BES Directory Profile: V.0.1

Status of this Memo

This memo provides information to the Grid community regarding the specification of the BES Directory Profile.Distribution is unlimited.

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Abstract

The BES Directory Profile (BDP) is a profile on OGSA Basic Execution Services 1.0 that provides a Unix directory like interface to OGSA BES endpoints that allow the client to examine and modify BES configuration information as well as list, create, and terminate activities. The profile defines no port-types; rather it simply describes what directory elements MUST exist in a compliant implementation and what the semantics are of interacting with those entries. The goal is to provide a simple uniform mechanism to support requirements identified by the Production Grid Interoperability Working Group of the Open Grid Forum [cite]. The mechanism described for the BDP is independent of the OGSA BES specification. Thus, changes in the OGSA BES specification in the future will not impact the usefulness of the BDP.Contents

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# Introduction

The Production Grid Interoperability Working Group identified a number of execution management use cases and requirements in GFD.180. A number of ways to meet these requirements have been extensively discussed. They fall into two categories: 1) define a new set of specifications from scratch to meet the requirements, and 2), profile and minimally extend existing specifications to meet the requirements.

The BDP is a part of the second approach, profiling and extending existing specifications to meet the requirement. It combines, extends, and profiles five existing specifications to meet the PGI requirements: WS Addressing EndPoint References, OGSA Basic Execution Services (OGSA\_BES, or BES) [GFD.108], RNS 1.1 OGSA-WSRF Basic Profile 1.0 [GFD.172], WS-Iterator 1.0 [GFD.188], and OGSA-ByteIO WSRF Basic Profile 1.0 [GFD.98].

The OGSA Basic Execution Services specification (OGSA\_BES, or BES) [GFD.108] has been in use for over five years. Over the course of use several common extensions have been used by different implementers.

# Notational Conventions

The key words “MUST,” “MUST NOT,” “REQUIRED,” “SHALL,” “SHALL NOT,” “SHOULD,” “SHOULD NOT,” “RECOMMENDED,” “MAY,” and “OPTIONAL” are to be interpreted as described in RFC-2119 [RFC 2119].

The document refers to a “BES Directory Profile compliant system” as a “Compliant system”.

This specification uses namespace prefixes throughout; they are listed in Table 2‑1. Note that the choice of any namespace prefix is arbitrary and not semantically significant.

Table ‑: Prefixes and namespaces used in this specification.

|  |  |
| --- | --- |
| Prefix | Namespace |
| xsd | <http://www.w3.org/2001/XMLSchema> |
| wsa | <http://www.w3.org/2005/03/addressing> |
| rns | <http://schemas.ogf.org/rns/2009/12/rns> |
| byteio | <http://schemas.ggf.org/byteio/2005/10/byte-io> |
| sbyteio | <http://schemas.ggf.org/byteio/2005/10/streamable-access> |
| rbyteio | <http://schemas.ggf.org/byteio/2005/10/random-access> |
| bdp | <http://schemas.ogf.org/bdp/2012/03/bdp> |

# BES Directory Compliance Requirements

This section describes the compliance requirements.

## RNS 1.1 Compliance

Compliant implementations MUST also implement RNS 1.1, OGSA-WSRF Basic Profile 1.0, and WS-Iterator 1.0.

## EPR Metadata fields

### SupportsBESDirectory

This Metadata entry in the Endpoint Reference for the BES endpoint indicates whether the endpoint is compliant with the BES Directory Profile. The entry’s type is xsd:boolean, and it has a cardinality of exactly 1. A value of “true” indicates compliance, while a value of “false” or the absence of the entry indicates non-compliance.

<wsa:EndpointReference>

...

<wsa:Metadata>

<bdp:SupportsBESDirectory>

/xsd:boolean

</bdp:SupportsBESDirectory>

</wsa:Metadata>

</wsa:EndpointReference>

## Resource Properties

Should these be a Resource Property and/or a BES-Factory Attribute?

Should be a factory attribute as like the other BES extensions mentioned on page 16

Todo: Shabaz will do the xpath stuff, e.g..,

http://schemas.ogf.org/bes/2012/bes-extensions/SupportsBESDirectory

## Required RNSEntry Elements returned from lookup

Recall that an *RNSEntry* is defined in RNS 1.1 as <entryName:string, [endpoint:EPR], [metadata:XML]>.

### Activities

An RNSEntry that refers to another RNS 1.1 endpoint that has entries defined below. In other words, a lookup operation would return three RNSEntries, *mine*, *all*, and *submission\_point*.

