

Network Working Group	C. Joy	
Internet-Draft	Oracle	
Expires: November 1, 2010	C. Daboo	
	Apple Inc.	
	M. Douglass	
	RPI	
	April 30, 2010	

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Schema for representing resources for calendaring and scheduling services

draft-cal-resource-schema-00

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.

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1. Introduction

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

The Object model chosen is the lowest common denominator to adapt for LDAP.

2. Conventions Used in This Document

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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 [\[RFC2119\] \(Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels," March 1997.\)](#).

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3. 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 4 \(Resource Attributes\)](#). Resource Kind, described in [Section 4.1 \(Resource Kind\)](#), and Unique ID, described in [Section 4.2 \(Unique ID\)](#), 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.

This document specifies whether a given Attribute or Property is required for a query to find the right resource, or is used to just give additional information during scheduling of the resource.

Attributes or Properties required to contact the resource are not included in this specification. LDAP attributes defined in [\[RFC4519\] \(Sciberras, A., "Lightweight Directory Access Protocol \(LDAP\): Schema for User Applications," June 2006.\)](#) and VCARD properties defined in [vCard Format Specification \(Perreault, S. and P. Resnick, "vCard Format Specification," March 2010.\)](#) [I-D.ietf-vcarddav-vcardrev] can be used to include contact information for the resource.

3.1. LDAP Resource ObjectClass Definition

[TOC](#)

In LDAP, a resource object SHOULD be defined as an objectclass with attributes as defined in [Section 4 \(Resource Attributes\)](#). This objectClass MUST be an auxiliary class. Its Superior class MUST be the calEntry objectClass as defined in Section 2.4.3.1 of [\[RFC2739\] \(Small, T., Hennessy, D., and F. Dawson, "Calendar Attributes for vCard and LDAP," January 2000.\)](#)

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

[TOC](#)

4. Resource Attributes

4.1. Resource Kind

[TOC](#)

Description:

The kind of resource. Required for a meaningful resource scheduling query and MUST be defined.

ValueType:

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

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

Thing is used for any physical object that can 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

4.1.1. LDAP Attribute Definition

[TOC](#)

```
( 1.3.6.1.1.x.0.1
  NAME 'CalResourceKind'
  DESC 'Calendar Resource Kind'
  EQUALITY caseIgnoreMatch
  SYNTAX 1.3.6.1.4.1.1466.115.121.1.15
  SINGLE-VALUE )
```

4.1.2. VCard Property Definition

[TOC](#)

Property KIND that specifies the kind of objected represented, as defined in Section 6.1.5 of [\[I-D.ietf-vcarddav-vcardrev\] \(Perreault, S. and P. Resnick, "vCard Format Specification," March 2010.\)](#).

[TOC](#)

4.2. Unique ID

Description:

A Unique Identifier. Not required for a resource scheduling query but MUST be defined.

ValueType:

Single string value.

Example value:

room1-id1

4.2.1. LDAP Attribute Definition

[TOC](#)

uid attribute as defined in Section 2.39 of [\[RFC4519\] \(Sciberras, A., "Lightweight Directory Access Protocol \(LDAP\): Schema for User Applications," June 2006.\)](#).

4.2.2. VCard Property Definition

[TOC](#)

UID property as defined in Section 7.7.7 of [\[I-D.ietf-vcarddav-vcardrev\] \(Perreault, S. and P. Resnick, "vCard Format Specification," March 2010.\)](#).

4.3. Common Name

[TOC](#)

Description:

Full name of the resource. Not required for a resource scheduling query.

ValueType:

String value.

Example value:

Room One

4.3.1. LDAP Attribute Definition

[TOC](#)

cn attribute as defined in Section 2.3 of [\[RFC4519\] \(Sciberras, A., "Lightweight Directory Access Protocol \(LDAP\): Schema for User Applications," June 2006.\)](#).

4.3.2. VCard Property Definition

[TOC](#)

FN property as defined in Section 7.2.1 of [\[I-D.ietf-vcarddav-vcardrev\] \(Perreault, S. and P. Resnick, "vCard Format Specification," March 2010.\)](#).

