

Network Working Group  
Internet-Draft  
Intended status: Standards Track  
Expires: April 29, 2012

C. Joy  
Oracle  
C. Daboo  
Apple Inc.  
M. Douglass  
RPI  
October 27, 2011

**Schema for representing resources for calendaring and scheduling  
services**  
**draft-cal-resource-schema-06**

#### Abstract

This specification describes a schema for representing resources for calendaring and scheduling. A resource in the scheduling context is any shared entity that can be scheduled by a calendar user, but does not control its own attendance status.

#### Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of [BCP 78](#) and [BCP 79](#).

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF). Note that other groups may also distribute working documents as Internet-Drafts. The list of current Internet-Drafts is at <http://datatracker.ietf.org/drafts/current/>.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

This Internet-Draft will expire on April 29, 2012.

#### Copyright Notice

Copyright (c) 2011 IETF Trust and the persons identified as the document authors. All rights reserved.

This document is subject to [BCP 78](#) and the IETF Trust's Legal Provisions Relating to IETF Documents (<http://trustee.ietf.org/license-info>) in effect on the date of publication of this document. Please review these documents carefully, as they describe your rights and restrictions with respect to this document. Code Components extracted from this document must

include Simplified BSD License text as described in Section 4.e of the Trust Legal Provisions and are provided without warranty as described in the Simplified BSD License.

## Table of Contents

<a href="#">1. Introduction</a>	5
<a href="#">2. Conventions Used in This Document</a>	5
<a href="#">3. General Considerations</a>	5
<a href="#">4. Resource Object</a>	5
<a href="#">4.1. LDAP Resource ObjectClass Definition</a>	5
<a href="#">5. Resource Attributes</a>	6
<a href="#">5.1. Common Name</a>	6
<a href="#">5.1.1. LDAP Attribute Definition</a>	6
<a href="#">5.1.2. VCard Property Definition</a>	6
<a href="#">5.2. Kind</a>	6
<a href="#">5.2.1. LDAP Definition</a>	7
<a href="#">5.2.1.1. LDAP Attribute Definition</a>	7
<a href="#">5.2.2. VCard Property Definition</a>	7
<a href="#">5.2.3. Mapping of KIND value between LDAP and VCard representations</a>	8
<a href="#">5.3. Unique ID</a>	8
<a href="#">5.3.1. LDAP Attribute Definition</a>	8
<a href="#">5.3.2. VCard Property Definition</a>	8
<a href="#">5.4. Nick Name</a>	8
<a href="#">5.4.1. LDAP Attribute Definition</a>	9
<a href="#">5.4.2. VCard Property Definition</a>	9
<a href="#">5.5. Description</a>	9
<a href="#">5.5.1. LDAP Attribute Definition</a>	9
<a href="#">5.5.2. VCard Property Definition</a>	9
<a href="#">5.6. Organizational Unit</a>	9
<a href="#">5.6.1. LDAP Attribute Definition</a>	10
<a href="#">5.6.2. VCard Property Definition</a>	10
<a href="#">5.7. Categories</a>	10
<a href="#">5.7.1. LDAP Attribute Definition</a>	10
<a href="#">5.7.2. VCard Property Definition</a>	10
<a href="#">5.8. Group Member</a>	10
<a href="#">5.8.1. LDAP Attribute Definition</a>	11
<a href="#">5.8.2. VCard Property Definition</a>	11
<a href="#">5.9. Admittance Info</a>	11
<a href="#">5.9.1. LDAP ObjectClass Definition</a>	11
<a href="#">5.9.2. Restricted Access</a>	11
<a href="#">5.9.2.1. LDAP Attribute Definition</a>	11
<a href="#">5.9.2.2. VCard Property Definition</a>	12
<a href="#">5.9.3. Admittance Info URL</a>	12
<a href="#">5.9.3.1. LDAP Attribute Definition</a>	12
<a href="#">5.9.3.2. VCard Property Definition</a>	12
<a href="#">5.10. Accessibility</a>	13

Joy, et al.

Expires April 29, 2012

[Page 2]

<a href="#">5.10.1.</a>	LDAP Attribute Definition . . . . .	<a href="#">13</a>
<a href="#">5.10.2.</a>	VCard Property Definition . . . . .	<a href="#">13</a>
<a href="#">5.11.</a>	Capacity . . . . .	<a href="#">14</a>
<a href="#">5.11.1.</a>	LDAP Attribute Definition . . . . .	<a href="#">14</a>
<a href="#">5.11.2.</a>	VCard Property Definition . . . . .	<a href="#">14</a>
<a href="#">5.12.</a>	Inventory Info . . . . .	<a href="#">14</a>
<a href="#">5.12.1.</a>	LDAP ObjectClass Definition . . . . .	<a href="#">15</a>
<a href="#">5.12.2.</a>	Inventory List . . . . .	<a href="#">15</a>
<a href="#">5.12.2.1.</a>	LDAP Attribute Definition . . . . .	<a href="#">15</a>
<a href="#">5.12.2.2.</a>	VCard Property Definition . . . . .	<a href="#">15</a>
<a href="#">5.12.3.</a>	Inventory URL . . . . .	<a href="#">16</a>
<a href="#">5.12.3.1.</a>	LDAP Attribute Definition . . . . .	<a href="#">16</a>
<a href="#">5.12.3.2.</a>	VCard Property Definition . . . . .	<a href="#">16</a>
<a href="#">5.13.</a>	Owner . . . . .	<a href="#">16</a>
<a href="#">5.13.1.</a>	LDAP Attribute Definition . . . . .	<a href="#">17</a>
<a href="#">5.13.2.</a>	VCard Property Definition . . . . .	<a href="#">17</a>
<a href="#">5.14.</a>	Resource Manager . . . . .	<a href="#">17</a>
<a href="#">5.14.1.</a>	LDAP Attribute Definition . . . . .	<a href="#">17</a>
<a href="#">5.14.2.</a>	VCard Property Definition . . . . .	<a href="#">18</a>
<a href="#">5.15.</a>	Calendar URL . . . . .	<a href="#">18</a>
<a href="#">5.15.1.</a>	LDAP Attribute Definition . . . . .	<a href="#">18</a>
<a href="#">5.15.2.</a>	VCard Property Definition . . . . .	<a href="#">18</a>
<a href="#">5.16.</a>	FreeBusy URL . . . . .	<a href="#">18</a>
<a href="#">5.16.1.</a>	LDAP Attribute Definition . . . . .	<a href="#">19</a>
<a href="#">5.16.2.</a>	VCard Property Definition . . . . .	<a href="#">19</a>
<a href="#">5.17.</a>	Scheduling Address . . . . .	<a href="#">19</a>
<a href="#">5.17.1.</a>	LDAP Attribute Definition . . . . .	<a href="#">19</a>
<a href="#">5.17.2.</a>	VCard Property Definition . . . . .	<a href="#">19</a>
<a href="#">5.18.</a>	Time Zone . . . . .	<a href="#">20</a>
<a href="#">5.18.1.</a>	LDAP Attribute Definition . . . . .	<a href="#">20</a>
<a href="#">5.18.2.</a>	VCard Property Definition . . . . .	<a href="#">20</a>
<a href="#">5.19.</a>	Multiple Bookings . . . . .	<a href="#">20</a>
<a href="#">5.19.1.</a>	LDAP Attribute Definition . . . . .	<a href="#">20</a>
<a href="#">5.19.2.</a>	VCard Property Definition . . . . .	<a href="#">21</a>
<a href="#">5.20.</a>	Maximum Instances . . . . .	<a href="#">21</a>
<a href="#">5.20.1.</a>	LDAP Attribute Definition . . . . .	<a href="#">21</a>
<a href="#">5.20.2.</a>	VCard Property Definition . . . . .	<a href="#">21</a>
<a href="#">5.21.</a>	BookingWindow Start . . . . .	<a href="#">22</a>
<a href="#">5.21.1.</a>	LDAP Attribute Definition . . . . .	<a href="#">22</a>
<a href="#">5.21.2.</a>	VCard Property Definition . . . . .	<a href="#">23</a>
<a href="#">5.22.</a>	BookingWindow End . . . . .	<a href="#">23</a>
<a href="#">5.22.1.</a>	LDAP Attribute Definition . . . . .	<a href="#">24</a>
<a href="#">5.22.2.</a>	VCard Property Definition . . . . .	<a href="#">24</a>
<a href="#">5.23.</a>	Scheduling Approval Info . . . . .	<a href="#">24</a>
<a href="#">5.23.1.</a>	LDAP ObjectClass Definition . . . . .	<a href="#">25</a>
<a href="#">5.23.2.</a>	Auto schedule . . . . .	<a href="#">25</a>
<a href="#">5.23.2.1.</a>	LDAP Attribute Definition . . . . .	<a href="#">25</a>
<a href="#">5.23.2.2.</a>	VCard Property Definition . . . . .	<a href="#">25</a>

