eduroam(UK) Service Provider Assurance Tool
User Guide for Sys Admins

Introduction

The eduroam(UK) Service Provider Assurance Tool is the latest test/monitoring module to be added to the eduroam(UK) Support System. The tool has been designed to help the system administrator to assure the Visited Service. The key benefit of the tool for the sys admin is the facility to test compliance with the Technical Specification of the Wi-Fi and eduroam Visitor network served by the nearest AP to the device.

The unit effectively emulates a visiting user's device trying to access your eduroam Visitor service and provides you with the means to test satisfactory performance and to monitor your service over time. The aim is to help ensure that the user experiences a consistent service throughout your eduroam service zone – you can move the devices to any part of your campus or other sites as you wish.

The tool comprises:

- Support server web front end
- Support server database extensions for monitoring unit deployments
- Reporting system to enable results of monitoring checks to be returned to server
- Monitoring checks results database
- On-site monitoring unit

Although the devices will nominally remain Jisc Technologies (Janet) property, we are not expecting any return of the units sent out, apart from the case should we need to do a complete upgrade/rebuild of the software image. It is anticipated that the devices will form the basis of a permanent deployment to enhance the service.

One monitoring unit will be registered by eduroam(UK) in the Support server database to each participating organisation and will be delivered to the main technical contact. Additional units will be available in the future to organisations for a modest charge.

The current generation of monitoring units only work in the 2.4GHz band, but it is hoped in future a 5GHz capable device will be developed once a suitable platform becomes viable. Development effort is focussed on production of further tests, including ports and protocols checks. The software installed on the monitoring units is open source and available on GitHub should you wish to see it and perhaps contribute to development.

Using the tool

1) Registration of the monitoring unit to the specific site you will be deploying it to will be necessary before it is able to work with the back end SP Assurance Tool system. You will have previously registered your site(s) on the eduroam(UK) Support server and populated the information fields with details about the services at your various sites. Some organisations register just the one default/main campus site, whilst most organisations have registered many of their sites/major buildings individually in order to provide greater granularity for the benefit of users and the European database/map generation system. Now the benefits of having registered sites individually become apparent i) you have a means of recording whereabouts on your extensive and multi-campus/site/building networks you have deployed the monitoring unit and ii) you will be able to deploy multiple monitoring units.

How to register a monitoring unit to a specific site. Go to the eduroam(UK) Support web site and from the left hand menu go to the 'Site Locations' and the specific site information page for your target deployment location/building. The example below shows selection of 'Lumen House'.

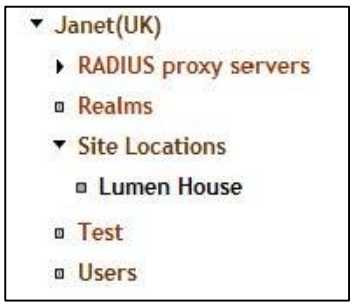

Figure 1 Using left hand menu navigate to specific site – 'Lumen House'

Near the bottom of the right hand panel you'll find a drop down list for the monitoring unit (probe) registered to your organisation. Select the monitoring unit ID and click 'Update Location'.

Figure 2 Select probe ID (e.g. 1004) and update your location

2) Deploy the monitoring unit. You will need to take reasonable care of the unit and deploy it in a reasonable secure location. The units are powered via their mini-USB ports and so can be directly connected to a PC/Mac/TV screen or power using the mains power adaptor included). The units can report their test results over an Ethernet connection, but they do not support POE - although you could deploy a POE-DC adaptor (5V 1A mini-USB).

The units send the results of their last tests, currently every 15 minutes, over the Wi-Fi connection that is established during the tests. They cannot use a wired Ethernet connection at present, but this facility is being explored as part of the development programme.

Note, the unit will only check the eduroam service provided through the Wi-Fi access point it associates to. In order to build up a comprehensive evaluation of the compliance of your service you can reposition the unit around your site(s) as you wish. If your eduroam visitor network service is provided using multiple separate VLANs/networks you may wish to locate the monitoring unit at suitable locations in order to check each of these. As mentioned above, additional units will be available in the future to organisations for a modest charge.

