



# WS-Calendar SOAP-based Services

## Version 1.0

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**Related work:**

This specification is related to:

- RFC 6321 – xCal: iCalendar in XML. <http://www.ietf.org/rfc/rfc6321.txt>
- *WS-Calendar Version 1.0*. Latest version.  
<http://docs.oasis-open.org/ws-calendar/ws-calendar/v1.0/ws-calendar-1.0-spec.html>

**Abstract:**

This document describes standard messages and interactions for service interactions with a system that hosts calendar-based information using SOAP. Hosted information can be either traditional personal and enterprise calendar information or services that support XML payloads developed in conformance with the WS-Calendar specification.

**Status:**

This document was last revised or approved by the OASIS Web Services Calendar (WS-Calendar) TC on the above date. The level of approval is also listed above. Check the “Latest version” location noted above for possible later revisions of this document.

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# 1 Introduction

The CalWS SOAP protocol is built upon and makes the same assumptions about structure as the Cal-DAV protocol defined in **[RFC 4791]** and related specifications. It does NOT require nor assume the Web-DAV nor CalDAV protocol.

Calendar resources, for example events and tasks are stored as named resources (files) inside special collections (folders) known as "**Calendar Collections**".

This specification can be looked upon as a layer built on top of CalDAV and defines the basic operations which allow creation, retrieval, update and deletion. In addition, query and freebusy operations are defined to allow efficient, partial retrieval of calendar data.

This does not mean that a CalWS service must be built on CalDAV, merely that a degree of conformity is established such that services built in that manner do not have a significant mismatch. It is assumed that some CalWS services will be built without any CalDAV support.

## 1.1 Terminology

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].

## 1.2 Normative References

- [RFC2119]** S. Bradner, *Key words for use in RFCs to Indicate Requirement Levels*, <http://www.ietf.org/rfc/rfc2119.txt>, IETF RFC 2119, March 1997.
- [RFC 2616]** Fielding, et al, *Hypertext Transfer Protocol -- HTTP/1.1*  
<http://tools.ietf.org/html/rfc2616>
- [RFC 4791]** Daboo, et al. *Calendar Extensions to WebDAV (CalDAV)*.  
<http://www.ietf.org/rfc/rfc4791.txt>.
- [draft caldav-sched]** Desruisseaux, et al. *CalDAV Scheduling extensions to WebDAV*  
<http://tools.ietf.org/html/draft-desruisseaux-caldav-sched-08>
- [RFC 5545]** B. Desruisseaux, *Internet Calendaring and Scheduling Core Object Specification (iCalendar)*  
<http://tools.ietf.org/html/rfc5545>
- [RFC 6321]** C. Daboo, M. Douglass, S. Lees *xCal: The XML format for iCalendar*  
<http://www.ietf.org/rfc/rfc6321.txt>
- [draft-timezones]** C. Daboo, M. Douglass: *Timezone Service Protocol*  
<http://tools.ietf.org/html/draft-douglass-timezone-service>
- [FreeBusy Read URL]** E York. *Freebusy read URL*  
<http://www.calconnect.org/pubdocs/CD0903%20Freebusy%20Read%20URL%20V1.0.pdf>
- [SOAP11]** Simple Object Access Protocol (SOAP) 1.1, 8 May 2000  
<http://www.w3.org/TR/2000/NOTE-SOAP-20000508/>
- [WSDL11]** Web Services Description Language (WSDL) 1.1, 15 March 2001  
<http://www.w3.org/TR/2001/NOTE-wsdl-20010315>
- [WS-Calendar]** *WS-Calendar Version 1.0*. 19 January 2011. OASIS Committee Specification  
<http://docs.oasis-open.org/ws-calendar/ws-calendar-spec/v1.0/cs01/ws-calendar-spec-v1.0-cs01.pdf>.

44 **1.3 Non-Normative References**

- 45 **[Web-Linking]** M. Nottingham *Web linking*  
46 <http://tools.ietf.org/html/draft-nottingham-http-link-header>
- 47 **[WS-Addr]** W3C Recommendation, Web Services Addressing 1.0 - Core, and Web Services  
48 Addressing 1.0 - SOAP Binding, 9 May 2006  
49 <http://www.w3.org/2002/ws/addr/>
- 50 **[WT-I-Basic]** Basic Profile Version 1.1, 10 April 2006  
51 <http://www.ws-i.org/Profiles/BasicProfile-1.1-2006-04-10.html>
- 52 **[WS-I-Bind]** Web Services-Interoperability Organization (WS-I) Simple SOAP Binding Profile  
53 Version 1.0, 24 August 2004  
54 <http://www.ws-i.org/Profiles/SimpleSoapBindingProfile-1.0-2004-08-24.html>

55 **1.4 Namespace**

56 XML namespaces and prefixes used in this standard:

57 Table 1-1: XML Namespaces in this standard

<i>Prefix</i>	<i>Namespace</i>
xcal	urn:ietf:params:xml:ns:icalendar-2.0
CalWS	<a href="http://docs.oasis-open.org/ws-calendar/ns/soap">http://docs.oasis-open.org/ws-calendar/ns/soap</a>

58

59



---

## 60 **2 Issues not addressed by this specification.**

61 A number of issues are not addressed by this version of the specification, either because they should be  
62 addressed elsewhere or will be addressed at some later date.

### 63 **2.1 Access Control**

64 It is assumed that the targeted server will set an appropriate level of access based on authentication. This  
65 specification will not attempt to address the issues of sharing or ACLs.

### 66 **2.2 Provisioning**

67 The protocol will not provide any explicit provisioning operations. If it is possible to authenticate or ad-  
68 dress a principals calendar resources then they **MUST** be automatically created if necessary or appropri-  
69 ate

### 70 **2.3 Copy/Move**

71 These operations are not yet defined for this version of the CalWS protocol. Both operations raise a num-  
72 ber of issues. In particular implementing a move operation through a series of retrievals, insertions and  
73 deletions may cause undesirable side-effects. Both these operations will be defined in a later version of  
74 this specification.

### 75 **2.4 Creating Collections**

76 We will not address the issue of creating collections within the address space. The initial set is created by  
77 provisioning.

### 78 **2.5 Retrieving collections**

79 This operation is currently undefined.

### 80 **2.6 Setting service and resource properties.**

81 These operations are not defined in this version of the specification. In the future it will be possible to  
82 define or set the properties for the service or resources within the service.

---

## 83 **3 CalWS Glossary**

### 84 **3.1 Calendar Object Resource**

85 A calendar object resource is an event, meeting or a task. Attachments are resources but NOT calendar  
86 object resources. An event or task with overrides is a single calendar resource entity.

### 87 **3.2 Uid**

88 The UID of an event is defined in [RFC 5545] as a "persistent, globally unique identifier for the calendar  
89 component". It is in fact, slightly more complicated in that all overrides to a recurring event have the same  
90 UID as the master event. Copies of a meeting invitation sent to attendees must also have the same UID.  
91 In this protocol the UID is the key by which we locate calendar object resources (see above) and any as-  
92 sociated overrides within a calendar collection (see below).

### 93 **3.3 Collections**

94 A collection is a set of resources which may be entities or other collections. In file systems a collection is  
95 commonly referred to as a folder. Collections are referred to by a collection id which is specific to a ser-  
96 vice and may take any form. For many systems they will be path-like.

### 97 **3.4 Calendar Collection**

98 A collection only allowed to contain calendar object resources. The UIDs for components within a calen-  
99 dar collection must be unique. The combination of a calendar collection id and the UID MUST be a unique  
100 key within a set of resources made available through this service.

### 101 **3.5 Scheduling Calendar Collection**

102 A folder only allowed to contain calendar resources which is also used for scheduling operations.  
103 Scheduling events placed in such a collection will trigger implicit scheduling activity on the server.

### 104 **3.6 Principal Home**

105 The collection under which all the resources for a given principal are stored. For example, for principal  
106 "fred" the principal home might be "/user/fred/"

### 107 **3.7 Change token**

108 This is an opaque token returned to identify the current change status of an entity. Whenever an entity is  
109 changed the token will take on a new value. An unchanged token value DOES NOT imply byte-for-byte  
110 equality with the stored entity. The service may choose to modify properties under its control, for example  
111 last-modification times. However, an entity with an unchanged token can be safely updated by a client  
112 holding that token.

---

## 113 4 Overview of the CalWS protocol

114 CalWS operations and data elements are defined in this specification. Many of the operations result in the  
115 transmission of data as defined in [RFC 5545].

116 SOAP 1.1 messages consist of three elements: an envelope, header data, and a message body. CalWS  
117 request-response elements MUST be enclosed within the SOAP message body. CalWS SOAP messages  
118 MUST conform to [WT-I-Basic] and [WS-I-Bind]. A single CalWS SOAP message MUST contain only one  
119 service request or a single service response).

120 The basic process for using SOAP for CalWS operations is:

121 A system entity acting as a CalWS requester transmits a CalWS request element within the body of a  
122 SOAP message to a system entity acting as a CalWS responder. The CalWS requester MUST NOT in-  
123 clude more than one CalWS request per SOAP message or include any additional XML elements in the  
124 SOAP body (though see Section 14 for multiple messages packaged in one request).