Joy, et al.

Expires April 29, 2012

[Page 3]

<a href="#">5.23.3.</a>	Approval Info URL . . . . .	<a href="#">26</a>
<a href="#">  5.23.3.1.</a>	LDAP Attribute Definition . . . . .	<a href="#">26</a>
<a href="#">  5.23.3.2.</a>	VCard Property Definition . . . . .	<a href="#">26</a>
<a href="#">5.23.4.</a>	Scheduling Admin Contact . . . . .	<a href="#">27</a>
<a href="#">  5.23.4.1.</a>	LDAP Attribute Definition . . . . .	<a href="#">27</a>
<a href="#">  5.23.4.2.</a>	VCard Property Definition . . . . .	<a href="#">27</a>
<a href="#">5.24.</a>	Cost . . . . .	<a href="#">27</a>
<a href="#">  5.24.1.</a>	LDAP ObjectClass Definition . . . . .	<a href="#">28</a>
<a href="#">  5.24.2.</a>	Nocost . . . . .	<a href="#">28</a>
<a href="#">    5.24.2.1.</a>	LDAP Attribute Definition . . . . .	<a href="#">28</a>
<a href="#">    5.24.2.2.</a>	VCard Property Definition . . . . .	<a href="#">28</a>
<a href="#">  5.24.3.</a>	Cost URL . . . . .	<a href="#">29</a>
<a href="#">    5.24.3.1.</a>	LDAP Attribute Definition . . . . .	<a href="#">29</a>
<a href="#">    5.24.3.2.</a>	VCard Property Definition . . . . .	<a href="#">29</a>
<a href="#">5.25.</a>	Related . . . . .	<a href="#">29</a>
<a href="#">  5.25.1.</a>	LDAP Attribute Definition . . . . .	<a href="#">30</a>
<a href="#">  5.25.2.</a>	VCard Property Definition . . . . .	<a href="#">30</a>
<a href="#">6.</a>	Examples . . . . .	<a href="#">30</a>
<a href="#">  6.1.</a>	LDAP Examples . . . . .	<a href="#">30</a>
<a href="#">    6.1.1.</a>	Location Resource . . . . .	<a href="#">30</a>
<a href="#">    6.1.2.</a>	Role Resources Group . . . . .	<a href="#">31</a>
<a href="#">  6.2.</a>	VCard Examples . . . . .	<a href="#">32</a>
<a href="#">    6.2.1.</a>	Location Resource . . . . .	<a href="#">32</a>
<a href="#">    6.2.2.</a>	Role Resources Group . . . . .	<a href="#">33</a>
<a href="#">7.</a>	Security Considerations . . . . .	<a href="#">34</a>
<a href="#">8.</a>	IANA Considerations . . . . .	<a href="#">34</a>
<a href="#">  8.1.</a>	LDAP Objectclass and Attribute Registration . . . . .	<a href="#">34</a>
<a href="#">  8.2.</a>	VCard Property and Value Registration . . . . .	<a href="#">36</a>
<a href="#">9.</a>	Recommendations for Calendaring Systems . . . . .	<a href="#">37</a>
<a href="#">10.</a>	Acknowledgments . . . . .	<a href="#">37</a>
<a href="#">11.</a>	Normative References . . . . .	<a href="#">38</a>



## **1. Introduction**

This specification defines a schema for representing resources to ease the discovery and scheduling of resources between any calendar client and server.

LDAP and vCard mappings of the schema are described in this document. The Object model chosen is the lowest common denominator to adapt for LDAP.

## **2. Conventions Used in This Document**

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [[RFC2119](#)].

## **3. General Considerations**

Data values must have valid representation for the chosen format with respect to escape characters, line folding, and so on.

## **4. Resource Object**

A resource object definition should contain all information required to find and schedule the right resource. For this, it should contain all, or a set of the attributes described in [Section 5](#). The cn attribute, described in [Section 5.1](#) MUST be present in any resource object. Additional proprietary attributes may be defined as well, but must begin with "X-". Clients encountering attributes they don't know about must ignore them.

Attributes or Properties required to contact the resource are not included in this specification. LDAP attributes defined in [[RFC4519](#)] and VCARD properties defined in vCard Format Specification [[RFC6350](#)] can be used to include contact information for the resource.

### **4.1. LDAP Resource ObjectClass Definition**

In LDAP, a resource object SHOULD be defined as an objectclass with attributes as defined in [Section 5](#). This objectClass MUST be an auxiliary class. Its Superior class is the calEntry objectClass as defined in [Section 2.4.3.1 of \[RFC2739\]](#).

Definition of the CalendarResource ObjectClass:



```
( 1.3.6.1.1.x.1.1
  NAME 'CalendarResource'
  DESC 'Calendar Resource Object Class'
  SUP calEntry
  AUXILIARY
  MUST (cn)
  MAY (kind $ nickname $ description $ ou $ categories $
        member $ uniquemember $ accessibilityurl $ capacity $
        owner $ resourcemanager $ timezoneid $
        multiplebookings $ maxinstances $
        bookingwindowstart $ bookingwindowend $
        vcarduid $ related) )
```

## 5. Resource Attributes

### 5.1. Common Name

Description:

Full name of the resource. This attribute MUST be defined for a resource object.

ValueType:

String value.

Example value:

Room One

#### 5.1.1. LDAP Attribute Definition

cn attribute as defined in [Section 2.3 of \[RFC4519\]](#). This attribute MUST be present in a CalendarResource object.

#### 5.1.2. VCard Property Definition

FN property as defined in [Section 6.2.1 of \[RFC6350\]](#).

### 5.2. Kind

Description:

The kind of object represented.

ValueType:

Some of the possible values are "Location", "Individual", "CalendarResource", or "Group".