4.4. Nick Name

[TOC](#)

Description:

A short or popular name for the resource. Not required for a resource scheduling query.

ValueType:

String value.

Example value:

TheOne

4.4.1. LDAP Attribute Definition

[TOC](#)

```
( 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 )
```

4.4.2. VCard Property Definition

[TOC](#)

NICKNAME property as defined in Section 7.2.3 of [\[I-D.ietf-vcarddav-vcardrev\] \(Perreault, S. and P. Resnick, "vCard Format Specification," March 2010.\)](#).

4.5. Description

[TOC](#)

Description:

Description of the resource. Not required for a resource scheduling query.

ValueType:
 String value.
Example value:
 Room 1 in Building X

4.5.1. LDAP Attribute Definition

[TOC](#)

description attribute as defined in Section 2.5 of [\[RFC4519\] \(Sciberras, A., "Lightweight Directory Access Protocol \(LDAP\): Schema for User Applications," June 2006.\)](#).

4.5.2. VCard Property Definition

[TOC](#)

NOTE property as defined in Section 7.7.2 of [\[I-D.ietf-vcarddav-vcardrev\] \(Perreault, S. and P. Resnick, "vCard Format Specification," March 2010.\)](#).

4.6. Organizational Unit

[TOC](#)

Description:
 Organizations the resource belongs to. Not required for a resource scheduling query.
ValueType:
 String value.
Example value:
 EngineeringDepartment

4.6.1. LDAP Attribute Definition

[TOC](#)

ou attribute as defined in Section 2.20 of [\[RFC4519\] \(Sciberras, A., "Lightweight Directory Access Protocol \(LDAP\): Schema for User Applications," June 2006.\)](#).

[TOC](#)

4.6.2. VCard Property Definition

ORG property as defined in Section 7.6.4 of [\[I-D.ietf-vcarddav-vcardrev\] \(Perreault, S. and P. Resnick, "vCard Format Specification," March 2010.\)](#).

4.7. Categories

[TOC](#)

Description:

Categories the resource falls under or tags for easy discovery of the resource. Can be used for a resource scheduling query.

ValueType:

String value.

Example value:

Rooms, EngineeringResources

4.7.1. LDAP Attribute Definition

[TOC](#)

```
( 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 )
```

4.7.2. VCard Property Definition

[TOC](#)

CATEGORIES property as defined in Section 7.7.1 of [\[I-D.ietf-vcarddav-vcardrev\] \(Perreault, S. and P. Resnick, "vCard Format Specification," March 2010.\)](#).

4.8. Group Member

[TOC](#)

Description:

List of unique resources in a group of resources object. Not required for a resource scheduling query.

ValueType:

URL value.

Example value:

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

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

4.8.1. LDAP Attribute Definition

[TOC](#)

member attribute as defined in Section 2.17 or uniquemember attribute as defined in Section 2.40 of [\[RFC4519\] \(Sciberras, A., "Lightweight Directory Access Protocol \(LDAP\): Schema for User Applications," June 2006.\)](#).

4.8.2. VCard Property Definition

[TOC](#)

MEMBER property as defined in Section 7.6.5 of [\[I-D.ietf-vcarddav-vcardrev\] \(Perreault, S. and P. Resnick, "vCard Format Specification," March 2010.\)](#).

4.9. Admittance Info

[TOC](#)

Description:

Information required to gain access to the resource.

ValueType:

Object value.

4.9.1. LDAP ObjectClass Definition

[TOC](#)

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

[TOC](#)

4.9.2. Restricted Access

Description:

Is access to the resource restricted? Can be used for a resource scheduling query.

ValueType:

Boolean value.

Example value:

True

4.9.2.1. LDAP Attribute Definition

[TOC](#)

```
( 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 )
```

4.9.2.2. VCard Property Definition

[TOC](#)

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:

RESTRICTEDACCESSS:True

4.9.3. Admittance Info URL

[TOC](#)

Description:

URL pointing to complete information for accessing the resource including getting accessibility rights, special entrances, and so on. Not required for a resource scheduling query.

