuration guidelines or links to generic information provided by <NREN>.

4.5.3. SPs MUST publish the following information via dedicated eduroam webpages:

- (1) SSID used for eduroam (MUST be "eduroam" unless overlapping coverage requires use of an SSID of the form "eduroam-<suffix>";
- (2) wireless encryption protocols supported (WPA2/AES MUST be supported);
- (3) the eduroam coverage map;
- (4) network services (protocol, ports, description) available to eduroam users.

## 4.6. Notifications and Alerts

4.6.1. Where <NREN> issues a "security advisory" on the <National eduroam Federation> website and notifies Institutions directly or via the eduroam mail list [5], Institutions MUST comply and confirm by email to <NREN> compliance with prescribed actions within 24 hours.

4.6.2. Institutions MUST notify <NREN> by email ([support@eduroam.edu.cc](mailto:support@eduroam.edu.cc)) within 24 hours of becoming aware of the following incidents :

- (1) security breaches;
- (2) misuse or abuse;
- (3) authentication or access restrictions;
- (4) service faults.

4.6.3. <NREN> SHALL notify impacted Institutions of any incidents, service interruptions or changes by email to the Institution's designated eduroam support contact or to all Institutions via the <National eduroam Federation> participant mail list [5].

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## Appendix A: Administrative and technology compliance for eduroam Identity Providers

*Copied from the Global eduroam Compliance Statement [1], Appendix A*

**A.1.** eduroam IdPs MUST implement a RADIUS interface to connect to the eduroam routing fabric.

**A.2.** eduroam IdPs MUST implement an EAP method for all local users that is suitable for wireless networks as well as wired, and supports mutual authentication and end-to-end encryption of credentials.

**A.3.** eduroam IdPs MUST send a RADIUS access-accept message for valid authenticated local users for which they receive an access request.

**A.4.** eduroam IdPs MUST NOT send a RADIUS access-accept message for invalid users or those who are not authenticated.

**A.5.** eduroam IdPs MUST provide support to their users. Any support matters may be escalated to the NRO or RC to coordinate and resolve.

**A.6.** eduroam IdPs MUST log all authentication attempts; the following information MUST be recorded:

- timestamp of authentication requests and corresponding responses
- the outer EAP identity in the authentication request (User-Name attribute)
- the inner EAP identity (actual user identifier)
- the MAC address of the connecting client (Calling-Station-Id attribute)
- type of authentication response (i.e. Accept or Reject).

The minimum retention time is six months, unless national regulations require otherwise.

## Appendix B: Administrative and technology compliance for eduroam Service Providers

*Copied from the Global eduroam Compliance Statement [1], Appendix B*

**B.1.** eduroam SPs networks MUST implement 802.1X with a RADIUS interface to connect to the eduroam infrastructure.

**B.2.** eduroam SPs IEEE 802.11 wireless networks MUST broadcast the SSID "eduroam". If there is more than one eduroam SP at the same location, an SSID starting with "eduroam-" MAY be used.

**B.3.** eduroam SPs IEEE 802.11 wireless networks MUST support WPA2+AES, and MAY additionally support WPA/TKIP as a courtesy to users of legacy hardware. Exceptionally, an SP established before January 1, 2012, MAY support only WPA/TKIP but not longer than January 1, 2013

**B.4.** eduroam SPs networks MUST provide IP address and DNS resolution auto-configuration infrastructure.

**B.5.** eduroam SPs networks SHOULD provide routable IP addresses, and MAY provide NAT translation.

**B.6.** eduroam SPs SHOULD forward all EAP-messages, destined for eduroam participants, unmodified to the eduroam infrastructure.

**B.7.** eduroam SPs MUST NOT charge users or their eduroam IdPs for being admitted on the eduroam SP's access networks.

**B.8.** eduroam SP services are based on SP local policies. However, modifying the content of user connections (e.g., access lists or firewall filter rules to deny arbitrary ports or application-layer proxies) is strongly discouraged and MUST be reported to the respective NRO.

