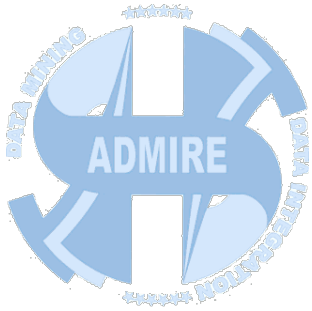

ADMIRE D3.3 — ADMIRE Platform Release 2

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Contents

Executive Summary

ADMIRE Platform Release 2 provides the first full, stable, end-to-end DMI software platform from the ADMIRE project. Key new features are an enhanced Gateway service capable of interpreting requests in the ADMIRE DMIL language and the first integrated tools Workbench based on the Eclipse platform.

The ADMIRE Testbed has been augmented with versions of the ADMIRE Platform software and now boasts three Gateway services across Europe.

The ADMIRE Platform and Testbed had the following key goals for PM18:

Deploy basic ACRM app databases at Comarch: completed successfully with the operation of the ACRM DataGenerator tool for generating arbitrary quantities of synthetic telecom-based CRM data. A number of these databases have been deployed on the Testbed node at Comarch's Krakow site.

Deploy Platform R1 across Testbed: completed successfully with Platform release R1.9 running at Comarch and release R2 running at IISAS and EPCC.

Implement end-to-end demo of ORAVA usecase: tools-to-execution engine: IISAS have successfully run their first major use-case scenario — ORAVA — on the local IISAS Gateway.

1 Overview

This report is a description of Deliverable D3.3, the ADMIRE Platform Release 2, as defined in the ADMIRE Description of Work [1].

In this report we describe the second release of the ADMIRE Platform and the current state of the ADMIRE Testbed.

The ADMIRE Platform is a collection of tools, services and software engines designed to demonstrate the current state of DMI research and development within ADMIRE. Every release of the Platform gathers the most recent stable components into a logical package, each time building on the previous release;

The ADMIRE Testbed is an instantiation of the ADMIRE Platform across a number of compute and data resources shared across the ADMIRE consortium.

For more detailed conceptual definitions of the ADMIRE Platform and Testbed, and the full description of activities within Workpackage 3, please see ADMIRE D3.2 [2].

We conclude this report by drawing plans for the near future.

2 ADMIRE Platform Release 2

The second release of the Platform brings to the user significantly more functionality than the previous version. The user is now able to create a DMIL request using a DMIL Editor on the Workbench side. This, once created, can be easily submitted (with two clicks) to one of the instances of the USMT-based Gateway hosted by the ADMIRE colaborators. Once received by the main Gateway service, the DMIL is processed by the DMIL Processor and a resulting workflow is submitted to an OGSA-DAI–USMT server for execution. The client, in return, is notified when the results are produced and ready to be downloaded. The OGSA-DAI services are able to access various site-specific databases storing data such as the synthetic CRM data at Comarch and flood and hydrological data at IISAS; this allows ADMIRE users for the first time to run real DMI scenarios using the Platform software.

The ADMIRE Platform Release 2 is divided into two parts: ADMIRE Gateway and ADMIRE Workbench. Note that there is also ADMIRE Platform Release 1.9 installed on the Testbed as ilustrated in Figure 2. In comparison to Release 2 it uses ADMIRE Gateway v0.9.0 and not v1.0.0.

Figure 1 sketches the Workbench tools and Gateway services packaged as part of this release, overlaid on the diagram of the full conceptual ADMIRE system from deliverable D5.3 [3].

2.1 ADMIRE Platform R2: Gateway Services

All services are built on the latest version of USMT which is at present v1.6.2. USMT and its current status is covered in Deliverable D4.3 [4].

- ADMIRE Gateway Service v1.0.0;
- OGSA-DAI Services v3.1 (v3.2 due in October '09);
- Registry Service v0.0.1;
- Database Monitoring Service (DSMON) v0.5.0.

2.1.1 ADMIRE Gateway Service

All services running within the ADMIRE Gateway are hosted within the USMT web services framework.