ValueType:

URL value.

Example value:

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

4.9.3.1. LDAP Attribute Definition

[TOC](#)

```
( 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 )
```

4.9.3.2. VCard Property Definition

[TOC](#)

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

4.10. Accessibility

[TOC](#)

Description:

Special resource accessibility info for the physically disabled.
Not required for a resource scheduling query.

ValueType:

URL value.

Example value:

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

[TOC](#)

4.10.1. LDAP Attribute Definition

```
( 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 )
```

4.10.2. VCard Property Definition

[TOC](#)

Purpose: To specify URL pointing to Disabled Access Information.

Type value: URI.

Cardinality: (0,n)

ABNF:

ACCESSABILITYINFO-param = "VALUE=uri" / any-param

ACCESSABILITYINFO-value = uri

Example:

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

4.11. Capacity

[TOC](#)

Description:

Capacity of the resource. Can be used for a resource scheduling query.

ValueType:

Integer.

Example value:

10

4.11.1. LDAP Attribute Definition

[TOC](#)

```
( 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 )
```

4.11.2. VCard Property Definition

[TOC](#)

Purpose: To specify Capacity Information.

Type value: integer.

Cardinality: (0,n)

ABNF:

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

CAPACITY-value = integer

Example:

CAPACITY:10

4.12. Inventory Info

[TOC](#)

Description:

Information on resources available as part of this resource.

ValueType:

Object value.

4.12.1. LDAP ObjectClass Definition

[TOC](#)

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

4.12.2. Inventory List

[TOC](#)

Description:

List of resources available as part of this resource. Can be used for a resource scheduling query.

ValueType:

String value. One or more text values separated by a COMMA character.

Example value:
Printer, Projector

4.12.2.1. LDAP Attribute Definition

[TOC](#)

```
( 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 )
```

4.12.2.2. VCard Property Definition

[TOC](#)

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
```

Example:

```
INVENTORYLIST:projector, phone
```

4.12.3. Inventory URL

[TOC](#)

Description:

A URL pointing to other resource URLs related to this resource. Not required for a resource scheduling query.

ValueType:

URL value.

Example value:

```
http://www.example.com/room1_inventory.html
```

[TOC](#)

4.12.3.1. LDAP Attribute Definition

```
( 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 )
```

4.12.3.2. VCard Property Definition

[TOC](#)

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

4.13. Owner Info

[TOC](#)

Description:

Complete information on the owners of the resource. An owner is anyone who has complete authority over the resource, from naming to overall availability. Not required for a resource scheduling query.

ValueType:

URL value.

Example value:

http://www.example.com/room1_ownerinfo.html

4.13.1. LDAP Attribute Definition

[TOC](#)

owner attribute as defined in Section 2.21 of [\[RFC4519\]](#) (Sciberras, A., "Lightweight Directory Access Protocol (LDAP): Schema for User Applications," June 2006.).

4.13.2. VCard Property Definition

[TOC](#)

Purpose: To specify URL pointing to Resource Owner Information.

Type value: URI.

Cardinality: (0,n)

ABNF:

RESOURCEOWNERINFO-param = "VALUE=uri" / any-param

RESOURCEOWNERINFO-value = uri

Example:

RESOURCEOWNERINFO:http://www.example.com/room1_owner.vcf

4.14. Resource Manager Info

[TOC](#)

Description:

Information on the managers of the resource. A manager is someone responsible for the day-to-day up keep of the resource. Not required for a resource scheduling query.

ValueType:

URL value.

Example value:

http://www.example.com/room1_managerinfo.html

4.14.1. LDAP Attribute Definition

[TOC](#)

