

SIGAda's Approach to the Management of Ada Bindings to Application Program Interfaces (APIs)

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Updated After Presentations to
SIGAda2002 Workshop (11 December 2002),
ISO/WG9 Meeting (13 December 2002),
DC SIGAda Meeting (9 January 2003), and
recent discussions

Outline of Discussion

- Purpose, Background, Overview, Definitions
- Approach for Registered Public APIs
- Responsibilities
- Charter, Membership, ...
- Future – prioritizing

Purpose

- To provide a mechanism for the management of Ada Bindings to Application Program Interfaces (ABAPIs) for the Ada programming language
 - Standardized ABAPIs
 - Registered ABAPIs – focus of our discussion and SIGAda's new Working Group (APIWG)
 - Unregistered ABAPIs

Background

- Most Ada bindings to APIs are unmanaged
- Most Ada bindings are hard to find
- If found, little information is included with them
- No automatic announcement of updates (if any)
- Bindings do not evolve as Ada language evolves
- ISO/WG9 requested proposals from SIGAda and Ada-Europe
- ISO/WG9, Ada-Europe, and SIGAda will work together to manage Ada Bindings to APIs (ABAPIs)

Overview

- Registered ABAPIs will be publicly available
 - SIGAda APIWG web page
 - Compilable Ada bindings to APIs (ABAPIs)
 - Artifacts (sources, examples, tutorials, known problems, lessons learned, rationale, etc.)
 - Procedures to easily Register ABAPIs
 - APIWG responsible for registration and public availability (on web page or links) – ACM copyright with permission to copy – or perhaps other permission(s)?
 - APIWG subgroups to develop/maintain/evolve ABAPI of interest to that particular subgroup

Definition of ABAPIs

- Standardized ABAPIs – provided in the Ada LRM (e.g., Annexes) or through secondary ISO standards (e.g., ASIS)
- Registered ABAPIs – ABAPIs made publicly available via the APIWG web page; individual or organization is responsible for each Registered (Private or Public) ABAPI
- Unregistered ABAPIs – neither of the above, but a link may be provided on the APIWG web page

Definition of Registered AB APIs

- Registered Private AB APIs – keeping up with who/where AB API is developed and/or maintained by a third party – *with their permission*
 - Registered Private AB APIs are **NOT** standards
- Registered Public AB APIs – APIWG subgroup responsible for (possible development and) maintenance of AB API; changes are managed by the Subgroup; Subgroup performs baselining and versioning of their own AB API

ABAPI Home Web Page

- Includes valuable artifacts
 - Compilable Ada source code for Ada Binding (Specs) and Ada Bodies (freely available)
 - Rationale
 - Examples, tutorials, useful tips
 - Known problems, lessons learned, etc.
 - Licenses/Permissions (modification rights)
- On SIGAda's web server (APIWG web pages)
- May contain links to Unregistered ABAPIs
- May be mirrored elsewhere (e.g., Ada-Europe)

API Working Group (APIWG)

- ACM SIGAda chartered Working Group to manage Registered Private ABAPIs and Registered Public ABAPIs
- Chair's responsibilities include
 - Defining Charter for APIWG
 - Coordinating work of all Subgroups
 - Updating APIWG web site for all Registered (Private and Public) ABAPIs

APIWG Subgroups

- Subgroup exists for each Registered Public ABAPI
- Subgroup chairs are responsible for the development, maintenance, and/or evolution of their particular Registered Public ABAPIs
- Subgroup is responsible for evolving Registered Public API, including baselining their own ABAPI, versioning of new releases, and identifying associated artifacts

Approach for Registered Private ABAPIs

- Provide current set of developed Registered Private ABAPIs on web page
- ABAPI is provided unchanged from originally developed ABAPI, with associated artifacts
- If requestor is not the ABAPI developer, APIWG Chair gets proper permission forms (including ACM's forms) signed by submitter, to place ABAPI on APIWG website to make ABAPI publicly available
- If permission is granted, all artifacts, including source code, are placed on APIWG web page; APIWG Chair announces it; others may also add artifacts (tutorials, examples, etc.)
- Otherwise – simply link to other website(s)

Approach for Registered Public APIs

- Ada Binding evolves as the API evolves
- Subgroups responsible for evolution and maintenance of each Registered Public API
- Web page identified and email list created
- Necessary artifacts can be placed on web site (Ada sources, rationale, documentation, tutorials, examples, etc.)
- Email list used for Subgroup discussions, Subgroup business, notification to others

Responsibilities of SIGAda EC

- Created APIWG
- Appoints Chair (currently Acting Chair)
- Approves APIWG Charter (currently Draft)
- Approves creation of APIWG Subgroups and Chairs
- Provides necessary support to APIWG and Chair, all Subgroups and Chairs
- Yearly assessment of Subgroup viability and possible dissolution

Responsibilities of APIWG Chair

- Define WG-approved Procedures for Registered (Private and Public) AB APIs (currently Draft)
- Maintain current artifacts for all such AB APIs
- Secure approval to place third party AB APIs (usually Registered Private) on APIWG web page
- Facilitate SIGAda EC approval of each Subgroup
- Ensure Subgroups are viable and maintain effective web pages for their Registered Public API

Responsibilities of API Subgroup Chairs

- Develop, Maintain, Evolve the Ada Binding to their Registered Public API
- Maintain their API and its artifacts on their own API's web page
- Approve baselines and versions of their own Registered Public API
- Recommend replacements of their own APIs when they are no longer viable

