

BRIEF TO: WMO CAP IMPLEMENTATION WORKSHOP, GENEVA, 7 APRIL 2011

TITLE: CAP USE IN AUSTRALIA

Introduction

A national resilience project was commenced in Australia in 2009 in response to outcomes of the investigation of widespread bushfires in the State of Victoria in February 2009 that killed 173 people. A study was commenced that aimed to determine whether CAP was the most appropriate standard for all hazards emergency warning systems in Australia and answer the following questions through conduct of a desk-top research and literature review methodology:

- What open standards are available for emergency communications, and currently being used, by emergency management agencies?
- Is this an appropriate emergency communications standard that could be used in the Australian context?
- Should the emergency communications standard be developed into an Australian Profile for use in the Australian context?
- Which agency should be nominated to act as Custodian of the Australian Profile, including developing and maintaining the profile?

The study concluded in June 2010 that the CAP standard is the most suitable content standard available for emergency alerts and warnings and that CAP should be adopted in Australia. A follow-on Stage II project commenced in July 2010 to create a new national standard that will become known as the CAP Australian Profile (CAP-AP).

Purpose of the CAP-AP Standard

The purpose of developing the CAP-AP standard is to facilitate the adoption of the international CAP standard within Australia and provide the “Profile” for an Australian format that complies with the Common Alerting Protocol Version 1.2 (CAP v1.2) open standard¹ published by the Organization for the Advancement of Structured Information Standards (OASIS).

Why is CAP-AP necessary? There is currently no common CAP standard applying within the Australian environment. Since 2006, the *National Forum on Emergency Warnings to the Community* has promoted consideration of the adoption of CAP as a content standard for emergency warnings. In April 2008, the member agencies of Australasian Fire and Emergency Services Authorities Council (AFAC) agreed to adopt the OASIS CAP as the national standard for handling of the essential content of alert warning messages. The Attorney-General’s Department (AGD) within the Australian federal government is now managing the development of the CAP Project to introduce a common standard for CAP-AP and progress the adoption of CAP within the Australian region.

Benefits of CAP-AP

Introduction of the CAP-AP will provide the following benefits to Australia:

- Consolidation of disparate uses within Australia of earlier versions of the OASIS CAP.

¹ <http://docs.oasis-open.org/emergency/cap/v1.2/CAP-v1.2-os.pdf>

- Provide an endorsed government standard to jurisdictions and government Agencies that will guide future implementations of CAP during upgrades to alert and warning system technologies.
- Provide a single focal point for all jurisdictions and government agencies to jointly develop future versions of the CAP-AP standard, and to contribute Australian issues to the revision of the international CAP standard.
- Reduce costs and operational complexity by eliminating the need for customising multiple software interfaces to the many warning sources and dissemination systems involved in all hazards warnings.
- Provide a common standard and interoperability matrix that all Australian jurisdictions can leverage upon when interoperating with regional neighbours.

Basis of CAP-AP

The CAP-AP standard is to be based upon the OASIS CAPv1.2 standard that was released by OASIS in July 2010. CAP v1.1 is already used within Australia to distribute emergency alerting messages in the State Alert system (Western Australia), the Emergency Alert system, the Bureau of Meteorology weather alerting system, Emergency Management Australia's OCA system and the Tsunami Warning System managed by Geoscience Australia. However, there is no formal national agreement within Australia at this time to apply a specific CAP standard across all these systems, so there are variations between CAP implementations that could potentially disrupt interoperability and cause confusion with interpretation of regional hazard event codes. Attachment A provides a brief summary of the CAP scene within Australia and provides links to related websites.

CAP-AP Standards Development Process

AGD proposes to develop the CAP-AP standard using the Australia Government National Standards Framework (NSF)² that provides government agencies and jurisdictions with a non-commercial methodology to assist the timely completion of collaborative standards development projects. A foundation of this Framework is that agency and jurisdictional independence is respected and a mechanism can be provided that delivers transparency and a degree of certainty.

The activities proposed to be conducted during the 8-step NSF process that will develop the government standard for the CAP-AP are:

NSF Step 1: Project Proposal

A Project Proposal for the scope of CAP-AP work was endorsed by the National Emergency Management Committee (NEMC) and approved in May 2010, so NSF step 1 has been completed.

NSF Step 2: Project Authorisation

The CAP Project Management Plan (PMP) authorises the scope of work, schedule, budget, governance and project control arrangements associated with project activities being conducted, and was approved in August 2010. The CAP project is currently underway within AGD in accordance with the schedule authorised in the PMP, so NSF step 2 has been completed.

² <http://www.finance.gov.au/publications/national-standards-framework/index.html>

NSF Step 3: Requirements Definition

The CAP Project has already complete more than 80% of the activities to define project requirements. A Discussion Paper was developed to define the current scope of project requirements and CAP Stakeholders completed a review of the Discussion Paper during October - December 2010 as part of the initial CAP-AP requirements definition activity that aimed to:

- gather jurisdiction-wide responses regarding the requirements for CAP-AP,
- determine how the OASIS CAP standard should be applied within the Australian emergency management environment, and
- initiate the process to seek a nationally agreed position regarding the proposed content of the CAP-AP standard.