```
( 1.3.6.1.1.x.0.10
  NAME 'ResourceManager'
  DESC 'Cal Resource Manager Info'
  EQUALITY caseIgnoreIA5Match
  SYNTAX 1.3.6.1.4.1.1466.115.121.1.12 )
```

4.14.2. VCard Property Definition

[TOC](#)

Purpose: To specify URL pointing to Resource Manager Information.

Type value: URI.

Cardinality: (0,n)

ABNF:

RESOURCEMANAGERINFO-param = "VALUE=uri" / any-param

RESOURCEMANAGERINFO-value = uri

Example:

RESOURCEMANAGERINFO:http://www.example.com/
room1_manager.vcf

4.15. Calendar URL

[TOC](#)

Description:

URL to access calendar data of the resource. Not required for a resource scheduling query.

ValueType:

URL value.

Example value:

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

4.15.1. LDAP Attribute Definition

[TOC](#)

Calendar access attribute calCAPURI as defined in Section 2.4.4.3 and calOtherCAPURIs as defined in Section 2.4.4.7 of [\[RFC2739\] \(Small, T., Hennessy, D., and F. Dawson, "Calendar Attributes for vCard and LDAP," January 2000.\)](#) respectively.

4.15.2. VCard Property Definition

[TOC](#)

Calendar access property CAPURI as defined in Section 2.3.3 of [\[RFC2739\] \(Small, T., Hennessy, D., and F. Dawson, "Calendar Attributes for vCard and LDAP," January 2000.\)](#).

4.16. FreeBusy URL

[TOC](#)

Description:

URL to read freebusy information of the resource's calendar. Not required for a resource scheduling query.

ValueType:

URL value.

Example value:

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

4.16.1. LDAP Attribute Definition

[TOC](#)

Calendar access attribute calFBURL as defined in Section 2.4.4.2 and calOtherFBURLs as defined in Section 2.4.4.6 of [\[RFC2739\] \(Small, T., Hennessy, D., and F. Dawson, "Calendar Attributes for vCard and LDAP," January 2000.\)](#) respectively.

4.16.2. VCard Property Definition

[TOC](#)

FBURL attribute as defined in Section 2.3.1 of [\[RFC2739\] \(Small, T., Hennessy, D., and F. Dawson, "Calendar Attributes for vCard and LDAP," January 2000.\)](#) and further explained in Section 7.9.1 of [\[I-D.ietf-vcarddav-vcardrev\] \(Perreault, S. and P. Resnick, "vCard Format Specification," March 2010.\)](#).

4.17. Scheduling Address

[TOC](#)

Description:

Address used for scheduling the resource by a Calendaring and Scheduling service. Not required for a resource scheduling query.

ValueType:

String value.

Example value:

mailto:room1@example.com

4.17.1. LDAP Attribute Definition

[TOC](#)

Scheduling Address attribute calCalAdrURI as defined in Section 2.4.4.4 and calOtherCalAdrURIs as defined in Section 2.4.4.8 of [\[RFC2739\] \(Small, T., Hennessy, D., and F. Dawson, "Calendar Attributes for vCard and LDAP," January 2000.\)](#) 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.

4.17.2. VCard Property Definition

[TOC](#)

Scheduling Address property CALADRURI as defined in Section 2.3.2 [\[RFC2739\] \(Small, T., Hennessy, D., and F. Dawson, "Calendar Attributes for vCard and LDAP," January 2000.\)](#) and further explained in Section 7.9.2 of [\[I-D.ietf-vcarddav-vcardrev\] \(Perreault, S. and P. Resnick, "vCard Format Specification," March 2010.\)](#). 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.

4.18. Time Zone

[TOC](#)

Description:

TimeZone Identifier for the timezone the resource is in. Not required for a resource scheduling query.

ValueType:

String value.

Example value:

America/New_York

4.18.1. LDAP Attribute Definition

[TOC](#)

```
( 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 )
```

4.18.2. VCard Property Definition

[TOC](#)

TimeZone property TZ as defined in Section 7.5.1 of [\[I-D.ietf-vcarddav-vcardrev\] \(Perreault, S. and P. Resnick, "vCard Format Specification," March 2010.\)](#).

[TOC](#)

4.19. Multiple Bookings

Description:

Number of simultaneous bookings allowed. Not required for a resource scheduling query.

ValueType:

Integer value.

Value of 0 indicates no limits.

Example value:

1

4.19.1. LDAP Attribute Definition

[TOC](#)