125 The CalWS responder MUST return either a CalWS response element within the body of another SOAP  
126 message or generate a SOAP fault. The CalWS responder MUST NOT include more than one CalWS re-  
127 sponse per SOAP message or include any additional XML elements in the SOAP body. If a CalWS re-  
128 sponder cannot, for some reason, process a CalWS request, it MUST generate a SOAP fault. (SOAP 1.1  
129 faults and fault codes are discussed in [SOAP11] section 5.1.)

### 130 4.1 Discovery

131 CalWS implementers (service providers) MUST provide a WSDL WSDL11 to describe their implementa-  
132 tions. This WSDL MAY or may not be made public via a standard discovery mechanism (such as UDDI)  
133 or other method.

134 In addition, it is REQUIRED that the CalWS implementation include the Properties operation to provide  
135 dynamic information regarding CalWS capabilities, options, etc. that are supported.

### 136 4.2 Properties

137 A service or resource will have a number of properties which describe the current state of that service or  
138 resource. These properties are accessed through the execution of a properties operation specifying the  
139 target resource. See Retrieving Collection and Service Properties below

### 140 4.3 Operations

141 The following operations are defined by this specification:

- 142 • Retrieval and update of service and resource properties
- 143 • Creation of a calendar object
- 144 • Retrieval of a single calendar object
- 145 • Multiget of one or more calendar objects
- 146 • Update of a calendar object
- 147 • Deletion of a calendar object
- 148 • Query
- 149 • Free-busy query
- 150 • Multiple operations

### 151 4.4 Calendar Object Resources

152 The same restrictions apply to Calendar Object Resources as specified in CalDAV [RFC 4791] section  
153 4.2. An additional constraint for CalWS is that no timezone specifications are transferred with the data.

### 154 4.5 Timezone information

155 It is assumed that the client and server each have access to a full set of up to date timezone information.  
156 Timezones will be referenced by a timezone identifier from the full set of Olson data together with a set of  
157 well-known aliases. CalWS services may advertise a timezone service (which may be the same service

158 acting as a timezone server) through the server properties object. The timezone service operations are  
159 defined in [draft-timezones]. The service can provide a list of timezone identifiers and aliases.

## 160 **4.6 Error conditions**

161 Each operation on the calendar system has a number of pre-conditions and post-conditions that apply. If  
162 any of these are violated the response message will have a status code indicating an error occurred and  
163 will contain an error response element providing details.

164 A "precondition" for a method describes the state of the server that must be true for that method to be  
165 performed. A "postcondition" of a method describes the state of the server that must be true after that  
166 method has been completed. Any violation of these conditions will result in an error response in the mes-  
167 sage.

168 Each method specification defines the preconditions that must be satisfied before the method can suc-  
169 ceed. A number of postconditions are generally specified which define the state that must exist after the  
170 execution of the operation. Preconditions and postconditions are defined as error elements in the CalWS-  
171 SOAP XML namespace, "http://docs.oasis-open.org/ws-calendar/ns/soap".

### 172 **4.6.1 Example: error with error condition**

```
173 <?xml version="1.0" encoding="utf-8"  
174     xmlns:CW="http://docs.oasis-open.org/ws-calendar/ns/soap" ?>  
175 <CW:error>  
176   <CW:uidConflict>  
177     <CW:href>/user/mike/calendar/abcd-0123456789.ics</CW:href>  
178   </CW:uidConflict>  
179   <CW:description>Unknown property </CW:description>  
180 </CW:error>
```

181 **5 CalWs-SOAP Messages.**

182 This section describes the common elements and structure of CalWs-SOAP messages. The conventions  
 183 followed are shown in Table 1

Header	Description	Values	Meaning
Field	Name of the field.		Prefixed with / to indicate a child-relationship Prefixed with # to indicate an attribute
Type	XML schema type		
#	Cardinality of the field	1	One occurrence
		0..1	Zero or one occurrence
		0..*	Zero or more occurrences
		1..*	One or more occurrences
?	Presence	Y	Always required
		N	Optional
		C	Conditional - dependent on the message or other conditions
Description	A short description		

184 *Table 1: Field column descriptions*

185 **5.1 Common Elements and types**

186 The following tables define the base types for requests and responses. All CalWs-SOAP messages and  
 187 responses are based on these types.

188 All requests must include an href which specifies the target for the request. There is also an id attribute  
 189 which will be copied into the response to help identify it.

Field	Type	#	?	Description
href	string	1	Y	Required in each request to identify the target of the message.
#id	int	1	N	Useful for tying responses to requests.

190 *Table 2: BaseRequestType elements*

191 A response may include an error response element of type ErrorResponse. This element will be re-  
 192 turned in response messages when some form of processing error occurs and provides further informa-  
 193 tion on the error beyond the basic status code.

Field	Type	#	?	Description
?	ErrorCodeType	1	Y	One of the error code elements defined below
description	string	0..1	N	Optional descriptive message

194 *Table 3: ErrorResponse elements*

195 **5.1.1 ErrorCodeType**

196 The following table defines the error codes that may be returned as an element of ErrorCodeType.

Field	Type	Description
forbidden	ForbiddenType	Attempted to carry out a forbidden operation.
targetExists	TargetExistsType	
targetDoesNotExist	TargetDoesNotExistType	The supplied href does not reference an existing resource.
targetNotEntity	TargetNotEntityType	The supplied href does not target an entity. For example a fetch item was attempted against a collection.
notCalendarData	NotCalendarDataType	The supplied entity is not calendar data.
invalidCalendarData	InvalidCalendarDataType	The supplied entity does not represent valid calendar data.
invalidCalendarObjectResource	InvalidCalendarObjectResourceType	The supplied entity does not represent valid calendar data.
unsupportedCalendarComponent	UnsupportedCalendarComponentType	Indicates that the calendar collection does not accept components of the type the client is attempting to store. The accepted component types can be determined by examining the calendar collection properties.
invalidCalendarCollectionLocation	InvalidCalendarCollectionLocationType	Error indicating at least one of two conditions: <ol style="list-style-type: none"> <li>1. The server does not allow the creation of calendar collections at the given location in its namespace, or</li> <li>2. The parent collection of the Request-URI exists but cannot accept members</li> </ol>
exceedsMaxResourceSize	ExceedsMaxResourceSizeType	Error indicating that the total size of the event or task is too large. The maximum size is set by the target system and can be determined from the properties.
beforeMinDateTime	BeforeMinDateTimeType	Error indicating that the start or end of an event or task is too far into the past. The minimum date is set by the target system and can be determined from the properties.
afterMaxDateTime	AfterMaxDateTimeType	Error indicating that the start or end of an event or task is too far into the future. The maximum date is set by the target system and can be determined from the properties.
tooManyInstances	TooManyInstancesType	Error indicating that a recurring event has too many instances. The maximum number is set by the target system and can be determined from the properties.
tooManyAttendeesPerInstance	TooManyAttendeesPerInstanceType	Error indicating that a scheduling message has too many attendees. The maximum number is set by the target system and can be determined from the properties.
partialSuccess	PartialSuccessType	Indicates that a MultiOpType operation was partially successful. Returned when the operation is marked as non-atomic and one or more sub-operations failed. The entire response needs to be examined to determine failing operations.
missingChangeToken	MissingChangeTokenType	An operation was attempted which required a change token but none was supplied. Note that it appears that the marshalling or demarshalling should handle this as the token is required. It doesn't.
mismatchedChangeToken	MismatchedChangeTokenType	An update operation was attempted with a change token value which does not match that held by the service. The client must refetch the entity to refresh its cached value and token. Note that matching of tokens is a server responsibility. The token is opaque to the client but prob-

Field	Type	Description
		ably structured to the server. Certain non-conflicting updates may be allowed even if the token has changed.
invalidFilter	InvalidFilterType	
uidConflict	UidConflictType	An attempt was made to store an entity which would result in more than one entity having equal uids. The entity uid must be unique within a collection. Recurring event or task overrides have the same uid and are considered part of a single entity.

197 *Table 4: ErrorCodeType definitions*

198 **5.1.2 BaseResponseType**

Field	Type	#	?	Description
#id	int	1	N	Copied over from the request
status	StatusType	1	Y	Give the overall status of the response
message	string	0..1	N	Optional explanatory message
errorResponse	ErrorCodeType	0..1	N	Required for a status of Error.

199 *Table 5: BaseResponseType elements*

## 200 6 Properties

201 The getPropertiesReponse message contains 0 or more properties defined below. Some properties apply  
202 to the service as a whole while others apply only to the targeted resource. The targeted resource may  
203 have property values which override those for the service. For example, the timezone identifier for a par-  
204 ticular collection may differ from the default timezone identifier for the system.  
205 Each property is an XML complex type based on the GetPropertiesBasePropertyType.

