RFC 203 – Remote Service Admin 1.1

Draft

9 Pages

Abstract

The Remote Service Admin specification is lacking a mechanism to notify consumers of changes to an endpoint. The EndpointListener interface defines endpointAdded and endpointRemoved callbacks, but no mechanism to convey that an endpoint has been modified, for example because the service properties of the backing service have changed. This RFC addresses this issue.

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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/.

0.4 Table of Contents

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 1.

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Source code is shown in this typeface.
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0.6 Revision History

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

Revision	Date	Comments
Initial	August, 2013	David Bosschaert, initial version of separate RFC. Previous design has been taking place in RFC 183.

1 Introduction

The OSGi Remote Services and Remote Service Admin specifications describe how OSGi services can be remoted and how to consume these remote services using the OSGi Services programming model.

The Remote Service Admin specification version 1.0 defines how listeners are notified of endpoints being added and removed. However the associated API does not support notifying listeners of changes to endpoints such as service property changes of the associated service. This RFC addresses this issue by proposing an extension to the Remote Service Admin specification.

2 Application Domain

This RFC relates to the domain of remote OSGi Services, specifically the Remote Service Admin specification.

3 Problem Description

The EndpointListener interface is used to implement a distributed discovery mechanism and it allows the registration of a listener for distributed endpoints to appear and disappear via the endpointAdded() and endpointRemoved() callback methods. However, an endpoint can also change. This is in particular the case when the service registration properties of the endpoint are modified. Such modifications are not supported by the EndpointListener today, it sends a sequence of endpointRemoved() and endpointAdded() callbacks in such a case which can cause unnecessary volatility in the system.

4 Requirements

RSA01 – The Solution MUST define a mechanism to provide Endpoint Listeners with a notification when an endpoint was modified.

5 Technical Solution

To receive modification events a new EndpointEventListener interface can be implemented by the listener. The EndpointEventListener follows a similar pattern as the ServiceListener in the core framework. The event holds a type attribute describing the type of event.

5.1 Backward compatibility

The existing EndpointListener interface sends a endpointRemoved() callback followed by an endpointAdded() callback in case an endpoint registration has changed (e.g. properties added or removed). The EndpointListener interface will continue to behave this way.

5.2 EndpointEventListener

The new EndpointEventListener will not send a sequence of REMOVED and ADDED events in such a case, but rather send a single MODIFIED or MODIFIED_ENDMATCH event, whichever is appropriate.

The EndpointEventListener is defined as follows:

```
public interface EndpointEventListener {
  void endpointChanged(EndpointEvent event, String matchedFilter);
}

public class EndpointEvent {
  public static final int ADDED = 0x00000001;
  public static final int REMOVED = 0x00000002;
  public static final int MODIFIED = 0x00000004;
  public static final int MODIFIED_ENDMATCH = 0x00000008;

  private final EndpointDescription endpoint;
  private final int type;

  public EndpointEvent(int type, EndpointDescription endpoint) {
    super(endpoint);
    this.endpoint = endpoint;
    this.type = type;
  }

  public EndpointDescription getEndpoint() {
    return endpoint;
  }

  public int getType() {
    return type;
  }
}
```

6 Data Transfer Objects

RFC 185 defines Data Transfer Objects as a generic means for management solutions to interact with runtime entities in an OSGi Framework. DTOs provides a common, easily serializable representation of the technology.

For all new functionality added to the OSGi Framework the question should be asked: would this feature benefit from a DTO? The expectation is that in most cases it would.

The DTOs for the design in this RFC should be described here and if there are no DTOs being defined an explanation should be given explaining why this is not applicable in this case.

This section is optional and could also be provided in a separate RFC.

7 Javadoc

Please include Javadoc of any new APIs here, once the design has matured. Instructions on how to export Javadoc for inclusion in the RFC can be found here: https://www.osgi.org/members/RFC/Javadoc

8 Considered Alternatives

For posterity, record the design alternatives that were considered but rejected along with the reason for rejection. This is especially important for external/earlier solutions that were deemed not applicable.

9 Security Considerations

Description of all known vulnerabilities this may either introduce or address as well as scenarios of how the weaknesses could be circumvented.

10 Document Support

10.1 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 chosing <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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10.3 Acronyms and Abbreviations

10.4 End of Document