```
( 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 )
```

4.19.2. VCard Property Definition

[TOC](#)

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

4.20. Maximum Instances

[TOC](#)

Description:

Maximum number of instances of an event, the resource can be scheduled for from NOW. Not required for a resource scheduling query.

ValueType:

Integer value.

Value of 0 indicates no limits.

Example value:

60

4.20.1. LDAP Attribute Definition

[TOC](#)

```
( 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 )
```

4.20.2. VCard Property Definition

[TOC](#)

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

4.21. BookingWindow Start

[TOC](#)

Description:

Defines how much time in advance the resource can be booked. That is, what is the earliest opportunity for booking a resource for a given date and time. Not required for a resource scheduling query.

ValueType: Duration value.

The format is based on the [\[ISO.8601.2004\]](#) ([International Organization for Standardization](#), "[Data elements and interchange formats -- Information interchange -- Representation of dates and times](#)", 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).

Example value:

-P3M

4.21.1. LDAP Attribute Definition

[TOC](#)

```
( 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 )
```

4.21.2. VCard Property Definition

[TOC](#)

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

Type value: duration.

The format is based on the [\[ISO.8601.2004\]](#)

([International Organization for Standardization](#)
[, "Data elements and interchange formats --
Information interchange -- Representation of
dates and times", 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).

Cardinality: (0,1)

ABNF:

BOOKINGSTART-param = "VALUE=text" / any-param

BOOKINGSTART-value = text

Example:

BOOKINGSTART:-P3M

4.22. BookingWindow End

[TOC](#)

Description:

Defines how much time in advance the resource booking is closed. That is, what is the latest opportunity for booking a resource for a given date or time. Not required for a resource scheduling query.

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

ValueType: Duration value.

The format is based on the [\[ISO.8601.2004\]](#)
([International Organization for Standardization](#)
, "[Data elements and interchange formats --](#)
[Information interchange -- Representation of](#)
[dates and times](#)", 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).

Example value:

-P5D

4.22.1. LDAP Attribute Definition

[TOC](#)

```
( 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 )
```

4.22.2. VCard Property Definition

[TOC](#)

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

Type value: duration.

The format is based on the [\[ISO.8601.2004\]](#)
([International Organization for Standardization](#)
, "[Data elements and interchange formats --](#)
[Information interchange -- Representation of](#)
[dates and times](#)", 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).

Cardinality: (0,1)

ABNF:

BOOKINGEND-param = "VALUE=text" / any-param

BOOKINGEND-value = text

Example:

BOOKINGEND:-P5D

4.23. Scheduling Approval Info

[TOC](#)

Description:

Information regarding approval of a scheduling request to the resource.

ValueType:

Object value.

4.23.1. LDAP ObjectClass Definition

[TOC](#)

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

4.23.2. Auto accept

[TOC](#)

Description:

No approval required. Auto accepted. Not required for a resource scheduling query.

ValueType:

Boolean value.

Example value:

True

4.23.2.1. LDAP Attribute Definition

[TOC](#)

```
( 1.3.6.1.1.x.0.16
  NAME 'Autoaccept'
  DESC 'Cal Scheduling auto accept'
  EQUALITY booleanMatch
  SYNTAX 1.3.6.1.4.1.1466.115.121.1.7 )
```

4.23.2.2. VCard Property Definition

[TOC](#)

Purpose: To specify if invitations should be automatically accepted.

Type value: Boolean.

Cardinality: (0,1)

ABNF:

AUTOACCEPT-param = "VALUE=boolean" / any-param

AUTOACCEPT-value = "TRUE" / "FALSE"

Example:

AUTOACCEPT:TRUE

4.23.3. Approval Info URL

[TOC](#)

Description:

URL pointing to complete information on scheduling request approval process for the resource. Not required for a resource scheduling query.

ValueType:

URL value.

Example value:

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

4.23.3.1. LDAP Attribute Definition

[TOC](#)