### 206 6.1 childCollection

207 Provides information about a child collections for the target.

Field	Type	#	?	Description
href	string	1	Y	The URI of the collection.
collection	CollectionType	1	Y	This is a collection
calendarCollection	CalendarCollectionType	0..1	C	If present this is a calendar collection

208 *Table 6: ChildCollectionType fields*

209 See resourceType for descriptions of CollectionType and Calendar CollectionType.

### 210 6.2 creationDateTime

211 This property MAY be returned for the service and SHOULD be returned for any targeted resource.

Field	Type	#	?	Description
dateTime	dateTime	1	Y	A date-time as defined in Error: Reference source not found Section 5.6.

212 *Table 7: CreationDateTimeType fields*

### 213 6.3 displayName

214 This property SHOULD be returned for any targeted resource.

Field	Type	#	?	Description
string	string	1	Y	The displayable name.

215 *Table 8: DisplayNameType fields*

### 216 6.4 lastModifiedDateTime

217 This property MAY be returned for the service and SHOULD be returned for any targeted resource.

Field	Type	#	?	Description
dateTime	dateTime	1	Y	A date-time as defined in [WS-Calendar].

218 *Table 9: LastModifiedDateTimeType fields*

### 219 6.5 maxAttendeesPerInstance

220 This property SHOULD be returned for the service and MAY be returned for any targeted collection re-  
221 source.



Field	Type	#	?	Description
integer	integer	1	Y	The maximum number of attendees allowed per event or task instance.

222 *Table 10: MaxAttendeesPerInstanceType fields*

## 223 **6.6 maxDateTime**

224 This property SHOULD be returned for the service and MAY be returned for any targeted collection resource.  
225

Field	Type	#	?	Description
dateTime	dateTime	1	Y	The maximum date and time for an event.

226 *Table 11: MaxDateTimeType fields*

## 227 **6.7 maxInstances**

228 This property SHOULD be returned for the service and MAY be returned for any targeted collection resource.  
229

Field	Type	#	?	Description
integer	integer	1	Y	The maximum number of instances for a recurring event.

230 *Table 12: MaxInstancesType fields*

## 231 **6.8 maxResourceSize**

232 This property SHOULD be returned for the service and MAY be returned for any targeted collection resource.  
233

Field	Type	#	?	Description
integer	integer	1	Y	An integer value defining the maximum size of a resource in octets that the server is willing to accept when a calendar object resource is stored in a calendar collection.

234 *Table 13: MaxResourceSizeType fields*

## 235 **6.9 minDateTime**

236 This property SHOULD be returned for the service and MAY be returned for any targeted collection resource.  
237

Field	Type	#	?	Description
dateTime	dateTime	1	Y	The minimum date and time for an event.

238 *Table 14: MinDateTimeType fields*

## 239 **6.10 principalHome**

240 This property SHOULD be returned for the service and MAY be returned for any targeted collection resource.  
241

Field	Type	#	?	Description
string	string	1	Y	The home path of the currently authenticated user.

242 *Table 15: PrincipalHomeType fields*

243 **6.11 resourceDescription**

244 Provides some descriptive text for the targeted collection.

Field	Type	#	?	Description
string	string	1	Y	The descriptive text.

245 *Table 16: ResourceDescriptionType fields*

246 **6.12 resourceOwner**

247 This property SHOULD be returned for any targeted resource.

Field	Type	#	?	Description
string	string	1	Y	The principal URL of the resource owner.

248 *Table 17: ResourceownerType fields*

249 **6.13 resourceTimezoneId**

250 This property SHOULD be returned for the service and MAY be returned for any targeted collection re-  
251 source.

Field	Type	#	?	Description
string	string	1	Y	The timezone identifier.

252 *Table 18: ResourceTimezoneIdType fields*

253 **6.14 resourceType**

254 Provides information about a targeted resource.

Field	Type	#	?	Description
href	string	1	Y	The URI of the collection.
collection	CollectionType	0..1	C	If present this is a collection
calendarCollection	CalendarCollectionType	0..1	C	If present this is a calendar collection
inbox	InboxType	0..1	C	If present this is a scheduling inbox
outbox	OutboxType	0..1	C	If present this is a scheduling outbox
inbox	InboxType	0..1	C	If present this is a scheduling inbox
xresource	XresourceType	0..1	C	If present provides further type informa- tion.

255 *Table 19: ResourceTypeType fields*

256 All the child types are empty elements with the exception of XresourceType.

Field	Type	#	?	Description
string	string	1	Y	Extra information.

257 *Table 20: XresourceType fields*

258 **6.15 supportedCalendarComponentSet**

259 This property identifies which component types the service is prepared to store. The allowable compon-  
260 ents may be different for different targets on the same service.

Field	Type	#	?	Description
Any valid iCalendar component name	xcal:BaseComponent-Type	0..n	C	One or more empty iCalendar components.

261 *Table 21: SupportedCalendarComponentSetType fields*

## 262 6.16 supportedFeatures

263 This property SHOULD be returned for the service and MAY be returned for any targeted collection re-  
264 source. The property shows what protocol features are supported by the server.

Field	Type	#	?	Description
calendarAccessFeature	CalendarAccessFeature-Type	1	Y	Indicates the service supports this protocol.

265 *Table 22: SupportedFeaturesType fields*

## 266 6.17 timezoneServer

267 This property SHOULD be returned for the service and MAY be returned for any targeted collection re-  
268 source.

Field	Type	#	?	Description
string	string	1	Y	The location of a timezone service used to retrieve timezone information and specifications. This may be an absolute URL referencing some other service or a relative URL if the current server also provides a timezone service.

269 *Table 23: TimezoneServerType fields*

## 270 6.18 CalWS:privilege-set XML element

271 <http://docs.oasis-open.org/ns/wscal/calws:privilege-set>

272 Appears within a link relation describing collections or entities and specifies the set of privileges allowed  
273 to the current authenticated principal for that collection or entity.

274 `<!ELEMENT calws:privilege-set (calws:privilege*)>`  
275 `<!ELEMENT calws:privilege ANY>`

276 Each privilege element defines a privilege or access right. The following set is currently defined

- 277 • CalWS: Read - current principal has read access
- 278 • CalWS: Write - current principal has write access

279 `<calws:privilege-set>`  
280 `<calws:privilege><calws:read></calws:privilege>`  
281 `<calws:privilege><calws:write></calws:privilege>`  
282 `</calws:privilege-set>`

## 283 7 Retrieving Collection and Service Properties

284 The CalWS-SOAP getProperties request is used to fetch properties. The href can target the service with a  
 285 path of "/" or any entity within the service.

286 The service properties define the global limits and defaults. Any properties defined on collections within  
 287 the service hierarchy override those service defaults. The service may choose to prevent such overriding  
 288 of defaults and limits when appropriate. The tables below show the fields for request and response.

Field	Type	#	?	Description
href	string	1	Y	Identify the target of the request. "/" for the service.

289 *Table 24: GetPropertiesType fields*

Field	Type	#	?	Description
href	string	1	Y	Identify the target of the request. "/" for the service.
?	GetPropertiesBasePropertyType	0..n	C	0 or more properties of the targeted resource

290 *Table 25: GetPropertiesResponseType fields*

### 291 7.1 Example - retrieving server properties:

```

292 >>Request
293
294 <?xml version="1.0" encoding="UTF-8"?>
295 <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
296   <SOAP-ENV:Header/>
297   <SOAP-ENV:Body>
298     <ns2:getProperties xmlns:ns2="http://docs.oasis-open.org/ws-calendar/ns/soap"
299       xmlns:ns3="urn:ietf:params:xml:ns:icalendar-2.0">
300       <ns2:href/></ns2:href>
301     </ns2:getProperties>
302   </SOAP-ENV:Body>
303 </SOAP-ENV:Envelope>
304
305 >>Response
306
307 <?xml version="1.0" encoding="UTF-8"?>
308 <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
309   <SOAP-ENV:Header />
310   <SOAP-ENV:Body>
311     <ns2:getPropertiesResponse
312       xmlns:ns2="http://docs.oasis-open.org/ws-calendar/ns/soap"
313       xmlns:ns4="urn:ietf:params:xml:ns:icalendar-2.0"
314       id="0" >
315       <ns2:href/></ns2:href>
316       <ns2:lastModifiedDateTime>
317         <ns2:dateTime>2012-01-04T18:21:14Z</ns2:dateTime>
318       </ns2:lastModifiedDateTime>
319       <ns2:supportedCalendarComponentSet>
320         <ns4:vevent />
321         <ns4:vtodo />
322         <ns4:vavailability />
323       </ns2:supportedCalendarComponentSet>
324       <ns2:resourceType>
325         <ns2:collection />
326       </ns2:resourceType>
327       <ns2:supportedFeatures>
328         <ns2:calendarAccessFeature />
329       </ns2:supportedFeatures>
330       <ns2:maxInstances>
331         <ns2:integer>1000</ns2:integer>

```

```
332     </ns2:maxInstances>
333     <ns2:maxResourceSize>
334         <ns2:integer>100000</ns2:integer>
335     </ns2:maxResourceSize>
336     </ns2:getPropertiesResponse>
337 </SOAP-ENV:Body>
338 </SOAP-ENV:Envelope>
339
340
```

## 341 8 Creating Calendar Object Resources

342 Creating calendar object resources is carried out by using a CalWS-SOAP addItem request targeted at  
 343 the parent collection and containing the resource to be created. The response will contain the href of the  
 344 newly created object.