Location is used for any physical location resource such as room, building, etc.

Individual is used for a human resource such as driver, technician, etc.

Joy, et al.

Expires April 29, 2012

[Page 6]

CalendarResource is used for any physical object that can be scheduled like projector, printer, etc.  
Group is used to specify a group of resources with a specific skill set. For example: drivers, electricians, etc.

Example value:

Location

### **5.2.1. LDAP Definition**

In LDAP, this information can be represented by including the right category objectclass.

Possible objectclasses are:

Person objectclass as defined in [Section 3.12 of \[RFC4519\]](#).

groupOfNames objectclass as defined in [Section 3.5 of \[RFC4519\]](#).

groupOfUniqueNames objectclass as defined in [Section 3.6 of \[RFC4519\]](#).

device objectclass as defined in [Section 3.4 of \[RFC4519\]](#).

room objectclass as defined in [Section 3.8 of \[RFC4524\]](#).

In the absence of an objectclass that accurately describes the type of the object, the KIND attribute defined below MUST be used.

#### **5.2.1.1. LDAP Attribute Definition**

Definition of the kind LDAP attribute:

```
( 1.3.6.1.1.x.0.1
    NAME 'Kind'
    DESC 'Kind of Object'
    EQUALITY caseIgnoreMatch
    SYNTAX 1.3.6.1.4.1.1466.115.121.1.15
    SINGLE-VALUE )
```

#### **5.2.2. VCard Property Definition**

Property KIND that specifies the kind of object represented, as defined in [Section 6.1.4 of \[RFC6350\]](#). A new value of "calendarresource" will be used to represent any physical object or device.



### **5.2.3. Mapping of KIND value between LDAP and VCard representations**

KIND Value Mapping Table:

LDAP Objectclass	VCard Value
person	individual
groupOfNames or groupOfUniqueNames	group
device	calendarresource
room	location

### **5.3. Unique ID**

Description:

A Unique Identifier.

ValueType:

Single string value.

Example value:

room1-id1

#### **5.3.1. LDAP Attribute Definition**

Definition of the vcarduid LDAP attribute:

```
( 1.3.6.1.1.x.0.1
    NAME 'VcardUid'
    DESC 'VCard UniqueID'
    EQUALITY caseExactMatch
    SYNTAX 1.3.6.1.4.1.1466.115.121.1.15
    SINGLE-VALUE )
```

#### **5.3.2. VCard Property Definition**

UID property as defined in [Section 6.7.6 of \[RFC6350\]](#).

### **5.4. Nick Name**

Description:

A short or popular name for the resource.

ValueType:

String value.



Example value:  
TheOne

#### **5.4.1. LDAP Attribute Definition**

Definition of the nickname LDAP attribute:

```
( 1.3.6.1.1.x.0.2
    NAME 'NickName'
    DESC 'Nick Name'
    EQUALITY caseIgnoreIA5Match
    SYNTAX 1.3.6.1.4.1.1466.115.121.1.26 )
```

#### **5.4.2. VCard Property Definition**

NICKNAME property as defined in [Section 6.2.3 of \[RFC6350\]](#).

### **5.5. Description**

Description:  
Description of the resource.

ValueType:  
String value.

Example value:  
Room 1 in Building X

#### **5.5.1. LDAP Attribute Definition**

description attribute as defined in [Section 2.5 of \[RFC4519\]](#).

#### **5.5.2. VCard Property Definition**

NOTE property as defined in [Section 6.7.2 of \[RFC6350\]](#).

### **5.6. Organizational Unit**

Description:  
Organizations the resource belongs to.

ValueType:  
String value.

Example value:  
EngineeringDepartment



### **5.6.1. LDAP Attribute Definition**

ou attribute as defined in [Section 2.20 of \[RFC4519\]](#).

### **5.6.2. VCard Property Definition**

ORG property as defined in [Section 6.6.4 of \[RFC6350\]](#).

## **5.7. Categories**

Description:

Categories the resource falls under or tags for easy discovery of the resource.

ValueType:

String value. Multi-valued attribute with one attribute per text value in LDAP. One or more text values separated by a COMMA character in VCard property value.

Example value:

Rooms

### **5.7.1. LDAP Attribute Definition**

Definition of the categories LDAP attribute:

```
( 1.3.6.1.1.x.0.3
    NAME 'Categories'
    DESC 'Categories'
    EQUALITY caseIgnoreIA5Match
    SYNTAX 1.3.6.1.4.1.1466.115.121.1.26 )
```

### **5.7.2. VCard Property Definition**

CATEGORIES property as defined in [Section 6.7.1 of \[RFC6350\]](#).

## **5.8. Group Member**

Description:

List of unique resources in a group of resources object.

ValueType:

URL value.

Example value:

<http://www.example.com/printer1.html>  
<http://www.example.com/printer2.html>



### **5.8.1. LDAP Attribute Definition**

member attribute as defined in [Section 2.17](#) or uniquemember attribute as defined in [Section 2.40 of \[RFC4519\]](#).

### **5.8.2. VCard Property Definition**

MEMBER property as defined in [Section 6.6.5 of \[RFC6350\]](#).

## **5.9. Admittance Info**

Description:

Information required to gain access to the resource.

ValueType:

Object value.

### **5.9.1. LDAP ObjectClass Definition**

Definition of the admittanceinfo LDAP objectclass:

```
( 1.3.6.1.1.x.1.2
    NAME 'AdmittanceInfo'
    DESC 'Calendar Resource Admittance Info Class'
    SUP CalendarResource
    AUXILIARY
    MAY (admittanceurl $ restricted) )
```

### **5.9.2. Restricted Access**

Description:

Is access to the resource restricted?

ValueType:

Boolean value.

Example value:

TRUE

### **5.9.2.1. LDAP Attribute Definition**

Definition of the restricted LDAP attribute:

```
( 1.3.6.1.1.x.0.4
    NAME 'Restricted'
    DESC 'Access Restricted'
    EQUALITY booleanMatch
    SYNTAX 1.3.6.1.4.1.1466.115.121.1.7 )
```



SINGLE-VALUE )

#### **5.9.2.2. VCard Property Definition**

Purpose: To specify if access is restricted or not.

Type value: A single boolean value.

Cardinality: (0,1)

ABNF:

```
RESTRICTEDACCESS-param = ; no parameter allowed  
RESTRICTEDACCESS-value = boolean
```

Example:

```
RESTRICTEDACCESS:TRUE
```

#### **5.9.3. Admittance Info URL**

Description:

URL pointing to complete information for accessing the resource including getting accessibility rights, special entrances, and so on.

ValueType:

URL value.

Example value:

```
http://www.example.com/room1_admittance.html
```

#### **5.9.3.1. LDAP Attribute Definition**

Definition of the admittanceurl LDAP attribute:

```
( 1.3.6.1.1.x.0.5  
  NAME 'AdmittanceURL'  
  DESC 'Cal Resource Admittance Info URL'  
  EQUALITY caseIgnoreIA5Match  
  SYNTAX 1.3.6.1.4.1.1466.115.121.1.26 )
```

#### **5.9.3.2. VCard Property Definition**

Purpose: To specify URL pointing to Admission Information.

Type value: URI.