3) View the results of the checks. Once the monitor unit begins reporting the results of its last tests sweep, the results will be available on the eduroam(UK) Support web site - through the 'eduroam UK probes' section. From the left hand menu, select 'eduroam UK probes'. This takes you to https://support.roaming.ja.net/?q=probes

Organisation status and tests summary page. The monitoring units status and tests summary for all participating organisations page is displayed. For each organisation, if all the available checks of mandatory requirements of the Tech Spec are satisfactory for the last checks reported, the 'Checks' result displays 'OK'. If any tests returned a fail, the 'Checks' result will display 'WARN'.

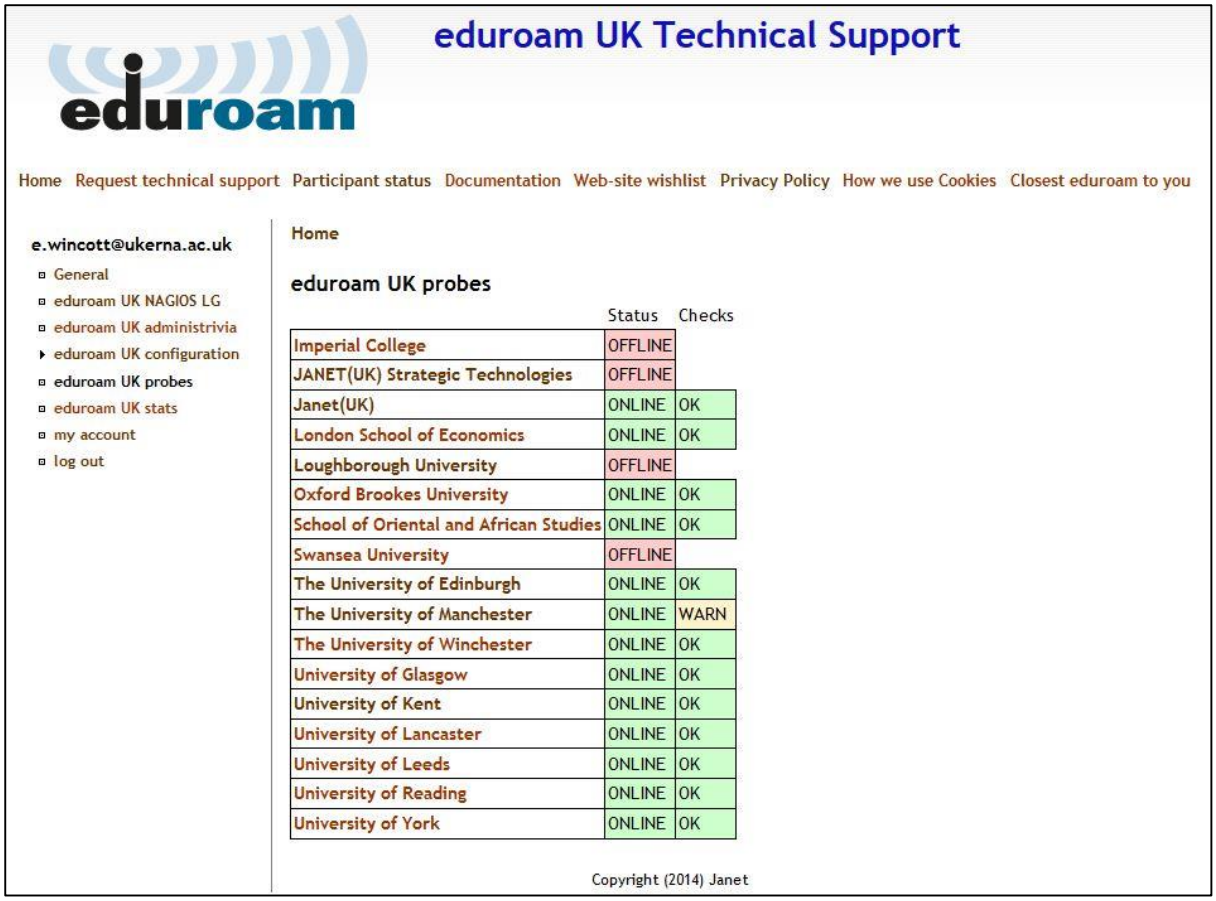

Figure 3 eduroam(UK) SP Assurance Tool summary page

Organisation and site status and tests summary page. To 'drill down' to the results for a particular site, click on the organisation name. All sites where a monitoring unit has been deployed for that organisation will then appear below the organisation name.