345 The icalendar entity in the request MUST contain only a single calendaring entity with any related over-  
 346 rides.

Field	Type	#	?	Description
href	string	1	Y	Identify the target of the request.
icalendar	xcal:IcalendarType	1	Y	The entity to be created

347 *Table 26: AddItem fields*

348 The service will respond with an AddItemResponseType giving either the href and change token of the  
 349 new entity or an error response.

Field	Type	#	?	Description
href	string	0..1	N	Href of the new entity for a successful request.
changeToken	string	0..1	N	Change token for the new entity

350 *Table 27: AddItemResponseType additional fields*

### 351 8.1 Preconditions for Calendar Object Creation

- 352 • **CalWS:target-exists:** The entity already exists.
- 353 • **CalWS:not-calendar-data:** The resource submitted MUST be a supported media type (i.e., iCalendar)  
 354 for calendar object resources;
- 355 • **CalWS:invalid-calendar-data:** The resource submitted MUST be valid data for the media type being  
 356 specified (i.e., MUST contain valid iCalendar data);
- 357 • **CalWS:invalid-calendar-object-resource:** The resource submitted in the request MUST obey all re-  
 358 strictions specified in Calendar Object Resources (e.g., calendar object resources MUST NOT con-  
 359 tain more than one type of calendar component, calendar object resources MUST NOT specify the  
 360 iCalendar METHOD property, etc.);
- 361 • **CalWS:unsupported-calendar-component:** The resource submitted in the request MUST contain a  
 362 type of calendar component that is supported in the targeted calendar collection;
- 363 • **CalWS:uid-conflict:** The resource submitted in the request MUST NOT specify an iCalendar UID  
 364 property value already in use in the targeted calendar collection or overwrite an existing calendar  
 365 object resource with one that has a different UID property value. Servers SHOULD report the URL  
 366 of the resource that is already making use of the same UID property value in the CalWS:href ele-  
 367 ment  
 368 <!ELEMENT uid-conflict (CalWS:href)>
- 369 • **CalWS:exceeds-max-resource-size:** The resource submitted in the request MUST have an octet size  
 370 less than or equal to the value of the CalDAV:max-resource-size property value on the calendar col-  
 371 lection where the resource will be stored;
- 372 • **CalWS:before-min-date-time:** The resource submitted in the request MUST have all of its iCalendar  
 373 DATE or DATE-TIME property values (for each recurring instance) greater than or equal to the  
 374 value of the CalDAV:min-date-time property value on the calendar collection where the resource  
 375 will be stored;
- 376 • **CalWS:after-max-date-time:** The resource submitted in the request MUST have all of its iCalendar  
 377 DATE or DATE-TIME property values (for each recurring instance) less than the value of the Cal-  
 378 DAV:max-date-time property value on the calendar collection where the resource will be stored;
- 379 • **CalWS:too-many-instances:** The resource submitted in the request MUST generate a number of re-  
 380 curring instances less than or equal to the value of the CalDAV:max-instances property value on  
 381 the calendar collection where the resource will be stored;

- 382 • **CalWS:too-many-attendees-per-instance:** The resource submitted in the request MUST have a  
383 number of ATTENDEE properties on any one instance less than or equal to the value of the Cal-  
384 DAV:max-attendees-per-instance property value on the calendar collection where the resource will  
385 be stored;

## 386 8.2 Example - successful addItem:

```
387 >>Request
388
389 <?xml version="1.0" encoding="UTF-8"?>
390 <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
391   <SOAP-ENV:Header/>
392   <SOAP-ENV:Body>
393     <ns2:addItem xmlns:ns2="http://docs.oasis-open.org/ws-calendar/ns/soap"
394       xmlns:ns3="urn:ietf:params:xml:ns:icalendar-2.0">
395       <ns2:href>/user/douglm/calendar</ns2:href>
396       <ns3:icalendar>
397         <ns3:vcalendar>
398           <ns3:components>
399             <ns3:vevent>
400               <ns3:properties>
401                 <ns3:uid>
402                   <ns3:text>1302064354993</ns3:text>
403                 </ns3:uid>
404                 <ns3:summary>
405                   <ns3:text>try this</ns3:text>
406                 </ns3:summary>
407                 <ns3:dtstart>
408                   <ns3:date-time>20110406T150000Z</ns3:date-time>
409                 </ns3:dtstart>
410                 <ns3:dtend>
411                   <ns3:date-time>20110406T160000Z</ns3:date-time>
412                 </ns3:dtend>
413               </ns3:properties>
414             </ns3:vevent>
415           </ns3:components>
416         </ns3:vcalendar>
417       </ns3:icalendar>
418     </ns2:addItem>
419   </SOAP-ENV:Body>
420 </SOAP-ENV:Envelope>
421
422 >>Response
423
424 <?xml version="1.0" encoding="UTF-8"?>
425 <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
426   <SOAP-ENV:Header/>
427   <SOAP-ENV:Body>
428     <ns2:addItemResponse xmlns:ns2="http://docs.oasis-open.org/ws-calendar/ns/soap"
429       xmlns:ns3="urn:ietf:params:xml:ns:icalendar-2.0">
430       <ns2:status>OK</ns2:status>
431       <ns2:href>/user/douglm/calendar/1302064354993.ics</ns2:href>
432       <ns2:changeToken>"20110406T155741Z-0"</ns2:changeToken>
433     </ns2:addItemResponse>
434   </SOAP-ENV:Body>
435 </SOAP-ENV:Envelope>
```

## 436 9 Retrieving resources

437 Fetching calendar object resources is carried out by using a CalWS-SOAP fetchItem request with an href  
 438 specifying the entity to be fetched. The response will contain the calendaring entity with any related over-  
 439 rides.

Field	Type	#	?	Description
href	string	1	Y	Identify the target of the request.

440 *Table 28: FetchItem fields*

441 The service will respond with a FetchItemResponseType containing either the change token, its href and  
 442 the entity or an error response.

Field	Type	#	?	Description
changeToken	string	0..1	N	The change token for the fetched entity
href	string	1	Y	Identify the entity.
icalendar	xcal:IcalendarType	0..1	N	The fetched entity

443 *Table 29: FetchItemResponseType additional fields*

### 444 9.1 Example - successful fetchItem:

```

445 >>Request
446
447 <?xml version="1.0" encoding="UTF-8"?>
448 <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
449   <SOAP-ENV:Header/>
450   <SOAP-ENV:Body>
451     <ns2:fetchItem xmlns:ns2="http://docs.oasis-open.org/ws-calendar/ns/soap"
452       xmlns:ns3="urn:ietf:params:xml:ns:icalendar-2.0">
453       <ns2:href>/user/douglm/calendar/1302105461170.ics</ns2:href>
454     </ns2:fetchItem>
455   </SOAP-ENV:Body>
456 </SOAP-ENV:Envelope>
457
458 >>Response
459
460 <?xml version="1.0" encoding="UTF-8"?>
461 <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
462   <SOAP-ENV:Header/>
463   <SOAP-ENV:Body>
464     <ns2:fetchItemResponse xmlns:ns2="http://docs.oasis-open.org/ws-calendar/ns/soap"
465       xmlns:ns3="urn:ietf:params:xml:ns:icalendar-2.0">
466       <ns2:status>OK</ns2:status>
467       <ns2:changeToken>"20110406T155741Z-0"</ns2:changeToken>
468       <ns2:href>/user/douglm/calendar/1302105461170.ics</ns2:href>
469       <ns3:icalendar>
470         <ns3:vcalendar>
471           <ns3:properties>
472             <ns3:prodid>
473               <ns3:text>//Bedework.org//BedeWork V3.7//EN</ns3:text>
474             </ns3:prodid>
475             <ns3:version>
476               <ns3:text>2.0</ns3:text>
477             </ns3:version>
478           </ns3:properties>
479           <ns3:components>
480             <ns3:vevent>
481               <ns3:properties>
482                 <ns3:created>
483                   <ns3:utc-date-time>20110406T155741Z</ns3:utc-date-time>
484                 </ns3:created>
485               </ns3:properties>
486             </ns3:vevent>
487           </ns3:components>
488         </ns3:vcalendar>
489       </ns3:icalendar>
490     </ns2:fetchItemResponse>
491   </SOAP-ENV:Body>
492 </SOAP-ENV:Envelope>
  
```



```

486         <ns3:date-time>20110406T160000Z</ns3:date-time>
487         </ns3:dtend>
488         <ns3:dtstamp>
489         <ns3:utc-date-time>20110406T155741Z</ns3:utc-date-time>
490         </ns3:dtstamp>
491         <ns3:dtstart>
492         <ns3:date-time>20110406T150000Z</ns3:date-time>
493         </ns3:dtstart>
494         <ns3:last-modified>
495         <ns3:utc-date-time>20110406T155741Z</ns3:utc-date-time>
496         </ns3:last-modified>
497         <ns3:summary>
498         <ns3:text>try this</ns3:text>
499         </ns3:summary>
500         <ns3:uid>
501         <ns3:text>1302105461170</ns3:text>
502         </ns3:uid>
503         </ns3:properties>
504         </ns3:vevent>
505         </ns3:components>
506         </ns3:vcalendar>
507         </ns3:icalendar>
508         </ns2:fetchItemResponse>
509         </SOAP-ENV:Body>
510     </SOAP-ENV:Envelope>