Members of the Ada Community

- Recommend to the APIWG Chair those Ada Bindings to APIs to be established as REGISTERED PRIVATE ABAPIS
- Recommend to the APIWG Chair those ABAPIS to be established as REGISTERED PUBLIC ABAPIS
- Provide feedback to the APIWG Chair and Registered Public API Subgroup Chairs to make more (valuable and useful) information available to the Ada community

APIWG Charter

- Created from discussions held at the Workshop at SIGAda 2002 and at the WG9 meeting held Friday morning immediately after SIGAda 2002 – and further email discussions since then
- As a strong recommendation from the SIGAda 2002 APIWG Workshop, there ***WILL NOT*** be separate Charters for each Subgroup

Membership

- Membership in the APIWG or any of its Subgroups is open to any interested party
- Members are responsible for their own expenses
- SIGAda's APIWG Chair *must* be a member of both ACM and SIGAda
- Other members are encouraged to be members of ACM, SIGAda, and/or Ada-Europe

APIWG Home Page

- A resource to the entire Ada community
- Publicly accessible (no password)
- To upload the necessary artifacts to the APIWG web pages, one must have an account on the ACM server (this usually means that one must be a member of ACM and SIGAda)

APIWG Email Lists

- Each Subgroup will have their own email discussion list
- Anybody can be a member of that Subgroup's email list
- Any member of the list can freely post
- Others' posts must be approved by the list owner
- List owner must be a member of ACM and SIGAda

Announcement of Registered Public API Releases

- Each Registered Public API Subgroup is responsible for setting the current version of their own API
- Notification of the latest version should be
 - Posted on the web
 - Announced in Ada Letters
 - Announced through the Subgroup's email list
 - New versions should be in the monthly announcements of the SIGAda-Announce list and comp.lang.ada, Team-Ada, and Ada-Europe – and other lists of related interests

Why SIGAda and Ada-Europe?

- Lightweight process carried out by volunteers to share Ada bindings to APIs among the Ada community
- Provides a forum and mechanism to evolve ABAPIs as needed so that changes can be made without involving ISO/WG9
- When ready ...
 - ABAPIs may result in an International Workshop Agreement (IWA) deliverable – most likely way
 - ABAPIs may be submitted to ISO/WG9 to be a Technical Report or even as International Standard

Candidates for possible APIs?

- Possible Subgroups for Registered Public APIs
 - Files/Directories – done (outside APIWG)
 - Sockets – exists within GNAT
 - HTTP/CGI
 - Time zones
 - Environment variables
 - ODBC/JDBC or equivalent
 - XML
 - others...

Results of SIGAda 2002 Workshop

- 17 people attended SIGAda API Workshop
- APIWG created
- APIWG Web pages created
- APIWG Chair responsibilities defined
- Subgroups responsibilities defined
- First Subgroup created – XML
- First test example – CGI
- Approach to move forward

SIGAda 2002 Workshop Results: APIWG Created

- Draft Charter created
- Clyde Roby is *Acting Chair*
- "Stamp of Approval"
 - Provide necessary characteristics
 - No judgments
 - Supported and/or Maintained
 - Available
 - Does not change "frequently"
- Clear instructions to submit your favorite Ada Spec or ABAPI, including "dirty" ones – Draft Procedures created, but needs updated

SIGAda 2002 Workshop Results: APIWG Web Pages

- ABAPI should never disappear
- Latest version always available
- APIWG License to be with Registered Public APIs (e.g., GPL, GMGPL, BSD, etc.) – **ONE** license? Or, **one of several** licenses
- Sources – not links – as much as possible (no compression of sources)
- Link to appropriate web page for Ada 200Y

SIGAda 2002 Workshop Results: APIWG Chair Responsibilities

- Announce to SIGAda-Announce, comp.lang.ada, etc. when Registered Public Subgroup artifact(s) ready
- Place Subgroup artifacts on publicly available part of APIWG web page
- Namespace reservation, e.g., Ada.API.xxx
- Guidelines for all Subgroups to follow (including minimal coding standards)
- Veto right over Subgroups ???

SIGAda 2002 Workshop Results: Responsibilities of Subgroups

- Obtain/develop a specification to an API
- Maybe provide/develop a (freely available) implementation
- If more than one Ada Spec exists, then
 - Negotiate among all submissions to CHOOSE one
 - Negotiate among all submissions to CREATE a single one
 - Define MULTIPLE Ada bindings
- Notify WG9 – ISO National Bodies contribute
 - Create ISO Technical Report(s)?
 - Create WG9 Rapporteur Group?
 - Change Ada language in future?

SIGAda 2002 Workshop Results: Miscellaneous

- XML Subgroup created
 - Robert Leif is Acting Chair
- CGI Subgroup created
- First test example – Ada bindings to CGI
 - AdaCGI by David A. Wheeler
 - Another one by Pascal Obry
 - Others?

SIGAda 2002 Workshop Results: Approach

1. Briefed ISO/WG9 for comment – most comments incorporated
2. Created the Draft “Concept of Operations”, incorporating WG9 comments – two documents: Charter, Procedures
3. Test the “concept” document with Ada CGI binding
4. Refine the “concept” document
5. Publicize on SIGAda, comp.lang.ada, Ada-Europe, WG9 discussion lists
6. Update the “concept” document
7. Present to SIGAda EC for approval
8. APIWG chair accepts ABAPIs for registration
9. Subgroups formed to develop/maintain Registered Public APIs

Questions / Discussion

- Better name for the Working Group?
- Pointers to candidates for Registered Private APIs?
- Pointers to candidates for Registered Public APIs?
- ...