Cardinality: (0,n)

ABNF:

```
ADMISSIONINFO-param = "VALUE=uri" / any-param
ADMISSIONINFO-value = uri
```

Example:

```
ADMISSIONINFO:http://www.example.com/room1_admittance.html
```

## [\*\*5.10. Accessibility\*\*](#)

Description:

Special resource accessibility info for the physically disabled.

ValueType:

URL value.

Example value:

```
http://www.example.com/room1_specialaccess.html
```

### [\*\*5.10.1. LDAP Attribute Definition\*\*](#)

Definition of the accessibilityurl LDAP attribute:

```
( 1.3.6.1.1.x.0.6
    NAME 'accessibilityURL'
    DESC 'Cal Resource accessibility Info URL'
    EQUALITY caseIgnoreIA5Match
    SYNTAX 1.3.6.1.4.1.1466.115.121.1.26 )
```

### [\*\*5.10.2. VCard Property Definition\*\*](#)

Purpose: To specify URL pointing to Disabled Access Information.

Type value: URI.

Cardinality: (0,n)

ABNF:

```
ACCESSIBILITYINFO-param = "VALUE=uri" / any-param
ACCESSIBILITYINFO-value = uri
```

Example:

```
ACCESSIBILITYINFO:http://www.example.com/room1_specialaccess.html
```



## 5.11. Capacity

Description:  
Capacity of the resource.

ValueType:  
Integer.

Example value:  
10

### 5.11.1. LDAP Attribute Definition

Definition of the capacity LDAP attribute:

```
( 1.3.6.1.1.x.0.7
    NAME 'Capacity'
    DESC 'Cal Resource Capacity'
    EQUALITY caseIgnoreIA5Match
    SYNTAX 1.3.6.1.4.1.1466.115.121.1.27 )
```

### 5.11.2. VCard Property Definition

Purpose: To specify Capacity Information.

Type value: integer.

Cardinality: (0,n)

ABNF:

```
CAPACITY-param = "VALUE=integer" / any-param
CAPACITY-value = integer
```

Example:  
CAPACITY:10

## 5.12. Inventory Info

Description:  
Information on resources available as part of this resource.

ValueType:  
Object value.



### [\*\*5.12.1. LDAP ObjectClass Definition\*\*](#)

Definition of the inventoryinfo LDAP attribute:

```
( 1.3.6.1.1.x.1.3
    NAME 'InventoryInfo'
    DESC 'Calendar Resource Inventory Info Class'
    SUP CalendarResource
    AUXILIARY
    MAY (inventorylist $ inventoryurl) )
```

### [\*\*5.12.2. Inventory List\*\*](#)

Description:

List of resources available as part of this resource.

ValueType:

String value. Multi-valued attribute with one attribute per text value in LDAP. One or more text values separated by a COMMA character in VCard property value.

Example value:

Printer

### [\*\*5.12.2.1. LDAP Attribute Definition\*\*](#)

Definition of the inventorylist LDAP attribute:

```
( 1.3.6.1.1.x.0.8
    NAME 'InventoryList'
    DESC 'Inventory List'
    EQUALITY caseIgnoreIA5Match
    SYNTAX 1.3.6.1.4.1.1466.115.121.1.26 )
```

### [\*\*5.12.2.2. VCard Property Definition\*\*](#)

Purpose: List the resources available as part of this resource.

Type value: One or more text values separated by a COMMA character (ASCII decimal 44).

Cardinality: (0,n)

ABNF:

```
INVENTORYLIST-param = "VALUE=text" / any-param
INVENTORYLIST-value = text
```

Joy, et al.

Expires April 29, 2012

[Page 15]

Example:

INVENTORYLIST:projector, phone

### 5.12.3. Inventory URL

Description:

A URL pointing to other resource URLs part of this resource.

ValueType:

URL value.

Example value:

[http://www.example.com/room1\\_inventory.html](http://www.example.com/room1_inventory.html)

#### 5.12.3.1. LDAP Attribute Definition

Definition of the inventoryurl LDAP attribute:

```
( 1.3.6.1.1.x.0.9
    NAME 'InventoryURL'
    DESC 'Cal Resource Inventory Info URL'
    EQUALITY caseIgnoreIA5Match
    SYNTAX 1.3.6.1.4.1.1466.115.121.1.26 )
```

#### 5.12.3.2. VCard Property Definition

Purpose: To specify URL pointing to Inventory Information.

Type value: URI.

Cardinality: (0,n)

ABNF:

```
INVENTORYURL-param = "VALUE=uri" / any-param
INVENTORYURL-value = uri
```

Example:

INVENTORYURL:[http://www.example.com/room1\\_inventory.html](http://www.example.com/room1_inventory.html)

### 5.13. Owner

Description:

Pointer to the owners of the resource. An owner is anyone who has complete authority over the resource, from naming to overall availability.



ValueType:  
  URL value.

Example value:  
[http://www.example.com/room1\\_ownerinfo.html](http://www.example.com/room1_ownerinfo.html)

#### **5.13.1. LDAP Attribute Definition**

owner attribute as defined in [Section 2.21 of \[RFC4519\]](#).

#### **5.13.2. VCard Property Definition**

Purpose: To specify URL pointing to Resource Owner. It MAY refer to something other than a vCard object.

Type value: URI.

Cardinality: (0,n)

ABNF:

```
RESOURCEOWNER-param = "VALUE=uri" / any-param  
RESOURCEOWNER-value = uri
```

Example:

RESOURCEOWNER:[http://www.example.com/room1\\_owner.vcf](http://www.example.com/room1_owner.vcf)

#### **5.14. Resource Manager**

Description:

Pointer to the managers of the resource. A manager is someone responsible for the day-to-day up keep of the resource.

ValueType:  
  URL value.

Example value:  
[http://www.example.com/room1\\_managerinfo.html](http://www.example.com/room1_managerinfo.html)

#### **5.14.1. LDAP Attribute Definition**

Definition of the resourcemanager LDAP attribute:

```
( 1.3.6.1.1.x.0.10  
  NAME 'ResourceManager'  
  DESC 'Cal Resource Manager Info'  
  EQUALITY distinguishedNameMatch  
  SYNTAX 1.3.6.1.4.1.1466.115.121.1.12 )
```



### **5.14.2. VCard Property Definition**

Purpose: To specify URL pointing to Resource Manager.

Type value: URI.

Cardinality: (0,n)

ABNF:

```
RESOURCEMANAGER-param = "VALUE=uri" / any-param  
RESOURCEMANAGER-value = uri
```

Example:

```
RESOURCEMANAGER:http://www.example.com/room1_manager.vcf
```

### **5.15. Calendar URL**

Description:

URL to access calendar data of the resource.

ValueType:

URL value.

Example value:

```
http://www.example.com/calendar/home/Room1/calendar/
```

### **5.15.1. LDAP Attribute Definition**

Calendar access attribute calCAPURI as defined in [Section 2.4.4.3](#) and calOtherCAPURIs as defined in [Section 2.4.4.7 of \[RFC2739\]](#), respectively.

### **5.15.2. VCard Property Definition**

Calendar access property CAPURI as defined in [Section 2.3.3 of \[RFC2739\]](#).

### **5.16. FreeBusy URL**

Description:

URL to read freebusy information of the resource's calendar.

ValueType:

URL value.