```

## 511 9.2 Example - unsuccessful fetchItem:

```

512 >>Request
513
514 <?xml version="1.0" encoding="UTF-8"?>
515 <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
516   <SOAP-ENV:Header/>
517   <SOAP-ENV:Body>
518     <ns2:fetchItem xmlns:ns2="http://docs.oasis-open.org/ws-calendar/ns/soap"
519       xmlns:ns3="urn:ietf:params:xml:ns:icalendar-2.0">
520       <ns2:href>/user/douglm/calendar/nosuchevent.ics</ns2:href>
521     </ns2:fetchItem>
522   </SOAP-ENV:Body>
523 </SOAP-ENV:Envelope>
524
525 >>Response
526
527 <?xml version="1.0" encoding="UTF-8"?>
528 <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
529   <SOAP-ENV:Header/>
530   <SOAP-ENV:Body>
531     <ns2:fetchItemResponse xmlns:ns2="http://docs.oasis-open.org/ws-calendar/ns/soap"
532       xmlns:ns3="urn:ietf:params:xml:ns:icalendar-2.0">
533       <ns2:status>Error</ns2:status>
534       <ns2:errorResponse>
535         <ns2:targetDoesNotExist/>
536       </ns2:errorResponse>
537     </ns2:fetchItemResponse>
538   </SOAP-ENV:Body>
539 </SOAP-ENV:Envelope>

```

## 540 10 Updating resources

541 Calendar entity updates apply changes to a data model which has the form:

- 542 • An iCalendar element contains...
- 543 • a single vCalendar element which contains...
- 544 • one or more calendaring components, event, task etc each of which contain...
- 545 • zero or more components, alarms etc or one or more properties each of which contains...
- 546 • zero or more parameters and one or more values.

547 Thus we have a nested structure which does recurse to a limited extent and looks like

```

548     <icalendar>
549         <vcalendar>
550             <components>
551                 <vevent>
552                     <properties>
553                         <uid>
554                             <text>1302064354993-a</text>
555                         </uid>
556                         <summary>
557                             <text>try this</text>
558                         </summary>
559                         <dtstart>
560                             <date-time>2011-07-18T15:00:00Z</date-time>
561                         </dtstart>
562                         <dtend>
563                             <date-time>2011-07-18T16:00:00Z</date-time>
564                         </dtend>
565                     </properties>
566                 </vevent>
567             </components>
568         </vcalendar>
569     </icalendar>

```

570 The update approach described here only allows for updating a single calendar entity, though that entity  
571 may consist of more than one component, for example an override to a repeating event.

572 Resources are updated with the CalWS-SOAP `updateItem` request. The request contains the href of the  
573 entity to be updated, the current change token for that entity and the updates. The updates take the form  
574 of nested selections of an element from the current level in the data. The outermost selection is always for  
575 a vcalendar element - we ignore the icalendar element. Nested within that outer selection is one for the  
576 components element followed by selections on the entity, event, task etc and so on.

577 Only 3 kinds of update may be applied at any point:

- 578 • Remove - components, properties or parameters
- 579 • Add - components, properties or parameters
- 580 • Change - property or parameter values

581 Removals MUST be processed ahead of additions

582 Preconditions as specified in Preconditions for Calendar Object Creation are applicable. The response  
583 will indicate success or failure of the update. If the change token value does not match that held by the  
584 service a `mismatchedChangeToken` error status will be returned. The client should re-fetch the entity to  
585 refresh its cache and then retry the update based on the new entity values and change token.

Field	Type	#	?	Description
href	string	1	Y	Identify the target of the request.
changeToken	string	1	Y	The change token held by the client for that entity
select	ComponentSelection-Type	1..*	Y	Must select vcalendar

586 *Table 30: UpdateItem fields*

587 The ComponentsSelectionType contains three repeating child elements. The first allows for selection of  
 588 nested components which can then be updated. The next allows addition of entire components and the  
 589 last allows for the removal of components.

Field	Type	#	?	Description
component	ComponentSelection-Type	0..1	N	Used to match against a component in the target
remove	ComponentReference-Type	0..1	N	Supplies components to remove
add	ComponentReference-Type	0..1	N	Species components to add

590 *Table 31: ComponentsSelectionType fields*

591 The PropertiesSelectionType follows the same pattern, selecting properties to update, add or remove.

Field	Type	#	?	Description
property	PropertySelectionType	0..1	N	Used to match against a property in the target
remove	PropertyReferenceType	0..1	N	Supplies properties to remove
add	PropertyReferenceType	0..1	N	Species properties to add

592 *Table 32: PropertiesSelectionType fields*

593 To complete that pattern there is also a ParametersSelectionType used to select property parameters for  
 594 update or removal and to supply new parameters.

Field	Type	#	?	Description
parameter	ParameterSelectionType	0..1	N	Used to match against a parameter in the target
remove	ParameterReference-Type	0..1	N	Supplies parameters to remove
add	ParameterReference-Type	0..1	N	Species parameters to add

595 *Table 33: ParametersSelectionType fields*

596 Each of these refers to a reference type. These either provide a complete entity for addition or identify the  
 597 entity for removal. The three reference types are:

Field	Type	#	?	Description
Any valid iCalendar component name	xcal:BaseComponent-Type	1	Y	Either a complete component or sufficient to identify it.

598 *Table 34: ComponentReferenceType fields*

Field	Type	#	?	Description
Any valid iCalendar property name	xcal:BasePropertyType	1	Y	Either a complete property or sufficient to identify it or provide a new value, depending on usage.

599 *Table 35: PropertyReferenceType fields*

Field	Type	#	?	Description
Any valid iCalendar parameter name	xcal:BaseParameter-Type	1	Y	Either a complete parameter or sufficient to identify it or provide a new value, depending on usage.

600 *Table 36: ParameterReferenceType fields*

601 To complete the picture we have three selection types for component, property and parameter. Each of  
602 these identifies the entity to be updated, possible selections of the sub-elements and a possible change  
603 to values.

604 ComponentSelectionType contains three child elements. The first is any valid icalendar component ele-  
605 ment which is to be matched at the current level.

606 The optional properties selection allows selection and possible updates to the properties of the compon-  
607 ent. An iCalendar properties element cannot take a value so the only updates possible are addition and  
608 removal of properties. Nested properties may be selected for updates.

609 The optional components selection allows selection and possible updates to the nested icalendar com-  
610 ponents element of the component. An iCalendar components element cannot take a value so the only  
611 updates possible are addition and removal of components. Nested components may be selected for up-  
612 dates.

Field	Type	#	?	Description
Any valid iCalendar component name	xcal:VcalendarType xcal:BaseComponent-Type	1	Y	Used to match against an element in the target
properties	PropertiesSelectionType	0..1	N	To match the properties element
components	ComponentsSelection-Type	0..1	N	To match the components element

613 *Table 37: ComponentSelectionType fields*

614 PropertySelectionType contains three child elements. The first is any valid icalendar property element  
615 which is to be matched at the current level.

616 The optional parameters selection allows selection and possible updates to the parameters of the prop-  
617 erty.

618 The optional change element allows a change to the value of the property. The new value is specified by  
619 supplying an iCalendar property with the desired value(s). Any parameters will be ignored.

Field	Type	#	?	Description
Any valid iCalendar property name	xcal:BasePropertyType	1	Y	Used to match against an element in the target
parameters	ParametersSelection-Type	0..1	N	To match the parameters element
change	PropertyReferenceType	0..1	N	To provide a new value

620 *Table 38: PropertySelectionType fields*

621 Lastly, there is the ParameterSelectionType which contains two child elements. The first is any valid ical-  
622 endar parameter element which is to be matched at the current level.

623 The optional change element allows a change to the value of the parameter. The new value is specified  
624 by supplying an iCalendar parameter with the desired value(s).

Field	Type	#	?	Description
Any valid iCalendar parameter name	xcal:BaseParameter Type	1	Y	Used to match against an element in the target
change	ParameterReference-Type	0..1	N	To provide a new value

625 *Table 39: ParameterSelectionType fields*

626 For a successful update the service will respond with a UpdateItemResponseType containing the status  
627 and the new change token.

Field	Type	#	?	Description
changeToken	string	0..1	N	The new change token for the updated entity

628 Table 40: UpdateItemResponseType additional fields

629 The change token value should be used to replace the value held by the client.

## 630 10.1 Change tokens and concurrent updates

631 The change token is used to allow a service to determine whether or not it is safe to carry out an update  
632 requested by the client. The change token should be opaque to the client but will probably in fact be a  
633 structured value. Calendaring transactions have some special characteristics which make it desirable to  
634 allow certain non-conflicting updates to take place while other changes are taking place. For example,  
635 meeting requests with a large number of attendees can be frequently updated by the server as a result of  
636 attendee participation status changes. If we use an unstructured change token to represent all changes  
637 this can make it very difficult to update an event while those participation status changes are being made.  
638 If, on the other hand, the token has a section indicating that only participation status changes have been  
639 made, then other changes can take place. For a reference on implementing such a token see "Avoiding  
640 Conflicts when Updating Scheduling Object Resources" in [draft caldav-sched]. This describes the use of  
641 a schedule-tag.