**B.9.** eduroam SPs SHOULD keep sufficient logging information to be able to identify the responsible Identity provider for the logged-in user, by logging:

- timestamp of authentication requests and corresponding responses
- the outer EAP identity in the authentication request (User-Name attribute)
- the MAC address of the connecting client (Calling-Station-Id attribute)
- type of authentication response (i.e. Accept or Reject)
- correlation information between a client's layer 2 (MAC) address and the layer 3 (IP) address that was issued
- after login if public addresses are used (e.g., ARP sniffing logs or DHCP logs)

The minimum retention time is six months, unless national regulations require otherwise.

## Appendix C: National eduroam Federation Roaming Operator Roles and Responsibilities

- C.1 NREN is responsible for complying with the Global eduroam Policy [1] on a “best efforts” basis.
- C.2 NREN is responsible for creating and maintaining This Policy, ensuring it continues to satisfy Global eduroam Policy, and for promoting, monitoring and enforcing compliance by Institutions.
- C.3 NREN’s role is to deliver and maintain an National eduroam Federation National Infrastructure that allows Institutions to interoperate with each other and with eduroam participants globally via Global eduroam infrastructure.
- C.4 NREN’s National eduroam Federation operational goals include accomplishing the following tasks:
- (1) define and implement a process enabling an eligible institution to join National eduroam Federation as an IdP+SP Participant and SP-Only Participant;
  - (2) define and implement an audit process to assess an Institution’s operational compliance with This Policy. Performance of an operability audit may be requested by NREN or by an Institution, at any time with a notification period of 10 working days. Following the notification period NREN will endeavour to conduct the audit within 10 working days;
  - (3) define and implement an National eduroam Federation monitoring mechanism and process in order to provide real-time eduroam operability monitoring of Institutions;
  - (4) define and implement delivery of National eduroam Federation usage metrics for Institutions (generated from national server and/or institutional eduroam logs) and publish on a protected website;
  - (5) maintain Institution operability data and deployment information resources for National eduroam Federation and Global eduroam consumption in the format requested by the GeGC;
  - (6) capture, store securely and retain for a minimum of 6 months National eduroam Federation National RADIUS logs, including timestamp, user’s outer identity, user’s realm, user-device MAC address, SP server, authentication result, excluding user passwords;
  - (7) provide support to Institutions via designated technical contacts, including expertise and guidance on the range of eduroam technology solutions deployed across National eduroam Federation;
  - (8) provide an issue tracking system which allows customer service requests to be submitted via email (support@eduroam.edu.au), facilitating request handling and customer interaction tracking;
  - (9) provide mailing lists to ensure communications are delivered to the correct audience and to promote discussion on technical and policy topics;
  - (10) monitor security advisories and subscribe to technology mailing lists in order to identify security issues and advise Institutions and require action as necessary to preserve the integrity and security of the eduroam service;
  - (11) maintain a dedicated National eduroam Federation website and publish National eduroam Federation service and operability information to Institution administrators and end-users;
  - (12) publish generic eduroam configuration guidelines for standard platforms;
  - (13) publish information resources on deployment of eduroam at Institutions, including links to information provided by Global eduroam;
  - (14) provide an eduroam deployment and promote the eduroam service at events and conferences;
  - (15) maintain involvement in National eduroam Federation working groups and committees;
  - (16) maintain links with the global eduroam community, including participation in the GeGC, and attendance at international meetings, conferences and events as required;

- (17) provide direct assistance as required to national NRO's in the APAC region, and participating and contributing to Global eduroam infrastructure and eduroam service resources for the APAC region;
- (18) contribute to the further development of the eduroam service both nationally and globally.

## **Appendix D: Further Information**

[1] Global eduroam Compliance Statement, Version 1.0, Global eduroam Governance Committee

[2] Policy on Allowed Access to <NREN>, Version n.n, <NREN> Pty Ltd

[3] <NREN> Pty Ltd provided National eduroam Federation website: [www.eduroam.edu.cc](http://www.eduroam.edu.cc)

[4] <NREN> Pty Ltd supplied eduroam support email address: [support@eduroam.edu.cc](mailto:support@eduroam.edu.cc).

[5] <NREN> Pty Ltd administers the following mailing lists:

Eduroam Administrators list - [eduroam-instAdmins@lists.eduroam.edu.cc](mailto:eduroam-instAdmins@lists.eduroam.edu.cc)