In addition, a Workshop was conducted in February 2011 to resolve the contentious issues raised by Stakeholders during the 2010 review of the CAP Discussion Paper. The final activity scheduled to complete the CAP-AP requirements definition activity will be consultation with OASIS to facilitate formal acknowledgement that the CAP-AP standard conforms to the OASIS CAP version 1.2 standard.

NSF Step 4: First Draft

Drafting the CAP-AP First Draft document will commence in the near future. The AGD CAP Project Manager (PM) will be responsible for managing the editorial team during the development of the First Draft CAP-AP document.

NSF Step 5: Review

Review of the First Draft will be conducted by the CAP Stakeholder group representing Commonwealth agencies, States, Jurisdictions and industry bodies, and other organisations that are nominated to participate in the development of the CAP-AP standard. Conduct of reviews will be facilitated through use of a web-based CAP forum that is being managed by CAP PM. A 20 working day period will be scheduled for the conduct of the review of the First Draft product and will culminate with the conduct of a vote regarding the suitability of the product to be progressed to a formally released standard.

The CAP web forum will be used to promulgate the First Draft document to review participants as the features of the web forum capability enable open and transparent discussion to be conducted amongst CAP stakeholders. The outcomes of all review activity are posted on the web forum so that all review participants are aware of issues raised and the proposed resolution action.

Voting process. The First Draft review process will culminate in a vote by ‘eligible participants’ regarding the suitability of the First Draft document to be produced as the CAP-AP Australian Government standard. The minimum consensus required to progress the First Draft CAP-AP standard to a formally released standard, will be that at least 80% of all eligible participants, and six (6) of the total of eight Australian jurisdictions must agree to the decision. The reason that such a significant majority is required is because adoption of the CAP-AP standard will impact across all Australian jurisdictions and Commonwealth agencies wishing to utilise CAP-AP. If the voting activity fails to achieve the required consensus, a subsequent vote will be arranged once issues raised during the first vote have been resolved.

NSF Step 6: Compliance Review

The CAP-AP standard will include a compliance section that provides users of the standard with a choice of methodologies that could be employed during implementation activities to facilitate an agreed pathway for compliance verification with the CAP-AP standard. The Project aims to consult with OASIS to develop acceptable compliance options.

Preliminary endorsement of the agreed CAP-AP standard will be requested from a Cross Jurisdictional Chief Information Officers Committee (CJCIOC) prior to the conduct of two implementations of the agreed standard that will need to collect evidence that the CAP-AP standard can be successfully implemented.

NSF Step 7: Implementation Verification

AGD propose to facilitate completion of this step by leveraging upon at least two planned technology upgrade or CAP compliance verification activities that Australian jurisdictions or Commonwealth agencies are planning to conduct in the near future for their all-hazards alerting systems. This strategy offers benefits to the agency, jurisdiction and the CAP Project, as the verification activity can be partially supported by CAP Project resources, and the CAP Project will be able to obtain the evidence required to satisfy the implementation verification step.

NSF Step 8: Endorsement

The CAP Project plans to seek endorsement of the CAP-AP standard through various national emergency management committees prior to seeking final approval from the CJCIOC. This strategy aims to provide assurance to the CJCIOC that the respective emergency management organisations within each jurisdiction actually do support the new CAP-AP standard.

Future intentions

CAP-AP Custodian. Australia intends to manage the future review and upgrade of the released CAP-AP standard through a CAP-AP Custodian resource established within an appropriate Commonwealth agency. The Custodian will be responsible for managing, distribution and revision of the content of the CAP-AP in consultation with nominated CAP Stakeholders within Australian jurisdictions, Commonwealth Agencies, industry and the Australian community.

CAP Stage III. Following the release of the CAP-AP standard, the AGD CAP Project intends to deploy the CAP-AP to Australian users through web-based downloads. Release of the CAP-AP standard will provide jurisdictions and Commonwealth organisations with a single tool that stipulates an agreed all-hazard message standard and provides a list of agreed Australian hazard event codes that can be used unambiguously throughout Australia to promulgate all-hazards warning messages to the community.

Regional engagement. There may be opportunities for the Project to enhance Australia's contributions to the international emergency management domain through consultation with organisations such as OASIS and ITU-T to:

- facilitate Australian contributions to a future upgrade of the international CAP standard; and
- contribute to a *Hazard Event Code interoperability matrix (HECX)* that cross references the Australian hazard event codes developed in the CAP-AP standard, with related hazard / alerting event codes in use by neighbouring regions, and any existing event code lists that

are produced by the international standards bodies. It is envisaged that the HECX will become an agreed and published cross reference list that system designers can use to embed into the software code of future alerting system technologies.

