



RFC 205 - Versions as Scalar types

Draft

8 Pages

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Abstract

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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 Document Information.....	2
0.1 License.....	2
0.2 Trademarks.....	3
0.3 Feedback.....	3
0.4 Table of Contents.....	3
0.5 Terminology and Document Conventions.....	4
0.6 Revision History.....	4
1 Introduction.....	4
2 Application Domain.....	5
3 Problem Description.....	5
4 Requirements.....	5
5 Technical Solution.....	5
6 Data Transfer Objects.....	6
7 Javadoc.....	6
8 Considered Alternatives.....	6

9 Security Considerations.....	7
10 Document Support.....	7
10.1 References.....	7
10.2 Author's Address.....	7
10.3 Acronyms and Abbreviations.....	7
10.4 End of Document.....	7

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 10.1.

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	04/09/13	Initial version - Tim Ward, Paremus Ltd, tim.ward@paremus.com
	<i>MMM DD YYYY</i>	<i>Put information relating to the changes you have made here.</i> <i><name>, <company> <e-mail></i>

1 Introduction

The OSGi Core specification describes how OSGi Services can be registered with Service Properties. These properties can then be used to select services using LDAP filters. The primary supported types for service properties are known as the 'Scalar Types', which are `String`, `Integer`, `Long`, `Float`, `Double`, `Byte`, `Short`, `Character` and `Boolean`, and collections or arrays of Scalar types. In addition to these types service properties may be arbitrary objects.

The core specification further defines the filter matching rules that should be used for non-scalar types when they are used. The Equals and not Equals operators rely on the `equals()` method of the property value, however the other operators require the property value type to be `Comparable`, and also for it to have either a `valueOf()` method or a public constructor taking a single `String`. OSGi Version objects were designed to work with these rules so that they are also suitable for use as filterable service properties.

Although Version objects are a core part of the OSGi API, and are suitable for use as service properties, they are not one of the scalar types. This means that they are not covered by other OSGi specifications that reference the scalar types. This includes Configuration Admin, Declarative Services and Metatype. As a result it is more difficult to use Versions as service properties than Scalar types.

2 Application Domain

This RFC relates to OSGi Service properties and configuration, specifically it aims to make OSGi Versions easier to use as Service Properties and configurable objects.

3 Problem Description

The Version class is a core part of the OSGi API, and is used widely throughout many OSGi specifications, however it is not considered to be an OSGi “scalar type”. This means that while Versions are natively supported in Generic Capabilities, most other OSGi specifications do not treat Version as a native property type.

OSGi Declarative Services are one good example of this. Version is not a native property type, and so it is not possible to use Declarative Services to register a service object with a Version as a service property. The same is true of Configuration Admin, if you wish to pass an OSGi Version as a configurable property then it must be passed as a String and parsed by the client.

This adds significant complexity to code that wishes to use OSGi Versions in these ways. For example the DS component must be manually registered as a service in its Activate method, and the Configurable component must remember to parse the Version property as a String.

Versions are useful in these cases for many reasons, for example:

1. When the same service API provides access to multiple implementations, for example the JDBC service DataSourceFactory, where service properties can be used to advertise the version of the backing database.
2. When a service is being used as a marker to represent the state of an external process, or the presence of some other external resource (like a bluetooth device). If the API of the service is independent of the external process/resource then it can be useful to provide version information for the resource
3. When configuration is being used to identify a bundle that should be processed by an extender

4 Requirements

VST01 – The Solution **MUST** define a mechanism to support OSGi Version objects as DS properties

VST02 – The Solution **MUST** define a mechanism to support passing OSGi version objects as configurable properties

VST03 – The Solution **MUST** support OSGi version objects in Metatype descriptions.

5 Technical Solution

The technical solution impacts a number of existing specifications.

5.1 Core specification

The OSGi Core specification has already been written such that Version objects work well as service properties. The only update required here is to add Version as a Scalar type, no other updates should be necessary

5.2 Configuration Admin

The Configuration Admin specification needs to be updated to include Version as an allowed property type. This also requires Configuration Admin to serialize Version properties. This can easily be achieved using the existing `Version#toString()` and `Version#parseVersion()` methods.

5.3 Metatype Service

The Metatype Service needs to be updated to include Version as a configuration type. This should be simple to implement.

5.4 Declarative Services

The Declarative Services specification will need to be updated to include Version as an allowed property type. This includes updating the XML schema and the annotation support.

5.5 Blueprint Service

The Blueprint service can already support Version values as service properties using its standard syntax:

```
<service ref="fooImpl" interface="com.acme.Foo">
  <service-properties>
    <entry key="size">
      <value type="org.osgi.framework.Version">1.2.3.QUAL</value>
    </entry>
  </service-properties>
</service>
```

6 Data Transfer Objects

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.***

10.2 Author's Address

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10.3 Acronyms and Abbreviations

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