## 642 10.2 Example - successful update:

643 The event to be updated is represented by the following XML.

```

644 <ns3:icalendar>
645   <ns3:vcalendar>
646     <ns3:components>
647       <ns3:vevent>
648         <ns3:properties>
649           <ns3:uid>
650             <ns3:text>1302064354993-a</ns3:text>
651           </ns3:uid>
652           <ns3:summary>
653             <ns3:text>try this</ns3:text>
654           </ns3:summary>
655           <ns3:dtstart>
656             <ns3:date-time>2011-07-18T15:00:00Z</ns3:date-time>
657           </ns3:dtstart>
658           <ns3:dtend>
659             <ns3:date-time>2011-07-18T16:00:00Z</ns3:date-time>
660           </ns3:dtend>
661         </ns3:properties>
662       </ns3:vevent>
663     </ns3:components>
664   </ns3:vcalendar>
665 </ns3:icalendar>

```

666 In the following example we make the following changes to the above event:

- 667 • Change the summary
- 668 • Change the dtstart - add a tzid and change the value to local time
- 669 • Add some categories

670 We first select an event by specifying the uid value and then, from that event, we select the properties,  
671 then select and change the appropriate properties.

```

672 >>Request
673
674 <?xml version="1.0" encoding="UTF-8"?>

```

```

675 <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
676   <SOAP-ENV:Header/>
677   <SOAP-ENV:Body>
678     <ns2:updateItem xmlns:ns2="http://docs.oasis-open.org/ws-calendar/ns/soap"
679       xmlns:ns3="urn:ietf:params:xml:ns:icalendar-2.0">
680       <ns2:href>/user/douglm/calendar/1302064354993-a.ics</ns2:href>
681       <ns2:changeToken>"20110802T032608Z-0" null</ns2:changeToken>
682       <ns2:select>
683         <ns3:vcalendar/>
684         <ns2:components>
685           <ns2:component>
686             <ns3:vevent>
687               <ns3:properties>
688                 <ns3:uid>
689                   <ns3:text>1302064354993-a</ns3:text>
690                 </ns3:uid>
691               </ns3:properties>
692             </ns3:vevent>
693           <ns2:properties>
694             <ns2:property>
695               <ns3:dtstart>
696                 <ns3:date-time>2011-07-18T15:00:00Z</ns3:date-time>
697               </ns3:dtstart>
698             <ns2:parameters>
699               <ns2:add>
700                 <ns3:tzid>
701                   <ns3:text>America/New_York</ns3:text>
702                 </ns3:tzid>
703               </ns2:add>
704             </ns2:parameters>
705             <ns2:change>
706               <ns3:dtstart>
707                 <ns3:date-time>2011-07-18T11:00:00</ns3:date-time>
708               </ns3:dtstart>
709             </ns2:change>
710           </ns2:property>
711           <ns2:property>
712             <ns3:summary>
713               <ns3:text>try this</ns3:text>
714             </ns3:summary>
715             <ns2:change>
716               <ns3:summary>
717                 <ns3:text>A changed summary - again and again and again</ns3:text>
718               </ns3:summary>
719             </ns2:change>
720           </ns2:property>
721           <ns2:add>
722             <ns3:categories>
723               <ns3:text>newcategory-2</ns3:text>
724               <ns3:text>resources</ns3:text>
725               <ns3:text>paper</ns3:text>
726             </ns3:categories>
727           </ns2:add>
728         </ns2:properties>
729       </ns2:component>
730     </ns2:components>
731   </ns2:select>
732 </ns2:updateItem>
733 </SOAP-ENV:Body>
734 </SOAP-ENV:Envelope>
735
736 >>Response
737
738 <?xml version="1.0" encoding="UTF-8"?>
739 <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
740   <SOAP-ENV:Header/>
741   <SOAP-ENV:Body>
742     <ns2:updateItemResponse xmlns:ns2="http://docs.oasis-open.org/ws-calendar/ns/soap"
743       xmlns:ns3="urn:ietf:params:xml:ns:icalendar-2.0"
744       id="0">
745       <ns2:status>OK</ns2:status>
746     </ns2:updateItemResponse>
747   </SOAP-ENV:Body>
748 </SOAP-ENV:Envelope>

```

## 749 10.3 Other updates:

750 Based on the example above we present some XML fragments for different kinds of update. These in-  
751 clude:

- 752 • Addition of properties
- 753 • Removal of properties
- 754 • Addition of parameters to properties
- 755 • Removal of parameters from properties
- 756 • Changing parameter values.

757 The examples all start with the selection of the vevent properties element. First we have the XML for the  
758 addition of a tzid to the start date/time. Here we select the dtstart, then the parameters element then add  
759 a tzid parameter and change the value of the date and time

```
760     <ns2:properties>  
761       <ns2:property>  
762         <ns3:dtstart>  
763           <ns3:date-time>2011-07-18T15:00:00Z</ns3:date-time>  
764         </ns3:dtstart>  
765         <ns2:parameters>  
766           <ns2:add>  
767             <ns3:tzid>  
768               <ns3:text>America/New_York</ns3:text>  
769             </ns3:tzid>  
770           </ns2:add>  
771         </ns2:parameters>  
772         <ns2:change>  
773           <ns3:dtstart>  
774             <ns3:date-time>2011-07-18T11:00:00</ns3:date-time>  
775           </ns3:dtstart>  
776         </ns2:change>  
777       </ns2:property>  
778     </ns2:properties>
```

779 In this example we add two categories to the event.

```
780     <ns2:properties>  
781       <ns2:add>  
782         <ns3:categories>  
783           <ns3:text>paper</ns3:text>  
784         </ns3:categories>  
785       </ns2:add>  
786       <ns2:add>  
787         <ns3:categories>  
788           <ns3:text>resources</ns3:text>  
789         </ns3:categories>  
790       </ns2:add>  
791     </ns2:properties>
```

792 In this example we add a duration and remove the dtend.

```
793     <ns2:properties>  
794       <ns2:remove>  
795         <ns3:dtend>  
796           <ns3:date-time>2011-07-18T16:00:00Z</ns3:date-time>  
797         </ns3:dtend>  
798       </ns2:remove>  
799       <ns2:add>  
800         <ns3:duration>  
801           <ns3:duration>PT1H</ns3:duration>  
802         </ns3:duration>  
803       </ns2:add>  
804     </ns2:properties>
```

805 In this example we change the dtstart timezone identifier.

```
806     <ns2:properties>  
807       <ns2:property>  
808         <ns3:dtstart>  
809           <ns3:parameters>  
810             <ns3:tzid>  
811               <ns3:text>America/New_York</ns3:text>  
812             </ns3:tzid>  
813           </ns3:parameters>  
814           <ns3:date-time>2011-07-18T11:00:00</ns3:date-time>  
815         </ns3:dtstart>  
816       </ns2:property>  
817     </ns2:properties>
```

```
818     <ns3:tzid>
819         <ns3:text>America/New_York</ns3:text>
820     </ns3:tzid>
821     <ns2:change>
822         <ns3:tzid>
823             <ns3:text>America/Montreal</ns3:text>
824         </ns3:tzid>
825     </ns2:change>
826 </ns2:parameter>
827 </ns2:parameters>
828 </ns2:property>
829 </ns2:properties>
830
```

## 831 **10.4 Creating an update message.**

832 The update can be created in many ways but the most common approach is to build the update while  
833 modifications take place or to create one as the result of comparing old and new versions. It appears that  
834 comparing XML for differences is difficult. However, we can take advantage of the structure of calendar-  
835 ing entities to simplify the process. There are implementations available which take the diff approach to  
836 producing an update stream.

837 There are some special cases to consider when comparing. Some properties are multi-valued and may  
838 themselves appear more than once. There is no semantic information implied by any grouping though  
839 parameters may need to be taken into account. These properties need to be normalized before compar-  
840 ison and when updating them we produce a change which treats each value as a single property.

841 These properties are

- 842 • categories
- 843 • exdate
- 844 • freebusy
- 845 • rdate

846 This normalization can take place before comparison.

847 Some properties are multi-valued and may only appear once. At the moment the only standard property is  
848 resource which may take a comma separated list. This should be treated as a single multi-valued property  
849 when comparing. The order is unimportant. Sorting the values may help.

850 Some properties may appear multiple times, for example comment. Comparison should take account of  
851 parameters. Ordering all properties appropriately allows for relatively simple comparison.



## 852 11 Deletion of resources

853 Deletion of calendar object resources is carried out by using a CalWS-SOAP deleteItem request with an  
854 href specifying the entity to be deleted. The deleteItem request is not valid when the href specifies a col-  
855 lection.

Field	Type	#	?	Description
href	string	1	Y	Identify the target of the request.

