

Quality Assurance (QA) Program for Videoconferencing end-points

Enabling the out-band

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1. Overview

AARNet provide the National Video Conferencing Service to the Australian Research and Education Community to provide assistance and technical support for video conferencing experts (known as CAVEs).

Participation in the Quality Assurance Program will allow automatic, assured and stress free call setup for conferences booked through NVCS, as well as opening up a support channel for greater assistance from AARNet in working to make video conferencing more widely available and reliable.

The aim of the Quality Assurance Program is to improve user experience and promote confidence in video conferencing. Irrespective of the brand of equipment and platform used, CAVEs will be able to work through the test regime, as the testing is not based on any hardware or platform.

A Quality Assurance test must be carried out before a venue is registered for automated dialing on the AARNet CMP Online Booking System. Once a venue has passed a QA test it will be available in CMP to book for meetings for selected user role accounts. The QA test must be performed every twelve months, for which venue administrators will receive an email reminder.

This in turn will assist in the following outcomes:

- Improve the reliability of videoconferencing sessions
- Improve overall videoconferencing experience (good video, audio)
- Provide an indication of high quality videoconferencing and rooms capabilities (HD/ SD etc)
- Provide feedback to poor video conferencing sites where improvement is required, failed facilities given assistance by NVCS
- Passed facilities will be added to booking system as Registered end-points ; this is required to enable dial-out functionality, authorisation by CAVEs required to book the specific facilities
- QA test date renewal flagged by booking system/CRM system. A test result will last for 12 months, than an end-point has to be retested
- Proactive support option via monthly System Health Check (scheduled dial-out to the end-points from MCU performed automatically out of business hours). Please note that will be possible only if your end-point is turn on permanently and it accept incoming calls automatically

2. Quality Assurance Program Components

The Quality Assurance process for video conferencing facilities connected to AARNet IP Network includes the following items:

- Protocol based Quality Assurance Test performed between the end-point and test system (NVCS operator)
- Automated backend services for quality assurance and endpoint testing as a 1st level troubleshooting tool (playback loop accessible 24/7)
- A Database for recording Quality Assurance Results
- Recommendation how to prepare your video conferencing facility for a Quality Assurance Test
- Integration into the Registered Facilities listing (Information about Registered facilities/end-points including status information and capabilities will be publicised on NVCS website). Please note that above is not compulsory and organisation may wish not to publicise their sites details.
- Integration into the online booking system (pre-configured sites accessible for authorised groups of people)

3. The Quality Assurance Test Criteria

The Videoconferencing Quality Assurance Process provides a method to assess facility/end-point based upon a number of criteria.

These include:

1. Networking Requirements (Gatekeeper registrations, QoS, firewall etc)
2. Audio Quality (echo, speech levels and quality etc)
3. Video Quality (picture quality, blurring, jerkiness, distortion of smooth motion, FECC etc)
4. Data Sharing capabilities (optional)

4. The Quality Assurance Test

A Quality Assurance test is performed between the room coordinator and AARNet VC room and MCU. A test is scheduled to last for 1.5 hours, however it will usually take less time, and the initial test for a site will be more thorough than subsequent QA sessions. It is highly recommended to self-test your facility and understand test requirements before you make an appointment.

There are few steps required to pass a Quality Assurance test.

1. Fill out [an online Test Request form](#) (system details to be provided). An NVCS operator will contact you to confirm your appointment.
2. Actual protocol based testing performed between the end-point and test system (NVCS operator)
3. Receiving an email confirmation of a Quality Assurance Test Results by Local Coordinator
4. Adding passed facilities to booking system as registered end-points and listed on NVCS website (optional). Failed facilities given assistance by NVCS team.
5. Flagging renewal QA test date in booking system

Appendix 1 includes a Quality Assurance Test Protocol.

5. Scheduling the conferences with registered end-points

Registered end-points added to online booking system will be available for scheduling only by dedicated users. A specific institution preferences regarding authorisation to book video conferencing facilities are determined via associated CAVE community survey and confirmed during a QA test. There are many options regarding authorization level e.g. only users from an institution, dedicated CAVE representatives from other academic institution or all CAVE representatives would be able to schedule a specific videoconferencing facility.

Each pre-configured videoconferencing end-point has contact details assigned and this person or group will receive an automated email each time a room is booked via the CMP booking system. This person or group is deemed responsible for physical room bookings within an institution.

Ideally, the automated QA scenario is for conference organisers to contact all institutions involved in a meeting and confirm VC room's availability. The organiser then schedules a conference using CMP and chooses the pre-configured VC rooms (when availability confirmed). Once booked, CMP will send automatic emails to all contact persons (typically CAVE representatives) responsible for the chosen facilities and they assure that rooms are physically booked for the meeting. This process will avoid the situation whereby an MCU will initiate a call to a VC room that is in use by other participants.