CAP-AP Points of Contact

The AGD point of contact who can be contacted regarding issues raised in this briefing paper is:

CAP-AP Project Manager

National Security Capability Development Division
Attorney-General's Department
3 - 5 National Circuit
Barton ACT Australia 2600

Email: nationalprojects@ag.gov.au

The author of this briefing paper is:

Greg Trott

CAP-AP Project Manager
Tel: +61 - 2 - 6141 3904

Email: Gregory.Trott@ag.gov.au

Attachment:

- A. Australian CAP Scene.

AUSTRALIAN CAP SCENE

Bureau of Meteorology (BOM)

The BOM is Australia's national weather, climate and water agency. The Bureau provides coherent graphical and text forecasts and warnings utilising advanced systems and highly trained personnel. CAP compliance across the Bureau's production system is now in progress.

The Bureau has recently developed a comprehensive XML specification for a code that will ultimately be provided with all forecast and warning products. This will ultimately feed into a CAP product which will be distributed by the Bureau. This is called the "Australian Meteorological and Oceanographic Code" (AMOC).

The efficient management and display of weather products is relying more on automated processes as human resources are spread more thinly, deadlines are tighter and users want more focused delivery and the ability to use their own automated systems. This can be achieved with effective tagging of products with metadata codes.

The Bureau is embarking on the implementation of the Graphical Forecast Editor (GFE) as used by the National Weather Service (NWS) in the USA. This is being adapted for Australian requirements as part of its "Next Generation Forecast and Warning System" (NexGen FWS) roll-out. The AMOC metadata code has been developed to be introduced in tandem with products created by this new system.

The new system has given the Bureau an opportunity to build a better and more flexible metadata coding scheme and will be served by an XML code which is CAP compliant. The use of XML allows the addition or deletion of code categories as needs change in the future and therefore provide greater flexibility in meeting the changing needs of users.

<http://www.bom.gov.au/catalogue/data-feeds.shtml>

Geoscience Australia

Geoscience Australia (GA) is the leading authority in providing geoscientific information and knowledge to government and community in Australia. This includes key spatial information of Australia, with an emphasis on response to rapid and slow onset hazards, the detection of change, emergency management requirements, natural risk assessment and marine zone management.

GA receives hazard information and alerts from various meteorological and seismic monitoring organisations, including organisation that use CAP.

<http://www.ga.gov.au/>

Emergency Alert

Emergency Alert (formerly National Emergency Warning System (NEWS)) is a telephone-based emergency warning system that the majority of Australian State and Territory warning authorities have now implemented to send voice warnings to fixed or landline telephones, based on the location of the handset, and text warnings to mobile phones, based on the customer's billing address.

<http://www.emergencyalert.gov.au/>

State Alert

In 2003, Emergency Management Australia (EMA) funded the Newsbug project at Murdoch University to develop a multi-channel Public Emergency Warning System. Western Australia Police awarded OVIS a contract to build Autonomous Public Emergency Warning System (APECS), a multi-agency public emergency communication system designed to increase community resilience to withstand the effects of natural and human-induced hazards of all types.

APECS is now known as State Alert and is owned by the state government of Western Australia (WA) and is administrated by the Fire and Emergency Services Authority (FESA) of WA.

<https://statealert.wa.gov.au/optin/welcome.jsf>

One Source One Message

Following the 2009 Victorian bushfires, the Victorian Country Fire Authority (CFA) and Department of Sustainability and Environment (DSE) adopted the OASIS CAP in the One Source One Message (OSOM) system, to provide Victorian emergency service organisations with the technical capability of having a single source of information for emergency warnings and advice.

The initial focus was on bushfire warnings and advice; however future releases could cater for all hazards. Currently the OSOM feeds to:

- CFA Website
- DSE Website
- Victorian Bushfire Information Line (VBIL) (via email to the call centre)
- Media Outlets and other stakeholders (via email)

Future releases of OSOM are considering feeds to:

- Mobile & fixed line telephones
- Twitter
- Brigade Sirens

http://www.cfa.vic.gov.au/incidents/warnings_advice.htm

<http://www.cfaconnect.net.au/news/awesome-web-based-messaging-system.html>

National ICT Australia (NICTA)

NICTA was established in 2002 by the Australian Federal Government as part of the Backing Australia's Ability initiative. It is an independent organisation in the business of research, commercialisations and research training and Australia's Information and Communications Technology (ICT) Centre of Excellence.

The NICTA project on Smart Applications For Emergencies (SAFE) developed new technologies, systems and services to provide significant improvements to the devices, systems,

information and human processes in the mitigation of, and response to natural and man-made emergencies (to help save lives and minimise economic impact from disasters).

http://www.nicta.com.au/research/project_list/completed_projects/smart_applications_for_emergencies

One of the SAFE projects was the CAIRNS (Cooperative Alert Information and Resource Notification System) demonstrator of technologies that can be used to construct a resilient, fault-tolerant Crisis Information Management System architecture. One of the main goals of CAIRNS was to demonstrate an interoperable architecture for incident notification with the use of open-standard messages such as XML, Tsunami Warning Markup Language, CAP or EDXL-RM.

http://www.nicta.com.au/research/project_list/completed_projects/smart_applications_for_emergencies/information/demonstrator