Example value:

`http://www.example.com/freebusy/home/Room1/`

#### **5.16.1. LDAP Attribute Definition**

Calendar access attribute calFBURL as defined in [Section 2.4.4.2](#) and calOtherFBURLs as defined in [Section 2.4.4.6 of \[RFC2739\]](#) respectively.

#### **5.16.2. VCard Property Definition**

FBURL attribute as defined in [Section 2.3.1 of \[RFC2739\]](#) and further explained in [Section 6.9.1 of \[RFC6350\]](#).

### **5.17. Scheduling Address**

Description:

Address used for scheduling the resource by a Calendaring and Scheduling service.

ValueType:

String value.

Example value:

`mailto:room1@example.com`

#### **5.17.1. LDAP Attribute Definition**

Scheduling Address attribute calCalAdrURI as defined in [Section 2.4.4.4](#) and calOtherCalAdrURIs as defined in [Section 2.4.4.8 of \[RFC2739\]](#) respectively. This is the address that would be used by a Scheduling and Calendaring application to schedule the resource. Its value must be a uri string, in most cases a mailto: uri. The mail attribute value of the resource should be used for scheduling, in the absence of this attribute.

#### **5.17.2. VCard Property Definition**

Scheduling Address property CALADRURI as defined in [Section 2.3.2 of \[RFC2739\]](#) and further explained in [Section 6.9.2 of \[RFC6350\]](#). This is the address that would be used by a Scheduling and Calendaring application to schedule the resource. Its value must be a uri string, in most cases a mailto: uri. The EMAIL property value of the resource should be used for scheduling, in the absence of this attribute.

Joy, et al.

Expires April 29, 2012

[Page 19]

## **5.18. Time Zone**

Description:

TimeZone Identifier for the timezone the resource is in.

ValueType:

String value.

Example value:

America/New\_York

### **5.18.1. LDAP Attribute Definition**

Definition of the timezoneid LDAP attribute:

```
( 1.3.6.1.1.x.0.11
    NAME 'TimeZoneID'
    DESC 'Cal Time Zone ID'
    EQUALITY caseIgnoreIA5Match
    SYNTAX 1.3.6.1.4.1.1466.115.121.1.26 )
```

### **5.18.2. VCard Property Definition**

TimeZone property TZ as defined in [Section 6.5.1 of \[RFC6350\]](#).

## **5.19. Multiple Bookings**

Description:

Number of simultaneous bookings allowed.

ValueType:

Integer value.

Value of 0 indicates no limits.

Example value:

1

### **5.19.1. LDAP Attribute Definition**

Definition of the multiplebookings LDAP attribute:

```
( 1.3.6.1.1.x.0.12
    NAME 'Multiplebookings'
    DESC 'Cal Num Bookings Allowed'
    EQUALITY integerMatch
    SYNTAX 1.3.6.1.4.1.1466.115.121.1.27
    SINGLE-VALUE )
```



### **5.19.2. VCard Property Definition**

Purpose: To specify number of simultaneous bookings allowed.

Type value: integer.

Cardinality: (0,1)

ABNF:

```
MULTIBOOK-param = "VALUE=integer" / any-param
MULTIBOOK-value = integer
```

Example:

```
MULTIBOOK:10
```

### **5.20. Maximum Instances**

Description:

Maximum number of instances of an event, the resource can be scheduled for from NOW.

ValueType:

Integer value.

Value of 0 indicates no limits.

Example value:

```
60
```

### **5.20.1. LDAP Attribute Definition**

Definition of the maxinstances LDAP attribute:

```
( 1.3.6.1.1.x.0.13
  NAME 'MaxInstances'
  DESC 'Cal Maximum Instances allowed'
  EQUALITY integerMatch
  SYNTAX 1.3.6.1.4.1.1466.115.121.1.27
  SINGLE-VALUE )
```

### **5.20.2. VCard Property Definition**

Purpose: To specify maximum number of instances of an event, the resource can be scheduled for from NOW.

Type value: integer.



Cardinality: (0,1)

ABNF:

```
MAXINSTANCES-param = "VALUE=integer" / any-param
MAXINSTANCES-value = integer
```

Example:

```
MAXINSTANCES:10
```

## [\*\*5.21. BookingWindow Start\*\*](#)

Description:

Defines how much time in advance the resource can be booked. The value of this property is used to calculate the earliest date and time when a resource can be reserved for an event starting on a specific date and time.

If this property value is defined, the resource may be booked for an event at a certain time, only if the current time is equal to or after the date and time calculated by subtracting this value from the event's proposed start time. If this property is absent, then the resource may be booked at any time before the end of the booking window.

ValueType: Duration value.

The format is based on the [[ISO.8601.2004](#)] duration representation basic format with designators for the duration of time. The format can represent nominal durations (weeks and days) and accurate durations (hours, minutes, and seconds). The syntax is further defined in [Appendix A](#), "Duration" section of [[RFC3339](#)].

Example value:

```
P3M
```

### [\*\*5.21.1. LDAP Attribute Definition\*\*](#)

Definition of the bookingwindowstart LDAP attribute:

```
( 1.3.6.1.1.x.0.14
  NAME 'BookingWindowStart'
  DESC 'Cal Booking Window Start'
  EQUALITY caseIgnoreIA5Match
  SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
  SINGLE-VALUE )
```

Joy, et al.

Expires April 29, 2012

[Page 22]

### **5.21.2. VCard Property Definition**

Purpose: To specify how much time in advance the resource can be booked.

Type value: duration.

The format is based on the [[ISO.8601.2004](#)] duration representation basic format with designators for the duration of time. The format can represent nominal durations (weeks and days) and accurate durations (hours, minutes, and seconds). The syntax is further defined in [Appendix A](#), "Duration" section of [[RFC3339](#)].

Cardinality: (0,1)

ABNF:

```
BOOKINGWINDOWSTART-param = "VALUE=text" / any-param  
BOOKINGWINDOWSTART-value = text
```

Example:

```
BOOKINGWINDOWSTART:P3M
```

### **5.22. BookingWindow End**

Description:

Defines how much time in advance the resource booking is closed. The value of this property is used to calculate the latest date and time when a resource can be reserved for an event starting on a specific date and time.

If the current time is equal to or before the value obtained by subtracting BookingWindowEnd from the start date and time of the event, then the resource may be booked. If this property is absent, then the resource may be booked anytime from booking window start to the start of the event.

BookingWindow Start and End together provide the window of time a resource can be booked, relative to the start time of the event.

```
If BookingWindowStart = BwS,  
BookingWindowEnd = BwE,  
Current Time = CT and  
Event Start Time = ST,  
a resource can be booked at a certain time only if  
CT is equal to or after (ST - BwS)  
and CT is equal to or before (ST - BwE)
```

Joy, et al.

Expires April 29, 2012

[Page 23]

Type: Duration value.

The format is based on the [[ISO.8601.2004](#)] duration representation basic format with designators for the duration of time. The format can represent nominal durations (weeks and days) and accurate durations (hours, minutes, and seconds). The syntax is further defined in [Appendix A](#), "Duration" section of [[RFC3339](#)].

Example value:

P5D

#### [\*\*5.22.1. LDAP Attribute Definition\*\*](#)

Definition of the bookingwindowend LDAP attribute:

```
( 1.3.6.1.1.x.0.15
    NAME 'BookingWindowEnd'
    DESC 'Cal Booking Window End'
    EQUALITY caseIgnoreIA5Match
    SYNTAX 1.3.6.1.4.1.1466.115.121.1.26
    SINGLE-VALUE )
```

#### [\*\*5.22.2. VCard Property Definition\*\*](#)

Purpose: To specify how much time in advance the resource booking is closed.