Appendix 1 - Quality Assurance (QA) test protocol

CATEGORY	CRITERIA	Description	Required /optional	Passed (Y/N)
NETWORKING	MCU connection	<ul style="list-style-type: none"> Call using E.164 and/or IP address tested (dial-in and dial-out) 	Required	
	QoS	<ul style="list-style-type: none"> No jitter, packet lost or delays detected 	Required	
	Firewall	<ul style="list-style-type: none"> No issue with the H.323 traversing the organisation's firewalls (if applicable) 	Required	
	P2P connection	<ul style="list-style-type: none"> Call using E.164 and/or IP address tested (dial-in and dial-out) 	Optional	
	Gatekeeper registration	<ul style="list-style-type: none"> End-point registered to GK, E.164 assigned 	Optional	
AUDIO	Quality	<ul style="list-style-type: none"> Clear and easily understood voice(s) no distortion in the voice(s) consistent speaking level (no changes from low to loud level) 	Required	
	Echo	<ul style="list-style-type: none"> There should be no perceptible echo detected 	Required	
	Background noise	<ul style="list-style-type: none"> Effective squelch operation when no-one talks 	Required	
	Perceived Room Acoustic	<ul style="list-style-type: none"> Echo cancellation solution in place either by using hardware or appropriate room setup (no bare walls etc) 	Optional	
VIDEO	Quality	<ul style="list-style-type: none"> Clear and not too dark/bright image No flickering Good contrast and backlight compensation Good camera positioning 	Required	
	FECC enabled	<ul style="list-style-type: none"> Far End Camera Control Enabled and functioning 	Optional	
	Backdrop	<ul style="list-style-type: none"> Avoid hard lines or complicated patterns A matte, solid-colored background (shades of red or any other fully saturated colors should be avoided, no windows etc) 	Optional	
	Lighting	<ul style="list-style-type: none"> Acceptable lighting , no shade on participant faces etc 	Optional	
DESKTOP SHARING	Capabilities	<ul style="list-style-type: none"> Desktop sharing capabilities determined and tested (H.239 support) 	Optional	

Appendix 2 - Automated Quality Assurance (QA) Test

AARNet provide automated backend services available 24/7 for quality assurance and endpoint testing.

There are 2 types of sessions available:

1) Receiving audio/video with H.239 content channel testing

These sessions provide playback that includes content (H.239) to test incoming AV signal and content. You will be able to see and hear a recorded conference and associated presentation. In addition, we provide alternate sessions to test HD end-points.

SD test: You can join this conference session with a H.323 video endpoint by entering this IP address 202.158.196.20, and navigating to the conference named “OzeConf Playback”, or by entering this ID 61262112612#

HD test: You can join this conference session with a H.323 video endpoint by entering this IP address 202.158.196.141, and navigating to one of the conferences listed below:

- AARNet x2650 HD Test - Polycom , or by entering this ID 61262112650#
- AARNet x2651 HD Test - Lifesize, or by entering this ID 61262112651#
- AARNet x2652 HD Test - Aethra , or by entering this ID 61262112652#

2) Transmitting audio/video with H.239 channel testing

This session provides a streaming option to test outgoing AV signal and content that can be checked using any PC computer capable of web streaming. Your videoconferencing end-point will be the only participant of this session to enable clear audio and video testing.

You can join this conference session with a H.323 video endpoint by entering this IP address 202.158.196.141, and navigating to the conference named “AARNet x2653 – Streaming Test” , or by entering this ID 61262112653#

Then please check the signal transmitted from your end-point, using a PC computer connected to the Internet.

To watch the stream please use your browser (Internet Explorer, Firefox or Safari) and follow the link: <http://202.158.196.141> , than enter Conference ID: 2653. You should be able to watch the stream that include video, audio and content channel transmitted from your end-point together with AARNet information slide.

Appendix 3 – A QA Online Test Request form

1. The Quality Assurance Test Request form

***1. Organisation Name:**

***2. Full name:**

***3. Job title:**

4. Phone number:

***5. Email address:**

***6. What is your date of preference to sit the QA test?**

	MM	DD	YYYY	HH	MM	AM/PM
1st available date	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
2nd available date	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

***7. What are your videoconferencing facility details ?**

End-point Manufacturer	<input type="text"/>
End-point Model	<input type="text"/>
End-point Software version	<input type="text"/>
End-point IP address	<input type="text"/>
End-point ISDN Number	<input type="text"/>
Room Name	<input type="text"/>
Campus Name	<input type="text"/>
Street Address	<input type="text"/>
Suburb	<input type="text"/>
Post Code	<input type="text"/>
State	<input type="text"/>

8. If you are not a main contact person for this site, please provide primary contact details.

First Name	<input type="text"/>
Surname	<input type="text"/>
Phone	<input type="text"/>
Email	<input type="text"/>

***9. Who would you like to authorize to book your VC facility/room via CMP booking system?(more than one answer allowed)**

- yourself
- all users from your institution (all users from domain 'institution.nvcs.edu.au')
- dedicated CAVE representatives from other academic institutions (e.g. specific institutions that are collaborating frequently with your institution)
- all CAVE representatives from Australian Academic & Research sector

Other (please provide email address)

10. Do you currently have a MCU integrated with the CMP booking system? (this can be selected as a weighted preference for outdial bookings)

- Yes
- No

***11. What aspect of Quality Assurance scheme is the most important for your institution ? (more than one answer allowed)**

- Improving reliability of videoconferencing facilities
- Improving overall videoconferencing experience (good video and audio quality)
- Enabling automated outdial to your videoconferencing facilities when scheduling via CMP booking system
- Easing call set up procedure (no dialing to MCU required)

Other (please specify)

***12. Does your institution have ISDN-only video conferencing end-points? (This information will assist us when enabling outdial via our ISDN Gateway)**

- yes
- no

If yes, please provide the number of ISDN end-points

13. Please add your comments here if any