The ADMIRE *Gateway Service* is now able to process DMIL requests. When a request is received by the Gateway, a *Process Service* instance is created which starts processing the request using the DMIL processor prototype. The end-point reference (EPR) of the Process Service is returned to the client.

This Process Service allows a client to monitor progress of the execution of the DMIL workflow. The Process Service publishes a resource property with the EPRs of all result data sources

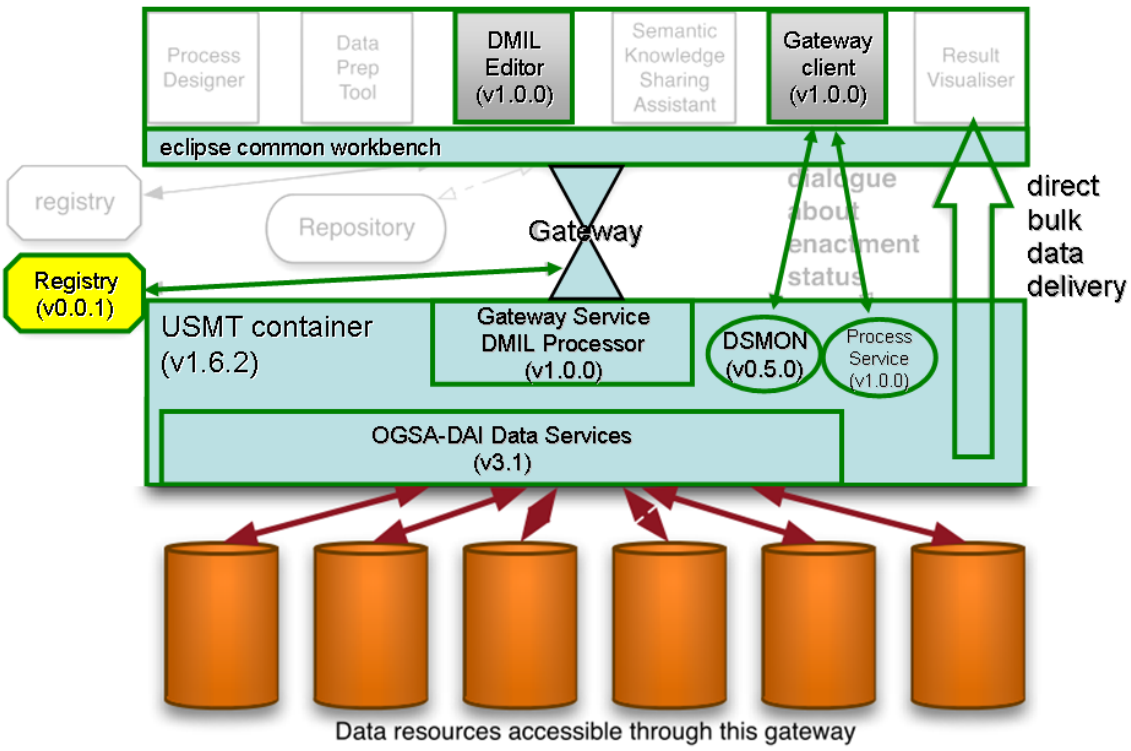

Figure 1: Components and services in ADMIRE Platform R2 at project month 18 (highlighted). The greyed-out components are described in ADMIRE D5.3 and will be integrated into later Platform releases. We also expect the portfolio of Gateway services to be expanded and enhanced in later releases.

from which the client can pull the result data. Additionally, the client can register interest in the resource properties and get notified by the Gateway whenever the state of the property changes.

The DMIL processor prototype is described in detail in D5.3 [3].

As of this release of the Platform the Gateway Service is able to interact with the first version of the ADMIRE Registry (see Section 2.1.3 below).

Note, that current version of the Gateway is v1.0.0. However there is also version v0.9.0 in use on the Testbed which does not yet include the support for the ADMIRE Registry.