Note that in RNS 1.1 if the number of returned RNSEntrys is more than some threshold it returns threshold entries and a WS-Iterator EPR that can be used to get the remaining entries [ref rns 1.1 specification].

#### Mine

"Mine" refers to the activities that the caller can manipulate (destroy, reschedule, etc.). This is defined by local policy and is out of scope of the profile.

"mine" is an RNSEntry that refers to another RNS 1.1 endpoint that has the following entries

* + - Running – is an RNSEntry that refers to another RNS 1.1 endpoint that has an entry for each of the jobs on the BES with an ActivityStatus of “Running” owned by the current requesting client.
    - Pending– is an RNSEntry that refers to another RNS 1.1 endpoint that has an entry for each of the jobs on the BES with an ActivityStatus of “Pending” owned by the current requesting client.
    - Finished – is an RNSEntry that refers to another RNS 1.1 endpoint that has an entry for each of the jobs on the BES with an ActivityStatus of “Finished”.
    - Cancelled – is an RNSEntry that refers to another RNS 1.1 endpoint that has an entry for each of the jobs on the BES with an ActivityStatus of “Cancelled”.
    - Failed – is an RNSEntry that refers to another RNS 1.1 endpoint that has an entry for each of the jobs on the BES with an ActivityStatus of “Failed”

#### All

An RNSEntry that refers to other RNS 1.1 endpoints that have listings of the activities that the local security policy exposes to the caller. Note this is implementation and perhaps site specific.

* + - Running – is an RNSEntry that refers to another RNS 1.1 endpoint that has an entry for each of the jobs on the BESwith an ActivityStatus of “Running”.
    - Pending – is an RNSEntry that refers to another RNS 1.1 endpoint that has an entry for each of the jobs on the BESwith an ActivityStatus of “Pending”.
    - Finished – is an RNSEntry that refers to another RNS 1.1 endpoint that has an entry for each of the jobs on the BESwith an ActivityStatus of either “Finished”.
    - Cancelled – is an RNSEntry that refers to another RNS 1.1 endpoint that has an entry for each of the jobs on the BESwith an ActivityStatus of either “Cancelled”.
    - Failed – is an RNSEntry that refers to another RNS 1.1 endpoint that has an entry for each of the jobs on the BESwith an ActivityStatus of either “Failed”,

#### SubmissionPoint

#### An RNSEntry that refers to a RandomByteIO file. When JSDL files are written to this RNSEntrythe effect is the same as a BES CreateActivity, i.e., the activity is started.

#### Effect of “rm” on an activity

A Unix “rm” has the effect of calling an RNS 1.1 “remove” operation, analogous to an unlink. Upon receipt of a “remove” operation the BES MUST destroy and clean up session state for the activity if the caller is authorized by local policy to perform such an action. The disposition of logging and accounting information is unspecified though it is expected to be un-affected by the remove operation. If the activity is currently running it is the responsibility of the BES to terminate and clean up the activity.

# Optional BES Directory Compliance Targets

## Optional RNSEntry elements returned from lookup

OPTIONAL RNSEntry elements are elements that MAY be present. If they are present though, they MUST have the following meaning and refer to the specified information.

### Configuration

An RNSEntry that refers to another RNS 1.1 endpoint that has the following entries:

#### ResourceDescription

#### An RNSEntry that refers to a ByteIO resource (file) that contains a natural language description of the resource.

#### ConstructionProperties

#### An RNSEntry that refers to a ByteIO resource (file) that can be written to configure the BES, and read to retrieve the current configuration. Note that the format of the file is implementation specific.

### Log

An RNSEntry that refers to a ByteIO resource (file) that contains the log file for the BES. Note that the format of the file is implementation specific.

# Security Considerations

Access control is out of scope.

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# Contributors

We gratefully acknowledge the contributions made to this specification by [insert names].

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Normative References

[RFC 2119] Bradner, S. Key words for use in RFCs to Indicate Requirement Levels. Internet Engineering Task Force, RFC 2119, March 1997.Available at <http://www.ietf.org/rfc/rfc2119.txt>

[JSDL10] Available at <http://www.ggf.org/documents/GFD.136.pdf>

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WS Addressing EndPoint References

OGSA Basic Execution Services (OGSA\_BES, or BES) [GFD.108]

RNS 1.1 OGSA-WSRF Basic Profile 1.0 [GFD.172]

WS-Iterator 1.0 [GFD.188]

OGSA-ByteIO WSRF Basic Profile 1.0 [GFD.98]