Type value: duration.

The format is based on the [[ISO.8601.2004](#)] duration representation basic format with designators for the duration of time. The format can represent nominal durations (weeks and days) and accurate durations (hours, minutes, and seconds). The syntax is further defined in [Appendix A](#), "Duration" section of [[RFC3339](#)].

Cardinality: (0,1)

ABNF:

```
BOOKINGWINDOWEND-param = "VALUE=text" / any-param
BOOKINGWINDOWEND-value = text
```

Example:

BOOKINGWINDOWEND:P5D

#### [\*\*5.23. Scheduling Approval Info\*\*](#)

Description:

Information regarding approval of a scheduling request to the resource.

Joy, et al.

Expires April 29, 2012

[Page 24]

ValueType:  
Object value.

### [\*\*5.23.1. LDAP ObjectClass Definition\*\*](#)

Definition of the schedapprovalinfo LDAP objectclass:

```
( 1.3.6.1.1.x.1.4
    NAME 'SchedApprovalInfo'
    DESC 'Calendar Sched Approval Class'
    SUP CalendarResource
    AUXILIARY
    MAY (autoschedule $ approvalinfourl $ schedadmin) )
```

### [\*\*5.23.2. Auto schedule\*\*](#)

Description:  
No approval required. Automatically scheduled.

ValueType:  
Boolean value.

Example value:  
TRUE

### [\*\*5.23.2.1. LDAP Attribute Definition\*\*](#)

Definition of the autoschedule LDAP attribute:

```
( 1.3.6.1.1.x.0.16
    NAME 'Autoschedule'
    DESC 'Cal Scheduling no approval required'
    EQUALITY booleanMatch
    SYNTAX 1.3.6.1.4.1.1466.115.121.1.7
    SINGLE-VALUE )
```

### [\*\*5.23.2.2. VCard Property Definition\*\*](#)

Purpose: To specify if invitations should be automatically scheduled.

Type value: Boolean.

Cardinality: (0,1)



ABNF:

```
AUTOSCHEDULE-param = "VALUE=boolean" / any-param  
AUTOSCHEDULE-value = "TRUE" / "FALSE"
```

Example:

```
AUTOSCHEDULE:TRUE
```

### 5.23.3. Approval Info URL

Description:

URL pointing to complete information on scheduling request approval process for the resource.

ValueType:

URL value.

Example value:

```
http://www.example.com/room1_approval.html
```

#### 5.23.3.1. LDAP Attribute Definition

Definition of the approvalinfourl LDAP attribute:

```
( 1.3.6.1.1.x.0.17  
  NAME 'ApprovalInfoURL'  
  DESC 'Cal Sched Approval Info'  
  EQUALITY caseIgnoreIA5Match  
  SYNTAX 1.3.6.1.4.1.1466.115.121.1.26 )
```

#### 5.23.3.2. VCard Property Definition

Purpose: To specify URL pointing to Scheduling Approval Information.

Type value: URI.

Cardinality: (0,n)

ABNF:

```
APPROVALINFO-param = "VALUE=uri" / any-param  
APPROVALINFO-value = uri
```

Example:

```
APPROVALINFO:http://www.example.com/room1_approval.html
```



#### **5.23.4. Scheduling Admin Contact**

Description:

Contact information for the scheduling approvers, if approval required.

ValueType:

URL value.

Example value:

<http://www.example.com/SchedAdmin1.vcf>

#### **5.23.4.1. LDAP Attribute Definition**

Definition of the schedadmin LDAP attribute:

```
( 1.3.6.1.1.x.0.18
    NAME 'SchedAdmin'
    DESC 'Cal Sched Admin Info'
    EQUALITY distinguishedNameMatch
    SYNTAX 1.3.6.1.4.1.1466.115.121.1.12 )
```

#### **5.23.4.2. VCard Property Definition**

Purpose: To specify URL pointing to Scheduling Manager.

Type value: URI.

Cardinality: (0,n)

ABNF:

```
SCHEADMIN-param = "VALUE=uri" / any-param
SCHEADMIN-value = uri
```

Example:

SCHEADMIN:<http://www.example.com/SchedAdmin1.vcf>

#### **5.24. Cost**

Description:

Scheduling costs for this resource.

ValueType:

Object value.



### **5.24.1. LDAP ObjectClass Definition**

Definition of the cost LDAP objectclass:

```
( 1.3.6.1.1.x.1.5
    NAME 'CalendarResourceCost'
    DESC 'Calendar Resource Cost Object Class'
    SUP CalendarResource
    AUXILIARY
    MAY (nocost $ costurl)
```

### **5.24.2. Nocost**

Description:

No cost for using the resource. Can be used for a resource scheduling query.

ValueType:

Boolean value.

Example value:

TRUE

### **5.24.2.1. LDAP Attribute Definition**

Definition of the nocost LDAP attribute:

```
( 1.3.6.1.1.x.0.19
    NAME 'Nocost'
    DESC 'Free or Priced resource'
    EQUALITY booleanMatch
    SYNTAX 1.3.6.1.4.1.1466.115.121.1.7
    SINGLE-VALUE )
```

### **5.24.2.2. VCard Property Definition**

Purpose: To specify if resource usage is free.

Type value: A single boolean value.

Cardinality: (0,1)

ABNF:

```
NOCOST-param = ; no parameter allowed
NOCOST-value = boolean
```



Example:

NOCOST:TRUE

#### 5.24.3. Cost URL

Description:

URL pointing to complete pricing information for usage of the resource.

ValueType:

URL value.

Example value:

<http://www.example.com/cost.html>

#### 5.24.3.1. LDAP Attribute Definition

Definition of the costurl LDAP attribute:

```
( 1.3.6.1.1.x.0.20
    NAME 'CostURL'
    DESC 'Cal Resource Cost Info'
    EQUALITY caseIgnoreIA5Match
    SYNTAX 1.3.6.1.4.1.1466.115.121.1.26 )
```

#### 5.24.3.2. VCard Property Definition

Purpose: To specify URL pointing Resource Scheduling Cost Information.

Type value: URI.

Cardinality: (0,n)

ABNF:

```
COSTINFO-param = "VALUE=uri" / any-param
COSTINFO-value = uri
```

Example:

COSTINFO:<http://www.example.com/cost.html>

#### 5.25. Related

Description:

Specify a relationship with another resource.



ValueType:  
  URL value.

Example value:  
  <http://www.example.com/printer1.html>

#### **5.25.1. LDAP Attribute Definition**

Definition of the related LDAP attribute:

```
( 1.3.6.1.1.x.0.21
  NAME 'Related'
  DESC 'Related URL'
  EQUALITY uniqueMemberMatch
  SYNTAX 1.3.6.1.4.1.1466.115.121.1.34 )
```

#### **5.25.2. VCard Property Definition**

The property RELATED as defined in [Section 6.6.6 of \[RFC6350\]](#).