2.1.2 OGSA-DAI Services

The ADMIRE Platform currently uses the OGSA-DAI data workflow engine as an enactment platform to provide all the functionality of ADMIRE Processing Elements (PEs). The core OGSA-DAI services deployed within USMT in the ADMIRE Platform are discussed in ADMIRE D4.2 and D4.3 [5, 4]. Full OGSA-DAI user documentation can be found at:

`http://sourceforge.net/apps/trac/ogsa-dai/wiki/UserDocumentation`

2.1.3 ADMIRE Registry Service

The ADMIRE Registry provides access to the caononical descriptions of the Processing Elements designed by the ADMIRE end users. It is a semantic registry based on the WS-DAI-RDF specification which is queried using SPARQL. ADMIRE Platform R2 introduces a prototype implementation of this specification, based on OGSA-DAI-RDF. This implementation provides more operations than the ones existing in the specification (e.g. update methods).

The ADMIRE Registry is described in detail in D.4.2 [5] and D.4.3 [4]. The source code is located at:

`http://www.admire-project.eu/repos/trunk/src/SemanticRegistry`.

2.1.4 Database Monitoring Service – DSMON

DSMON is a service oriented monitoring tool providing rich metadata about relational data sources via publish/subscribe mechanisms in a uniform manner. Available metadata about a database resource include:

- connection time;
- product name and version;

- tables in the database.

Metadata about a database table resource include:

- logical schema;
- histograms including average column length;
- indexes;
- exact data statistics (add-on only available for Oracle at the moment).

At the moment, the following RDBMSes are supported:

- Oracle;
- MySQL;
- PostgreSQL.

DSMON is described in detail in ADMIRE D4.3 [4] and the code is located at

`http://www.admire-project.eu/repos/dsmon_usmt`.

2.2 ADMIRE Platform R2: Workbench Components

This release of the ADMIRE Platform introduces the first integrated client-side tool package on the Eclipse workbench framework. This first version of the ADMIRE Workbench has two main components — the DMIL Editor and the Gateway Client plugin. In addition we have adopted the Eclipse workbench's ability to update its components across the web.

2.2.1 ADMIRE Update Site

A new feature introduced in ADMIRE Platform Release 2 is an automatic update site. It is built using functionality offered by Eclipse. There are multiple adventages in hosting an update site like this: firstly, it provides an easy installation mechanism for ADMIRE-specific Eclipse plugins; secondly, it offers even easier update functionality, which is a necessity in the project with frequent changes; finally, it provides a sensible way of gathering together all interacting plugins as logical features of a single Workbench.

The ADMIRE Update Site is hosted on the Testbed at:

`http://www.admire-project.eu/ADMIREUpdateSite/`.

2.2.2 DMIL Editor/ Gateway Client Plugin

The DMIL Editor is an Eclipse plugin for editing DMIL documents and submitting DMIL requests to a Gateway. For full description, installation and running instructions please refer to ADMIRE D5.3 [3].