```
( 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 )
```

4.23.3.2. VCard Property Definition

[TOC](#)

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

4.23.4. Scheduling Admin Contact

[TOC](#)

Description:

Contact information for the scheduling approvers, if approval required. Not required for a resource scheduling query.

ValueType:

URL value.

Example value:

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

4.23.4.1. LDAP Attribute Definition

[TOC](#)

```
( 1.3.6.1.1.x.0.18  
  NAME 'SchedAdmin'  
  DESC 'Cal Sched Admin Info'  
  EQUALITY caseIgnoreIA5Match  
  SYNTAX 1.3.6.1.4.1.1466.115.121.1.12 )
```

4.23.4.2. VCard Property Definition

[TOC](#)

Purpose: To specify URL pointing to Scheduling Manager Information.

Type value: URI.

Cardinality: (0,n)

ABNF:

SCHEDADMININFO-param = "VALUE=uri" / any-param

SCHEDADMININFO-value = uri

Example:

SCHEDADMININFO:http://www.example.com/SchedAdmin1.vcf

4.24. Cost

[TOC](#)

Description:

Scheduling costs for this resource.

ValueType:

Object value.

4.24.1. LDAP ObjectClass Definition

[TOC](#)

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

4.24.2. Free

[TOC](#)

Description:

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

ValueType:

Boolean value.

Example value:

True

4.24.2.1. LDAP Attribute Definition

[TOC](#)

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

[TOC](#)

4.24.2.2. VCard Property Definition

Purpose: To specify if resource usage is free.

Type value: A single boolean value.

Cardinality: (0,1)

ABNF:

FREE-param = ; no parameter allowed

FREE-value = boolean

Example:

FREE:True

4.24.3. Cost URL

[TOC](#)

Description:

URL pointing to complete pricing information for usage of the resource. Not required for a resource scheduling query.

ValueType:

URL value.

Example value:

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

4.24.3.1. LDAP Attribute Definition

[TOC](#)

```
( 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 )
```

4.24.3.2. VCard Property Definition

[TOC](#)

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>

4.25. ResourceNotes

[TOC](#)

Description:

Extra information on the resource. Not required for a resource scheduling query.

ValueType:

Text value.

Example value:

This is a special resource.

4.25.1. LDAP Attribute Definition

[TOC](#)

```
( 1.3.6.1.1.x.0.21
  NAME 'ResourceNotes'
  DESC 'Cal Resource Notes'
  EQUALITY caseIgnoreIA5Match
  SYNTAX 1.3.6.1.4.1.1466.115.121.1.26 )
```

4.25.2. VCard Property Definition

[TOC](#)

NOTE property as defined in Section 6.7.2 of [\[I-D.ietf-vcarddav-vcardrev\]](#) (Perreault, S. and P. Resnick, "vCard Format Specification," March 2010.).

5. Examples

[TOC](#)

5.1. LDAP Examples

[TOC](#)

5.1.1. Location Resource

[TOC](#)

dn: cn=Room One,ou=Engineering,dc=example,dc=com
objectclass: top
objectclass: calendarresource
objectclass: admittanceinfo
objectclass: inventoryinfo
objectclass: schedapprovalinfo
objectclass: calendarresourcecost
calresourcekind: location
uid: 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
accessabilityurl: http://www.example.com/room1_specialaccess.html
capacity: 100
inventorylist: phone, projector
inventoryurl: http://www.example.com/room1_inventory.html
owner: cn=RoomOwner,ou=Engineering,dc=example,dc=com
resource manager: 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
autoaccept: false
approvalinfourl: http://www.example.com/room1_approval.html
schedadmin: cn=RoomOwner,ou=Engineering,dc=example,dc=com
free: false
costurl: http://www.example.com/cost.html
resourcenotes: This is a special resource.

dn: cn=Drivers X,ou=Transportation,dc=example,dc=com
objectclass: top
objectclass: groupOfuniqueNames
objectclass: calendarresource
objectclass: schedapprovalinfo
objectclass: calendarresourcecost
calresourcekind: group
uid: 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
autoaccept: false
approvalinfourl: http://www.example.com/driversX_approval.html
schedadmin: cn=TransportationManager,ou=Transportation,dc=example,dc=com
free: false
costurl: http://www.example.com/driversXcost.html
resourcenotes: This is Driver Pool X with three drivers.

5.2. VCard Examples

[TOC](#)

5.2.1. Location Resource

[TOC](#)

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
CATEGORIES: engineering_resources
RESTRICTED-ACCESS: true
ADMISSIONINFO: http://www.example.com/room1_admittance.html
ACCESSABILITYINFO: http://www.example.com/room1_specialaccess.html
CAPACITY: 100
INVENTORYLIST: phone, projector
INVENTORYURL: http://www.example.com/room1_inventory.html
RESOURCEOWNERINFO: http://www.example.com/ResOwner1.vcf
RESOURCEMANAGERINFO: 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
BOOKINGSTART:-P3M
BOOKINGEND: -P3D
AUTOACCEPT: false
APPROVALINFO: http://www.example.com/room1_approval.html
SCHEDADMININFO: http://www.example.com/SchedAdmin1.vcf
FREE: false
COSTINFO: http://www.example.com/cost.html
END:VCARD

5.2.2. Role Resources Group

[TOC](#)