856 *Table 41: DeleteItem fields*

857 The service will respond with a DeleteItemResponseType containing the status and a possible error re-  
858 sponse. There are no additional elements.

### 859 11.1 Example - successful deleteItem:

```
860 >>Request
861
862 <?xml version="1.0" encoding="UTF-8"?>
863 <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
864   <SOAP-ENV:Header/>
865   <SOAP-ENV:Body>
866     <ns2:deleteItem xmlns:ns2="http://docs.oasis-open.org/ws-calendar/ns/soap"
867       xmlns:ns3="urn:ietf:params:xml:ns:icalendar-2.0">
868       <ns2:href>/user/douglm/calendar/1302620814655.ics</ns2:href>
869     </ns2:deleteItem>
870   </SOAP-ENV:Body>
871 </SOAP-ENV:Envelope>
872
873 >>Response
874
875 <?xml version="1.0" encoding="UTF-8"?>
876 <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
877   <SOAP-ENV:Header/>
878   <SOAP-ENV:Body>
879     <ns2:deleteItemResponse xmlns:ns2="http://docs.oasis-open.org/ws-calendar/ns/soap"
880       xmlns:ns3="urn:ietf:params:xml:ns:icalendar-2.0">
881       <ns2:status>OK</ns2:status>
882     </ns2:deleteItemResponse>
883   </SOAP-ENV:Body>
884 </SOAP-ENV:Envelope>
```

### 885 11.2 Example - unsuccessful deleteItem:

```
886 >>Request
887
888 <?xml version="1.0" encoding="UTF-8"?>
889 <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
890   <SOAP-ENV:Header/>
891   <SOAP-ENV:Body>
892     <ns2:deleteItem xmlns:ns2="http://docs.oasis-open.org/ws-calendar/ns/soap"
893       xmlns:ns3="urn:ietf:params:xml:ns:icalendar-2.0">
894       <ns2:href>/user/douglm/calendar/nosuchevent.ics</ns2:href>
895     </ns2:deleteItem>
896   </SOAP-ENV:Body>
897 </SOAP-ENV:Envelope>
898
899 >>Response
900
901 <?xml version="1.0" encoding="UTF-8"?>
902 <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
903   <SOAP-ENV:Header/>
904   <SOAP-ENV:Body>
905     <ns2:deleteItemResponse xmlns:ns2="http://docs.oasis-open.org/ws-calendar/ns/soap"
906       xmlns:ns3="urn:ietf:params:xml:ns:icalendar-2.0">
907       <ns2:status>Error</ns2:status>
908     <ns2:errorResponse>
```

```
909     <ns2:targetDoesNotExist/>
910   </ns2:errorResponse>
911 </ns2:deleteItemResponse>
912 </SOAP-ENV:Body>
913 </SOAP-ENV:Envelope>
```

## 914 12 Querying calendar resources

915 Querying provides a mechanism by which information can be obtained from the service through possibly  
916 complex queries. A skeleton icalendar entity can be provided to limit the amount of information returned to  
917 the client. A query takes the parts

- 918 • Limitations on the data returned
- 919 • Selection of the data
- 920 • Optional timezone id for floating time calculations.

### 921 12.1 Calendar Query common types

922 The UTCTimeRangeType is used in a number of places to define a time range within which components  
923 must appear or property values must lie. The values are UTC time-date, the start is inclusive and the end  
924 is exclusive.

Field	Type	#	?	Description
start	UTC date-time	1	Y	UTC inclusive start
end	UTC date-time	1	Y	UTC exclusive end

925 *Table 42: UTCTimeRangeType elements*

926 The TextMatchType is used to match text values in properties and parameters. The collation attribute  
927 species a collation as defined in Error: Reference source not found.

928 Servers are REQUIRED to support the "i;ascii-casemap" and "i;octet" collations which provide a basic  
929 case insensitive and case sensitive match respectively.

930 Elements of this type take a string value which is matched according to the attributes.

Field	Type	#	?	Description
#collation	String	0..1	N	Collation name from Error: Reference source not found. "
#negate-condition	boolean	0..1	N	if "true" negates the condition

931 *Table 43: TextMatchType attributes*

### 932 12.2 CompFilterType

933 This type defines a search query for the calendar query operation. It specifies the component types to re-  
934 turn, absence tests or basic matching operations on properties and time ranges.

935 The top level comp-filter element (which must match a vcalendar component may contain zero or more  
936 comp-filter elements to match events, tasks or other contained components. These in turn may contain  
937 further nested comp-filter elements to match further levels of nested components.

938 Each may also contain prop-filter elements to test for the absence of properties or to match values.

939 Only logical conjunctions are supported, that is, all elements of a comp-filter must match for the expres-  
940 sion to match.

Field	Type	#	?	Description
anyComp	AnyCompType	0..1	C	One of anyComp, vcalendar or a BaseComponentType must be supplied. anyComp indicates that any component will match.
xcal:vcalendar	xcal:VcalendarType	0..1	C	Matches vcalendar at the top level. Must be provided
xcal:baseComponent	xcal:BaseComponentType	0..1	C	May be vevent or vtodo for example.
#test	String	0..1	N	"anyof" is a logical OR of the child elements. "allof" is a logical AND of the child elements.
is-not-defined	empty	0..1	N	Only this element or one or more of time-range, prop-filter or comp-filter may be present
time-range	UTCTimeRangeType	0..1	N	
comp-filter	CompFilterType	1	Y	Match against contained components
prop-filter	PropFilterType	0..n	N	Match against component properties

941 *Table 44: CompFilterType elements*

## 942 12.3 PropFilterType

943 The prop-filter element may test for the absence of a property or match values or specify zero or more  
944 ParamFilterType elements to match against parameters.

945 Only logical conjunctions are supported, that is, all elements must match for the full expression to match.

Field	Type	#	?	Description
xcal:baseProperty	xcal:BasePropertyType	1	Y	Specifies the property to be matched.
#test	String	0..1	N	"anyof" is a logical OR of the child elements. "allof" is a logical AND of the child elements.
is-not-defined	empty	0..1	N	Only this element or optionally one of time-range or text-match followed by param-filter
time-range	UTCTimeRangeType	0..1	N	
text-match	TextMatchtype	0..1	N	
param-filter	ParamFilterType	0..n	N	Match against property parameters

946 *Table 45: PropFilterType elements*

## 947 12.4 ParamFilterType

948 The ParamFilterType element may test for the absence of a parameter or match a value.

Field	Type	#	?	Description
xcal:baseParameter	xcal:BaseParameterType	1	Y	Specifies the parameter to be matched.
is-not-defined	empty	0..1	N	Only this element or text-match
text-match	TextMatchtype	0..1	N	

949 *Table 46: ParamFilterType elements*

950 **12.5 CalendarQueryType elements**

Field	Type	#	?	Description
href	string	1	Y	Identify the target of the request. "/" for the service.
allprop	empty	0..1	N	If present specifies all properties should be returned One or none of allprop or icalendar
xcal:icalendar	xcal:IcalendarType	0..1	N	If present is a valueless icalendar skeleton entity defining which components and properties should be returned. If present allprop must NOT be present.
expand	ExpandType	0..1	N	A subclass of UTCTimeRangeType. Either expand or limitRecurrenceSet may be specified but not both. If specified recurring events are expanded and limited to the supplied time-range. All events times are converted to UTC. This option allows for simplified event handling for certain classes of client.
limitRecurrenceSet	LimitRecurrenceSetType	0..1	N	A subclass of UTCTimeRangeType. Either expand or limitRecurrenceSet may be specified but not both. If specified only overrides that fall within the specified time-range are returned. This helps to limit the size of the result-set when there are many overrides.
depth	String	0..1	N	Species depth for query. "1" => just targeted collection, "infinity" => query targeted and all sub-collections.
filter	FilterType	1	Y	Defines the search filter
/comp-filter	CompFilterType	1	Y	Defines the top-level component

951 *Table 47: CalendarQueryType elements*

952 **12.6 Specifying data to be returned**

953 This is achieved by specifying one of the following

- 954 • allprop: return all properties and calendar data. (some properties are specified as not being part of the allprop set so are not returned)
- 955
- 956 • Set the icalendar element. This is an icalendar valueless pattern entity which provides a map of the components and properties to be returned. Neither the pattern nor the returned result need to be valid icalendar entities in that required properties may be absent if unselected.
- 957
- 958

959 **12.7 Pre/postconditions for calendar queries**

960 The preconditions as defined in [RFC 4791] Section 7.8 apply here. CalWS errors may be reported by the service when preconditions or postconditions are violated.

962 **12.8 Time range limited queries.**

963 Time-range limited retrieval has some special characteristics. The simplest case is a single event or task which overlaps the requested time-period. Recurring items and other components such as alarms complicate the picture.