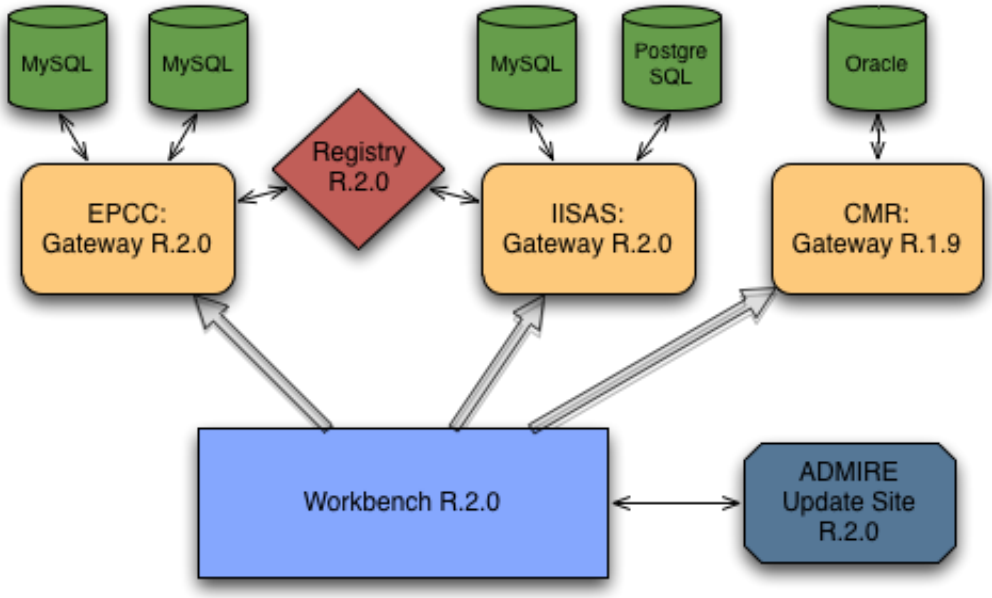

Figure 2: Current ADMIRE Testbed (at project month 18), spanning three sites: EPCC, IISAS and Comarch.

3 ADMIRE Testbed

At the time of writing, there are three ADMIRE Gateways deployed on the ADMIRE Testbed. They form the Development Platform which can be used by all consortium members. When the platform reaches a maturity level suitable for providing it to the external world a Production Platform will be created. For details refer to D3.2 [2]. Figure 2 offers a sketch of its current state.

3.1 EPCC

- Gateway at version 1.0.0 running at admire4.epcc.ed.ac.uk. Available services include:
  - OGSA-DAI running at admire3.epcc.ed.ac.uk
  - Registry running at admire3.epcc.ed.ac.uk
  - Database Monitoring running at admire4.epcc.ed.ac.uk
- Data Resources avialable:
  - DbAdmire3Resource – MySQL database running at admire3.epcc.ed.ac.uk:
    - Standard OD tables: 'littleblackbook' and 'extblackbook'
    - Generated data for datamining:
      - clean data – 'customer_clean', 'contract_clean'

        - ‘polluted’ – ‘customer’, ‘contract’
      - Some other tables like: ‘weather’
  - DbAdmire4Resource – MySQL database running at admire4.epcc.ed.ac.uk:
    - Census information: ‘stat’
    - UK Postcode mappings: ‘postcode’
    - Other used for Decision Trees: ‘measurements’, ‘flights’ etc.

3.2 IISAS

- Gateway at version 1.0.0 running at hudson.ui.sav.sk. Available services include:
  - OGSA-DAI running at the same machine.
- Data Resources avialable (in one MySQL database and mirrored in other PostgreSQL):
  - DbSvpResource:
    - SVP data (Vah reservoirs), tables ‘vodne_diela’ and ‘backup_vodne_diela’
  - DbGribMetaResource:
    - Metadata of GRIB files, tables ‘grib_meta’, ‘grib_meta_c’, ‘grid_coords’, ‘grid_coords2’
  - DbOravaWaterStationsResource:
    - Hydrological data (water height, water discharge) from several hydrological stations in the Orava area. Tables ‘Hh’, ‘Qh’, ‘Stations’, ‘Thod’
  - DbSKCGMSSAV1Resource:
    - Various pedological and crop-related statistics for Slovakia. Too many tables to list, examples: ‘CROP’, ‘CROP_YIELD’, ‘INITIAL_SOIL_WATER’.
  - DbSKCGMSSAV2Resource:
    - A backup copy of DbSKCGMSSAV1Resource.