```
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
RESOURCEOWNERINFO: 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
BOOKINGSTART:-P3M
BOOKINGEND: -P3D
AUTOACCEPT: false
APPROVALINFO: http://www.example.com/driversX_approval.html
SCHEDADMININFO: http://www.example.com/DriversX_SchedAdmin.vcf
FREE: false
COSTINFO: http://www.example.com/driversXcost.html
END:VCARD
```

6. Security Considerations

[TOC](#)

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.

7. IANA Considerations

[TOC](#)

A new IANA token 'resource', that can be used as a value representing a Resource in a VCard, as defined in [Section 4.1.2 \(VCard Property Definition\)](#) needs to be registered. In addition, the following new VCard Properties need to be registered by IANA.

New VCard Properties Table:

VCard Property Name	VCard Property Definition
RESTRICTEDACCESS	Section 4.9.2.2 (VCard Property Definition)
ADMISSIONINFO	Section 4.9.3.2 (VCard Property Definition)
SPECIALACCESS	Section 4.10.2 (VCard Property Definition)
CAPACITY	Section 4.11.2 (VCard Property Definition)
INVENTORYLIST	Section 4.12.2.2 (VCard Property Definition)
INVENTORYINFO	Section 4.12.3.2 (VCard Property Definition)
RESOURCEOWNER	Section 4.13.2 (VCard Property Definition)
RESOURCEMANAGER	Section 4.14.2 (VCard Property Definition)
MAXINSTANCE	Section 4.20.2 (VCard Property Definition)
BOOKINGSTART	Section 4.21.2 (VCard Property Definition)
BOOKINGEND	Section 4.22.2 (VCard Property Definition)
AUTOACCEPT	Section 4.23.2.2 (VCard Property Definition)
APPROVALINFO	Section 4.23.3.2 (VCard Property Definition)
APPROVERINFO	Section 4.23.4.2 (VCard Property Definition)
FREE	Section 4.24.2.2 (VCard Property Definition)
COST	Section 4.24.3.2 (VCard Property Definition)

8. Acknowledgments

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9. Normative References

[TOC](#)

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Authors' Addresses

[TOC](#)

	Ciny Joy
	Oracle Corporation
	4150 Network Circle
	Santa Clara, CA 95054
	USA
EMail:	ciny.joy@oracle.com
URI:	http://www.oracle.com/
	Cyrus Daboo
	Apple Inc.
	1 Infinite Loop
	Cupertino, CA 95014
	USA
EMail:	cyrus@daboo.name
URI:	http://www.apple.com/
	Michael Douglass
	Rensselaer Polytechnic Institute
	110 8th Street
	Troy, NY 12180
	USA
EMail:	doug1m@rpi.edu
URI:	http://www.rpi.edu/