



OSGiTM
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RFP 194 Runtime Query Interface

Draft

7 Pages

Abstract

Provide a light query mechanism for interacting with the DTOs provided by service runtimes.

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0.3 Feedback

This document can be downloaded from the OSGi Alliance design repository at <https://github.com/osgi/design>
The public can provide feedback about this document by opening a bug at <https://www.osgi.org/bugzilla/>.

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0.5 Terminology and Document Conventions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY" and "OPTIONAL" in this document are to be interpreted as described in 6.1.

Source code is shown in this typeface.

0.6 Revision History

The last named individual in this history is currently responsible for this document.

Revision	Date	Comments
Initial	Feb 18 2019	Raymond Augé, Liferay Inc. raymond.auge@liferay.com

1 Introduction

Current service runtimes (besides Declarative Services) do not provide a granular mechanism for interacting with their DTO graph. This results in the runtime creating a lot of unused objects.

2 Application Domain

OSGi has several specifications that provide a diagnostic or runtime inspection API that use DTOs as the data model.

2.1 Terminology + Abbreviations

3 Problem Description

The Http Whiteboard, JAX-RS Whiteboard and CDI Integration runtime services provide methods which return complex graphs of DTOs.

Http & JAX-RS Whiteboards for example:

```
public RuntimeDTO getRuntimeDTO()
```

CDI Integration for example:

```
public Collection<ContainerDTO> getContainerDTOs(Bundle... bundles)
```

When pairing these APIs with `service.changeCount` as a pattern for detecting and reacting to changes in the runtime, these complex DTO graph becomes a large source of wasted processing and garbage.

4 Use Cases

4.1 Testing

Testing commonly involves observing specific DTO in the graph that represent a specific service or some specific aspect of the system and this is typically a subset of the available DTO graph.

4.2 Production Diagnostics

Production systems may involve runtimes that contain huge numbers of services and state information. Diagnosing these systems becomes complicated without a way to obtain granular information.

5 Requirements

- R010 – Must provide a way to query information about a specific DTO within the runtime
- R020 – Must not require the runtime to generate full state graph in order to answer the query
- R030 – The query dialect must be service filter syntax
- R040 – The DTO type must be specified in conjunction with the query in order to disambiguate cases where backing data is a service(reference) that results in multiple DTOs

6 Document Support

6.1 References

- [1]. Bradner, S., Key words for use in RFCs to Indicate Requirement Levels, RFC2119, March 1997.
- [2]. Software Requirements & Specifications. Michael Jackson. ISBN 0-201-87712-0

*Add references simply by adding new items. You can then cross-refer to them by choosing <Insert><Cross Reference><Numbered Item> and then selecting the paragraph. **STATIC REFERENCES (I.E. BODGED) ARE NOT ACCEPTABLE, SOMEONE WILL HAVE TO UPDATE THEM LATER, SO DO IT PROPERLY NOW.***

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