3.3 Comarch

- Gateway at version 0.9.0 running at rd.comarch.pl. Available services include:
  - OGSA-DAI running at the same machine.
- Data Resources avialable (in one MySQL database):
  - crm:
    - CRM resource. Includes around 200 different tables, for example ‘CDM_CUSTOMERS_T’

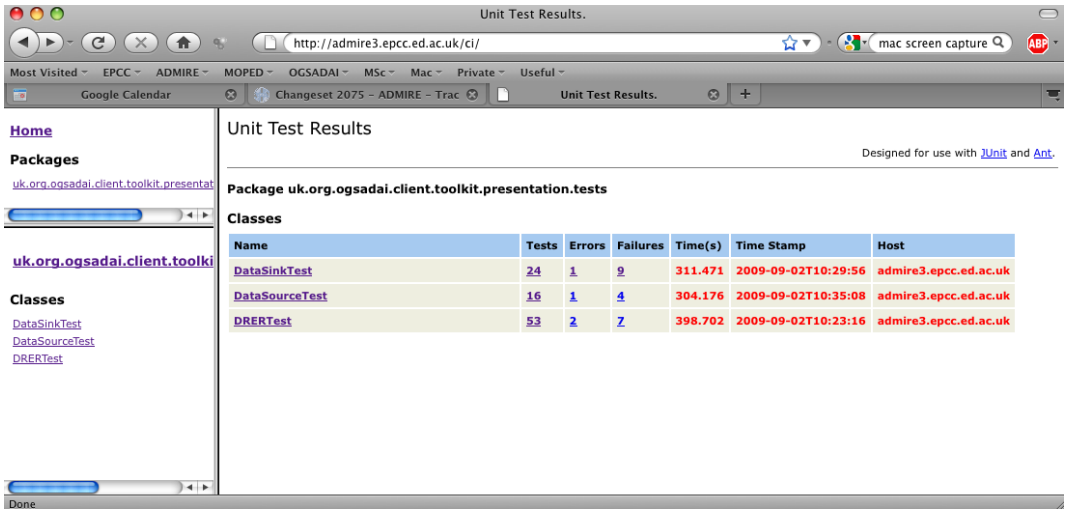

Figure 3: Core OGSA-DAI tests applied to OGSA-DAI Services running on USMT

3.4 Integrated Test Platform

For the strategy on testing please refer to the previous deliverable D.3.2 [2]. In this release we have applied a subset of tests previously used for OGSA-DAI stand-alone to OGSA-DAI Services running on top of USMT. The screenshot is presented in Figure 3 and the latest results are visible at:

`http://admire3.epcc.ed.ac.uk/ci`

3.5 Testbed Use

The Testbed can be used as described in D.3.2 [2]. Additionally, instructions on how to invoke the Workbench Client to submit DMIL workflows to the ADMIRE Gateways hosted by different partners is presented in D5.3 [3].

4 Future Plans

ADMIRE Platform Release 2 is the second of a series of six-monthly Platform releases. As ideas are developed within the research workpackages, and software components matured in the development workpackages, WP3 will expand the supported Platform and Testbed infrastructure accordingly.

4.1 Project months 19-24

Plans for the next release of ADMIRE software are likely to encompass the following:

1. ADMIRE Platform Release 3
   - First integrated ADMIRE Workbench, including Process Designer, SKSA, Data Preparation Tool and Model Visualiser.
   - Improvements to the ADMIRE Gateway, including intra-gateway communication.
2. ADMIRE Testbed infrastructure
   - Roll out ADMIRE Platform Release 2 onto nodes of other partners.
   - Create system tests based on use cases from WP6 which will exercise the whole platform.
   - Improve mechanisms for collecting and presenting software metrics and test results.

References

[1] The ADMIRE Consortium. ADMIRE: Description of Work , Feb 2008.

[2] The ADMIRE Project. ADMIRE Platform Release 1, Mar 2009.

[3] Amy Krause, Ivan Janciak, Michal Laclavik, Branislav Simo, Maciej Jarka, Andrzej Biernacki, and Marek Lenart. ADMIRE – Tools Development Progress Report. Deliverable report D5.3, the ADMIRE Project, Aug 2009.

[4] Vivian Lee and work package partners. ADMIRE – Development Progress Report. Deliverable report D4.3, the ADMIRE Project, Sep 2009.

[5] Vivian Lee and work package partners. ADMIRE – Development and Deployment Report for USMT V2: capabilities of USMT V2. Deliverable report D4.2, the ADMIRE Project, Feb 2009.