### **6. Examples**

#### **6.1. LDAP Examples**

##### **6.1.1. Location Resource**



```
dn: cn=Room One,ou=Engineering,dc=example,dc=com
objectclass: top
objectclass: calendarresource
objectclass: admittanceinfo
objectclass: inventoryinfo
objectclass: schedapprovalinfo
objectclass: calendarresourcecost
objectclass: room
vcarduid: room1-id
cn: Room One
ou: Engineering
nickname: The One
description: Room 1 in Engineering Building X
categories: rooms
categories: engineering_resources
restricted: TRUE
admittanceurl: http://www.example.com/room1_admittance.html
accessibilityurl: http://www.example.com/room1_specialaccess.html
capacity: 100
inventorylist: phone
inventorylist: projector
inventoryurl: http://www.example.com/room1_inventory.html
owner: cn=RoomOwner,ou=Engineering,dc=example,dc=com
resourcemanager: cn=RoomOwner,ou=Engineering,dc=example,dc=com
calcapuri: http://www.example.com/calendar/home/Room1/calendar/
calfburl: http://www.example.com/freebusy/home/Room1/
calcaladruri: mailto:room1@example.com
timezoneid: America/Los_Angeles
multiplebookings: 1
maxinstances: 10
bookingwindowstart:P3M
bookingwindowend: P3D
autoschedule: FALSE
approvalinfourl: http://www.example.com/room1_approval.html
schedadmin: cn=RoomOwner,ou=Engineering,dc=example,dc=com
nocost: FALSE
costurl: http://www.example.com/cost.html
```

#### 6.1.2. Role Resources Group

Joy, et al.

Expires April 29, 2012

[Page 31]

```
dn: cn=Drivers X,ou=Transportation,dc=example,dc=com
objectclass: top
objectclass: groupOfuniqueNames
objectclass: calendarresource
objectclass: schedapprovalinfo
objectclass: calendarresourcecost
vcarduid: driversX-id
cn: Driver One
ou: Transportation
nickname: The X
description: Drivers in the Transportation department driver pool X
categories: drivers
uniquemember: cn=Driver1,ou=Transportation,dc=example,dc=com
uniquemember: cn=Driver2,ou=Transportation,dc=example,dc=com
uniquemember: cn=Driver3,ou=Transportation,dc=example,dc=com
owner: cn=Transportation_Manager,ou=Transportation,dc=example,dc=com
calfburl: http://www.example.com/freebusy/home/DriversX/
calcaladruri: mailto:driversX@example.com
timezoneid: America/Los_Angeles
multiplebookings: 3
maxinstances: 10
bookingwindowstart:P3M
bookingwindowend: P3D
autoschedule: FALSE
approvalinfourl: http://www.example.com/driversX_approval.html
schedadmin: cn=TransportationManager,ou=Transportation,dc=example,dc=com
nocost: FALSE
costurl: http://www.example.com/driversXcost.html
```

## **6.2. VCard Examples**

### **6.2.1. Location Resource**



```
BEGIN:VCARD
VERSION:4.0
UID:urn:uuid:room1-id
KIND: location
FN: Room One
ORG: Engineering
NICKNAME: The One
NOTE: Room 1 in Engineering Building X
CATEGORIES: rooms, engineering_resources
RESTRICTEDACCESS: TRUE
ADMISSIONINFO: http://www.example.com/room1_admittance.html
ACCESSIBILITYINFO: http://www.example.com/room1_specialaccess.html
CAPACITY: 100
INVENTORYLIST: phone, projector
INVENTORYURL: http://www.example.com/room1_inventory.html
RESOURCEOWNER: http://www.example.com/ResOwner1.vcf
RESOURCEMANAGER: http://www.example.com/ResManager1.vcf
CAPURI: http://www.example.com/calendar/home/Room1/calendar/
FBURL: http://www.example.com/freebusy/home/Room1/
CALADRURI: mailto:room1@example.com
TZ: America/Los_Angeles
MULTIBOOK: 1
MAXINSTANCES: 10
BOOKINGWINDOWSTART:P3M
BOOKINGWINDOWEND: P3D
AUTOSCHEDULE: FALSE
APPROVALINFO: http://www.example.com/room1_approval.html
SCHEDADMIN: http://www.example.com/SchedAdmin1.vcf
NOCOST: FALSE
COSTINFO: http://www.example.com/cost.html
END:VCARD
```

#### 6.2.2. Role Resources Group

Joy, et al.

Expires April 29, 2012

[Page 33]

```
BEGIN:VCARD
VERSION:4.0
UID:urn:uuid:driverXPool-id
KIND: group
FN: Driver X Pool
ORG: Transportation
NICKNAME: The X Group
NOTE: Drivers in the Transportation department driver pool X
CATEGORIES: drivers
MEMBER:urn:uuid:driver1-id
MEMBER:urn:uuid:driver2-id
MEMBER:urn:uuid:driver3-id
RESOURCEOWNER: http://www.example.com/DriversManager.vcf
FBURL: http://www.example.com/freebusy/home/DriversX/
CALADRURI: mailto:driversX@example.com
TZ: America/Los_Angeles
MULTIBOOK: 3
MAXINSTANCES: 10
BOOKINGWINDOWSTART:P3M
BOOKINGWINDOWEND: P3D
AUTOSCHEDULE: FALSE
APPROVALINFO: http://www.example.com/driversX_approval.html
SCHEDADMIN: http://www.example.com/DriversX_SchedAdmin.vcf
NOCOST: FALSE
COSTINFO: http://www.example.com/driversXcost.html
END:VCARD
```

## **7. Security Considerations**

As this document only defines schema for representing resource information for calendaring and scheduling and does not refer to the actual storage mechanism itself, or the calendaring and scheduling protocol, no special security considerations are required as part of this document.

## **8. IANA Considerations**

### **8.1. LDAP Objectclass and Attribute Registration**

New LDAP objectclasses and attributes defined in this document need to be registered by the Internet Assigned Numbers Authority (IANA) as requested in the following template. Once the assignment is done, this document needs to be updated with the right OID numbers for all the newly defined objectclasses and attributes.

Joy, et al.

Expires April 29, 2012

[Page 34]

Subject: Request for LDAP Descriptor Registration  
 Descriptor (short name): See table below  
 Object Identifier: See table below  
 Person & email address to contact for further information:  
     Ciny Joy <ciny.joy@oracle.com>  
 Usage: See table below  
 Specification: [draft-cal-resource-schema](#)  
 Author/Change Controller: IESG

New LDAP ObjectClass and Attributes Table:

Name	Type	Definition	OID
CalendarResource	ObjectClass	<a href="#">Section 4.1</a>	IANA-ASSIGNED-0
	s		ID
Kind	Attribute	<a href="#">Section 5.2.1.</a>	IANA-ASSIGNED-0
		1	ID
VcardUid	Attribute	<a href="#">Section 5.3.1</a>	IANA-ASSIGNED-0
			ID
NickName	Attribute	<a href="#">Section 5.4.1</a>	IANA-ASSIGNED-0
			ID
Categories	Attribute	<a href="#">Section 5.7.1</a>	IANA-ASSIGNED-0
			ID
AdmittanceInfo	ObjectClass	<a href="#">Section 5.9.1</a>	IANA-ASSIGNED-0
	s		ID
Restricted	Attribute	<a href="#">Section 5.9.2.</a>	IANA-ASSIGNED-0
		1	ID
AdmittanceURL	Attribute	<a href="#">Section 5.9.3.</a>	IANA-ASSIGNED-0
		1	ID
AccessibilityURL	Attribute	<a href="#">Section 5.10.1</a>	IANA-ASSIGNED-0
			ID
Capacity	Attribute	<a href="#">Section 5.11.1</a>	IANA-ASSIGNED-0
			ID
InventoryInfo	ObjectClass	<a href="#">Section 5.12.1</a>	IANA-ASSIGNED-0
	s		ID
InventoryList	Attribute	<a href="#">Section 5.12.2</a>	IANA-ASSIGNED-0
		.1	ID
InventoryURL	Attribute	<a href="#">Section 5.12.3</a>	IANA-ASSIGNED-0
		.1	ID
ResourceManager	Attribute	<a href="#">Section 5.14.1</a>	IANA-ASSIGNED-0
			ID
TimeZoneID	Attribute	<a href="#">Section 5.18.1</a>	IANA-ASSIGNED-0
			ID
MultipleBookings	Attribute	<a href="#">Section 5.19.1</a>	IANA-ASSIGNED-0
			ID
MaxInstances	Attribute	<a href="#">Section 5.20.1</a>	IANA-ASSIGNED-0
			ID

Joy, et al.

Expires April 29, 2012

[Page 35]

BookingWindowStar	Attribute	<a href="#">Section 5.21.1</a>	IANA-ASSIGNED-0	
t			ID	
BookingWindowEnd	Attribute	<a href="#">Section 5.22.1</a>	IANA-ASSIGNED-0	
			ID	
SchedApprovalInfo	ObjectClass	<a href="#">Section 5.23.1</a>	IANA-ASSIGNED-0	
	s		ID	
Autoschedule	Attribute	<a href="#">Section 5.23.2</a>	IANA-ASSIGNED-0	
	.1		ID	
ApprovalInfoURL	Attribute	<a href="#">Section 5.23.3</a>	IANA-ASSIGNED-0	
	.1		ID	
SchedAdmin	Attribute	<a href="#">Section 5.23.4</a>	IANA-ASSIGNED-0	
	.1		ID	
CalendarResourceCost	ObjectClass	<a href="#">Section 5.24.1</a>	IANA-ASSIGNED-0	
ost	s		ID	
Nocost	Attribute	<a href="#">Section 5.24.2</a>	IANA-ASSIGNED-0	
	.1		ID	
CostURL	Attribute	<a href="#">Section 5.24.3</a>	IANA-ASSIGNED-0	
	.1		ID	
Related	Attribute	<a href="#">Section 5.25.1</a>	IANA-ASSIGNED-0	
			ID	

## [8.2. VCard Property and Value Registration](#)

The following new VCard Properties need to be registered by IANA.

New VCard Properties Table:

VCard Property Name	VCard Property Definition
RESTRICTEDACCESS	<a href="#">Section 5.9.2.2</a>
ADMISSIONINFO	<a href="#">Section 5.9.3.2</a>
ACCESSIBILITYINFO	<a href="#">Section 5.10.2</a>
CAPACITY	<a href="#">Section 5.11.2</a>
INVENTORYLIST	<a href="#">Section 5.12.2.2</a>
INVENTORYURL	<a href="#">Section 5.12.3.2</a>
RESOURCEOWNER	<a href="#">Section 5.13.2</a>
RESOURCEMANAGER	<a href="#">Section 5.14.2</a>
MAXINSTANCE	<a href="#">Section 5.20.2</a>
BOOKINGWINDOWSTART	<a href="#">Section 5.21.2</a>
BOOKINGWINDOWEND	<a href="#">Section 5.22.2</a>
AUTOSCHEDULE	<a href="#">Section 5.23.2.2</a>
APPROVALINFO	<a href="#">Section 5.23.3.2</a>
SCHEDADMIN	<a href="#">Section 5.23.4.2</a>
NOCOST	<a href="#">Section 5.24.2.2</a>
COSTINFO	<a href="#">Section 5.24.3.2</a>

Joy, et al.

Expires April 29, 2012

[Page 36]

The following new VCard Property Values need to be registered by IANA.

New VCard Property Values Table:

VCard Property	Additional VCard Property	Value	
Name	Value	Definition	
KIND	calendarresource	<a href="#">Section 5.2.2</a>	

## **[9.](#) Recommendations for Calendaring Systems**

While this document does not mandate how each of the defined attribute values must be used by calendaring systems, here are some recommendations:

1. BookingWindow Start ([Section 5.21](#)), Booking Window End ([Section 5.22](#)), and Multiple Bookings ([Section 5.19](#)) information should be used in freebusy calculations. A query for a time slot that falls outside the booking window or one that already has the maximum allowed number of simultaneous bookings, must be returned as BUSY\_UNAVAILABLE.
2. Calendaring systems that support the auto schedule ([Section 5.23.2](#)) attribute, should automatically mark the attendee PARTSTAT for a resource as ACCEPTED, if its auto schedule value is TRUE and the scheduling is successful. If owner approval is required, the PARTSTAT could be automatically marked as TENTATIVE.
3. Information like Capacity ([Section 5.11](#)) can be used by calendaring systems to warn end users if the number of attendees exceed the capacity value.

## **[10.](#) Acknowledgments**

This specification is a result of discussions that took place within the Calendaring and Scheduling Consortium's Resource Technical Committee. The authors thank the participants of that group, and specifically the following individuals for contributing their ideas and support: Arnaud Quillaud, Adam Lewenberg, Andrew Laurence, Guy Stalnaker, Mimi Mugler, Dave Thewlis, Bernard Desruisseaux, Alain Petit, Andrew Sciberras, and Jason Miller.

Joy, et al.

Expires April 29, 2012

[Page 37]

## 11. Normative References

- [ISO.8601.2004] International Organization for Standardization, "Data elements and interchange formats -- Information interchange -- Representation of dates and times", 2004.
- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [RFC2739] Small, T., Hennessy, D., and F. Dawson, "Calendar Attributes for vCard and LDAP", [RFC 2739](#), January 2000.
- [RFC3339] Klyne, G., Ed. and C. Newman, "Date and Time on the Internet: Timestamps", [RFC 3339](#), July 2002.
- [RFC4519] Sciberras, A., "Lightweight Directory Access Protocol (LDAP): Schema for User Applications", [RFC 4519](#), June 2006.
- [RFC4524] Zeilenga, K., "COSINE LDAP/X.500 Schema", [RFC 4524](#), June 2006.
- [RFC6350] Perreault, S., "vCard Format Specification", [RFC 6350](#), August 2011.

## Authors' Addresses

Ciny Joy  
Oracle Corporation  
4210 Network Circle  
Santa Clara, CA 95054  
USA

EMail: [ciny.joy@oracle.com](mailto:ciny.joy@oracle.com)  
URI: <http://www.oracle.com/>

Cyrus Daboo  
Apple Inc.  
1 Infinite Loop  
Cupertino, CA 95014  
USA

EMail: [cyrus@daboo.name](mailto:cyrus@daboo.name)  
URI: <http://www.apple.com/>

Joy, et al.

Expires April 29, 2012

[Page 38]

Michael Douglass  
Rensselaer Polytechnic Institute  
110 8th Street  
Troy, NY 12180  
USA

EMail: douglm@rpi.edu  
URI: <http://www.rpi.edu/>