In the screenshot below, 'Janet(UK) - Lumen House' has appeared below 'Janet(UK)'.

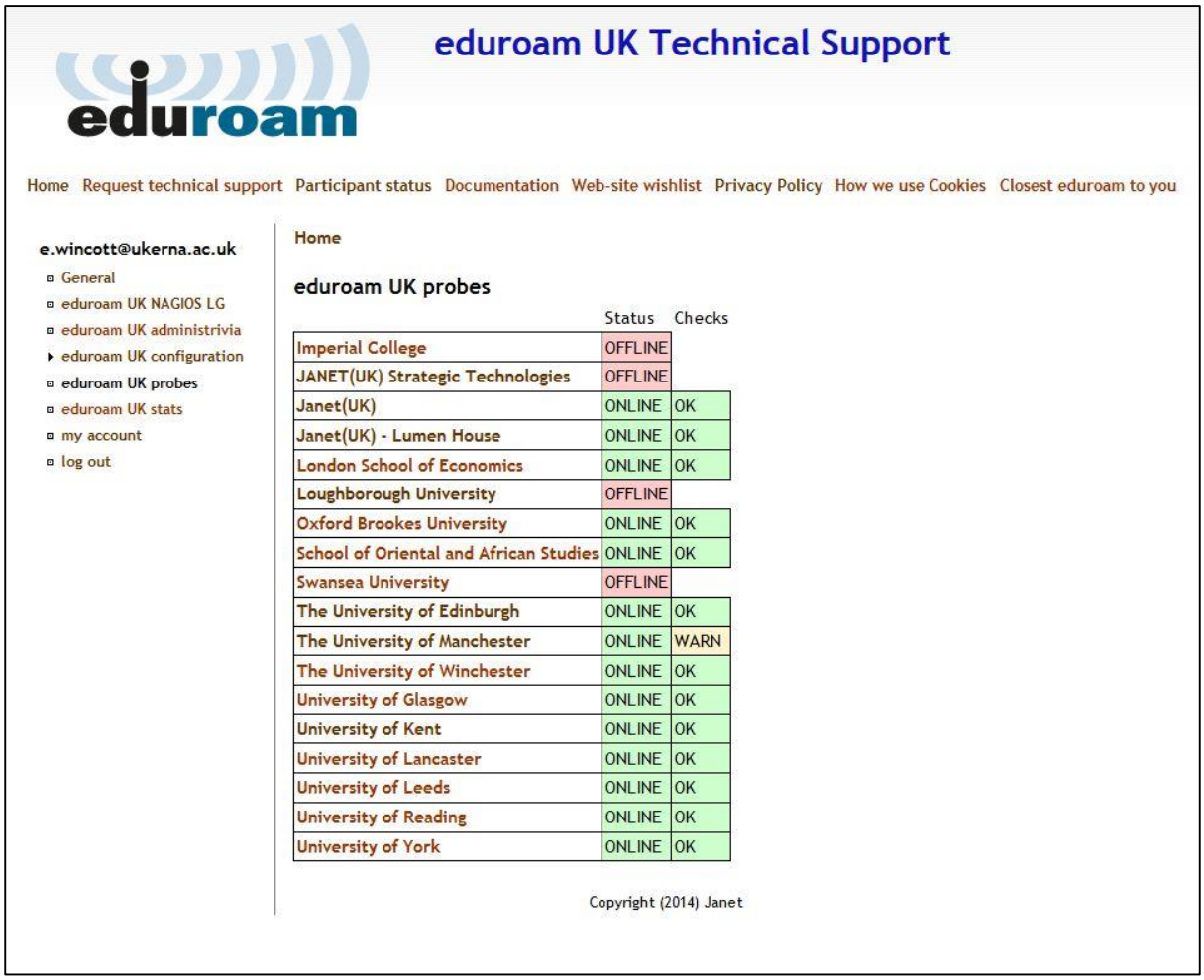

Figure 4 Clicking on 'Janet(UK)' results in sites where monitoring units deployed - Lumen House

Results of the latest sweep of checks can be displayed by clicking on the site name. All of the results of the most recent test sweep that was reported by the monitoring device at the site will be displayed.

By hovering over individual test descriptions, the sys admin can see further data relevant to the particular test.

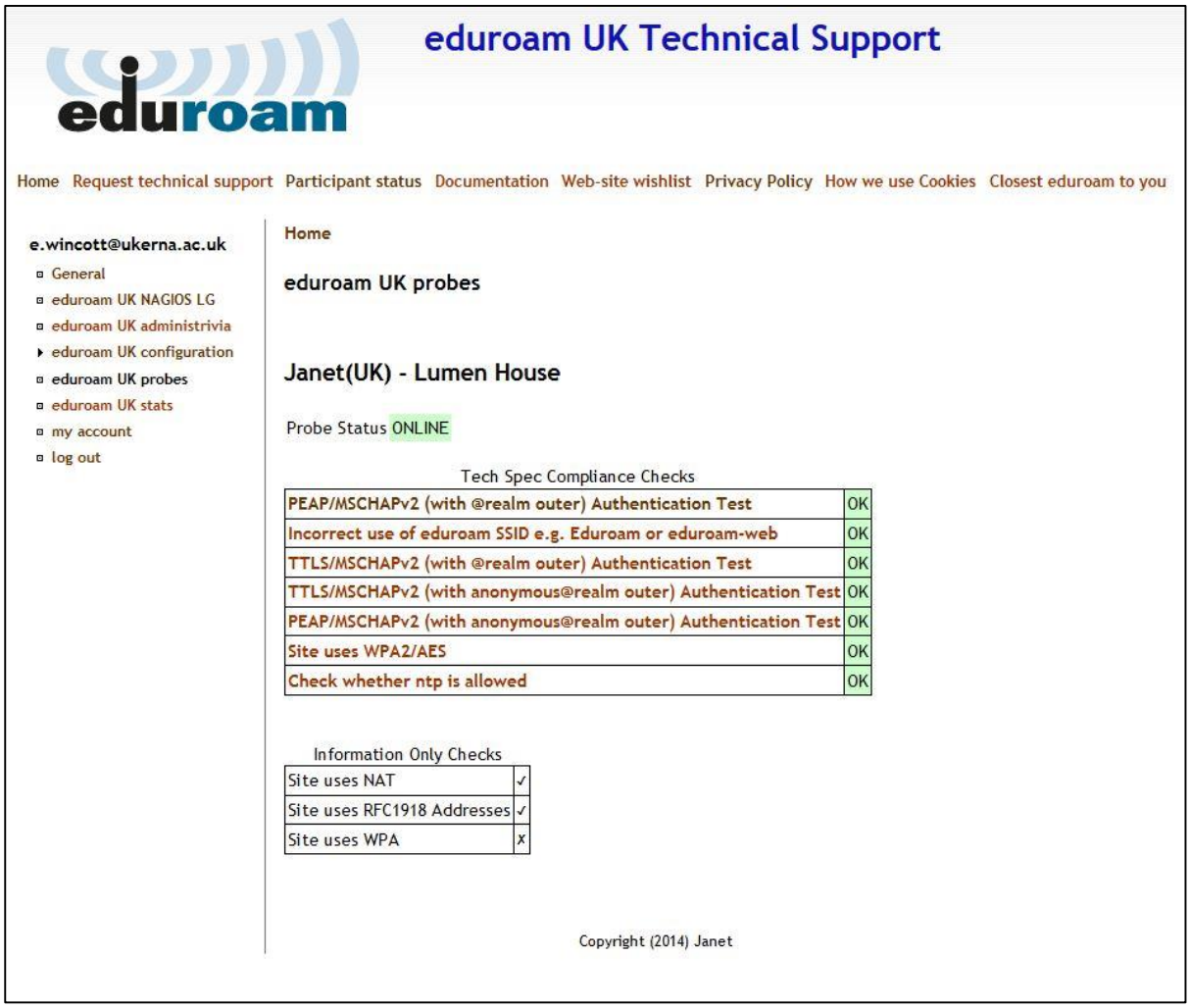

Figure 5 Last reported checks result

Historical results of individual checks. A left click on a particular test will result in a page opening which displays historical reported test results in graphical form. A sys admin can thereby check that the reports for their service are stable over time, which may help in investigation of any reports of service fluctuation. If you move your cursor to the graph traces, the timestamps of the reported results will pop up.

The screenshot below provides an example of the PEAP/MSCHAPv2 (with@realm outer) Authentication Test (PEAP-MSCHAPv2 rfc) for Janet(UK) - Lumen House.

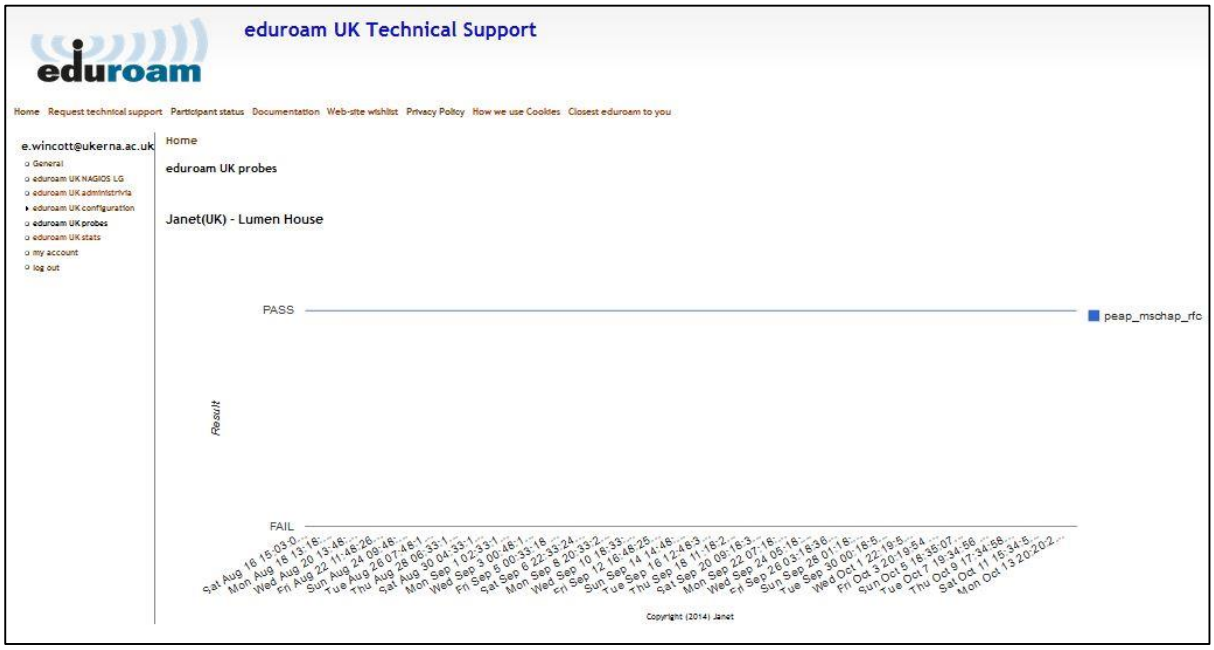

Figure 6 Graphical representation of historical test results

Provide Feedback

Please let us have any feedback from your experience, comments, ideas for further tests. Hopefully your Visitor services will all be compliant with the Tech Spec, but if not… you'll have the knowledge that some investigation/corrective work would be useful!

For further information on feedback, please see:
https://community.ja.net/groups/eduroam/document/eduroam-qos-monitoring-probe-phase-2-field-trial-feedback

Test Suite

The current test suite currently comprises:

Tech Spec Compliance Checks
PEAP/MSCHAPv2 (with @realm outer) Authentication Test
Incorrect use of eduroam SSID e.g. Eduroam or eduroam-web
TTLS/MSCHAPv2 (with @realm outer) Authentication Test
TTLS/MSCHAPv2 (with anonymous@realm outer) Authentication Test
PEAP/MSCHAPv2 (with anonymous@realm outer) Authentication Test
Site uses WPA2/AES
Check whether NTP is allowed

Information Only Checks
Site uses NAT
Site uses RFC1918 Addresses
Site uses WPA

Remember – only the eduroam Wi-Fi and eduroam Visitor network services served by the nearest AP is checked.

Monitoring Unit Test Suite Updating Mechanism

The monitoring units have a built-in automatic update mechanism which means that changes to the test scripts and new tests developed by eduroam(UK) can be added remotely to deployed units. At the end of reach reporting event a check is made for new/updated code and if such code is available the new code will be download and installed.