## 966 12.9 Example: time range limited retrieval

967 This example shows the time-range limited retrieval from a calendar which results in 2 events, one a re-  
968 ccurring event and one a simple non-recurring event.

```
969 >> Request <<
970
971 <?xml version="1.0" encoding="UTF-8"?>
972 <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
973   <SOAP-ENV:Header/>
974   <SOAP-ENV:Body>
975     <ns2:calendarQuery xmlns:ns2="http://docs.oasis-open.org/ws-calendar/ns/soap"
976       xmlns:ns3="urn:ietf:params:xml:ns:icalendar-2.0">
977       <ns2:href>/user/douglm/calendar</ns2:href>
978       <ns3:icalendar>
979         <ns3:vcalendar>
980           <ns3:components>
981             <ns3:vevent>
982               <ns3:properties>
983                 <ns3:summary/>
984                 <ns3:dtstart/>
985                 <ns3:dtend/>
986                 <ns3:duration/>
987                 <ns3:uid/>
988                 <ns3:recurrence-id/>
989                 <ns3:rrule/>
990                 <ns3:rdate/>
991                 <ns3:exdate/>
992               </ns3:properties>
993             </ns3:vevent>
994           </ns3:components>
995         </ns3:vcalendar>
996       </ns3:icalendar>
997       <ns2:filter>
998         <ns2:compFilter test="anyof">
999           <ns3:vcalendar />
1000         </ns2:compFilter>
1001         <ns3:vevent />
1002         <ns2:time-range end="20110430T040000Z" start="20110401T040000Z"/>
1003       </ns2:compFilter>
1004     </ns2:filter>
1005   </ns2:calendarQuery>
1006 </SOAP-ENV:Body>
1007 </SOAP-ENV:Envelope>
1008
1009 >> Response <<
1010
1011 <?xml version="1.0" encoding="UTF-8"?>
1012 <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
1013   <SOAP-ENV:Header/>
1014   <SOAP-ENV:Body>
1015     <ns2:calendarQueryResponse
1016       xmlns:ns2="http://docs.oasis-open.org/ws-calendar/ns/soap"
1017       xmlns:ns3="urn:ietf:params:xml:ns:icalendar-2.0">
1018       <ns2:status>OK</ns2:status>
1019       <ns2:response>
1020         <ns2:href>/user/douglm/calendar/1302105461170.ics</ns2:href>
1021         <ns2:changeToken>"20110406T155741Z-0"</ns2:changeToken>
1022         <ns2:propstat>
1023           <ns2:prop>
1024             <ns2:calendar-data content-type="application/xml+calendar" version="2.0">
1025               <ns3:icalendar>
1026                 <ns3:vcalendar>
1027                   <ns3:properties>
1028                     <ns3:prodid>
1029                       <ns3:text>//Bedework.org//BedeWork V3.7//EN</ns3:text>
1030                     </ns3:prodid>
1031                     <ns3:version>
1032                       <ns3:text>2.0</ns3:text>
1033                     </ns3:version>
1034                   </ns3:properties>
1035                   <ns3:components>
1036                     <ns3:vevent>
1037                       <ns3:properties>
```

```

1038         <ns3:dtend>
1039             <ns3:date-time>20110406T160000Z</ns3:date-time>
1040         </ns3:dtend>
1041         <ns3:dtstart>
1042             <ns3:date-time>20110406T150000Z</ns3:date-time>
1043         </ns3:dtstart>
1044         <ns3:summary>
1045             <ns3:text>try this</ns3:text>
1046         </ns3:summary>
1047         <ns3:uid>
1048             <ns3:text>1302105461170</ns3:text>
1049         </ns3:uid>
1050     </ns3:properties>
1051 </ns3:vevent>
1052 </ns3:components>
1053 </ns3:vcalendar>
1054 </ns3:icalendar>
1055 </ns2:calendar-data>
1056 </ns2:prop>
1057     <ns2:status>OK</ns2:status>
1058 </ns2:propstat>
1059 </ns2:response>
1060 <ns2:response>
1061     <ns2:href>/user/douglm/calendar/CAL-00f1fc61-2f021bca-012f-022947f8-
1062 00000006.ics</ns2:href>
1063     <ns2:changeToken>"20110405T140920Z-0"</ns2:changeToken>
1064     <ns2:propstat>
1065         <ns2:prop>
1066             <ns2:calendar-data content-type="application/xml+calendar" version="2.0">
1067                 <ns3:icalendar>
1068                     <ns3:vcalendar>
1069                         <ns3:properties>
1070                             <ns3:prodid>
1071                                 <ns3:text>//Bedework.org//BedeWork V3.7//EN</ns3:text>
1072                             </ns3:prodid>
1073                             <ns3:version>
1074                                 <ns3:text>2.0</ns3:text>
1075                             </ns3:version>
1076                         </ns3:properties>
1077                         <ns3:components>
1078                             <ns3:vevent>
1079                                 <ns3:properties>
1080                                     <ns3:duration>
1081                                         <ns3:duration>PT1H</ns3:duration>
1082                                     </ns3:duration>
1083                                     <ns3:dtstart>
1084                                         <ns3:parameters>
1085                                             <ns3:tzid>
1086                                                 <ns3:text>America/New_York</ns3:text>
1087                                             </ns3:tzid>
1088                                         </ns3:parameters>
1089                                         <ns3:date-time>20110412T110000</ns3:date-time>
1090                                     </ns3:dtstart>
1091                                     <ns3:summary>
1092                                         <ns3:text>Test recurring event</ns3:text>
1093                                     </ns3:summary>
1094                                     <ns3:uid>
1095                                         <ns3:text>CAL-00f1fc61-2f021bca-012f-022947f8-
1096 00000006demobedework@mysite.edu</ns3:text>
1097                                     </ns3:uid>
1098                                     <ns3:rrule>
1099                                         <ns3:recur>
1100                                             <ns3:freq>WEEKLY</ns3:freq>
1101                                             <ns3:count>2</ns3:count>
1102                                             <ns3:interval>1</ns3:interval>
1103                                         </ns3:recur>
1104                                     </ns3:rrule>
1105                                 </ns3:properties>
1106                             </ns3:vevent>
1107                         <ns3:vevent>
1108                             <ns3:properties>
1109                                 <ns3:recurrence-id>
1110                                     <ns3:parameters>
1111                                         <ns3:tzid>

```

```

1112         <ns3:text>America/New_York</ns3:text>
1113         </ns3:tzid>
1114     </ns3:parameters>
1115     <ns3:date-time>20110419T150000Z</ns3:date-time>
1116 </ns3:recurrence-id>
1117 <ns3:duration>
1118     <ns3:duration>PT1H</ns3:duration>
1119 </ns3:duration>
1120 <ns3:dtstart>
1121     <ns3:parameters>
1122         <ns3:tzid>
1123             <ns3:text>America/New_York</ns3:text>
1124         </ns3:tzid>
1125     </ns3:parameters>
1126     <ns3:date-time>20110419T120000</ns3:date-time>
1127 </ns3:dtstart>
1128 <ns3:summary>
1129     <ns3:text>Test recurring event</ns3:text>
1130 </ns3:summary>
1131 <ns3:uid>
1132     <ns3:text>CAL-00f1fc61-2f021bca-012f-022947f8-
1133 00000006demobedework@mysite.edu</ns3:text>
1134 </ns3:uid>
1135 </ns3:properties>
1136 </ns3:vevent>
1137 </ns3:components>
1138 </ns3:vcalendar>
1139 </ns3:icalendar>
1140 </ns2:calendar-data>
1141 </ns2:prop>
1142     <ns2:status>OK</ns2:status>
1143 </ns2:propstat>
1144 </ns2:response>
1145 </ns2:calendarQueryResponse>
1146 </SOAP-ENV:Body>
1147 </SOAP-ENV:Envelope>
1148

```



---

## 1149 13 Free-busy queries

1150 Freebusy queries are used to obtain freebusy information for a principal. The result contains information  
1151 only for events to which the current principal has sufficient access and may be affected by components  
1152 and rules available only to the server (for instance office hours availability).  
1153 These queries are carried out by using a CalWS-SOAP freebusyReport request with an href specifying a  
1154 principal. The freebusyReport request is not valid when the href specifies any entity other than a principal.  
1155 The query follows the specification defined in [FreeBusy Read URL] with certain limitations. As an authen-  
1156 ticated user to the CalWS service scheduling read-freebusy privileges must have been granted. As an un-  
1157 authenticated user equivalent access must have been granted to unauthenticated users.  
1158 Freebusy information is returned by default as xcalendar vfreebusy components, as defined by [RFC  
1159 6321]. Such a component is not meant to conform to the requirements of VFREEBUSY components in  
1160 Error: Reference source not found. The VFREEBUSY component SHOULD conform to section "4.6.4  
1161 Free/Busy Component" of [RFC 5545]. A client SHOULD ignore the ORGANIZER field.  
1162 Since a Freebusy query can only refer to a single user, a client will already know how to match the result  
1163 component to a user. A server MUST only return a single vfreebusy component.

### 1164 13.1 Element values

1165 Three values are provided: href; start; end. Only the href is required. The start and end are in XML UTC  
1166 date/time format and are interpreted as follows:

#### 1167 13.1.1 start

1168 **Default:** If omitted the default value is left up to the server. It may be the current day, start of the cur-  
1169 rent month, etc.

1170 **Description:** Specifies the start date for the Freebusy data. The server is free to ignore this value  
1171 and return data in any time range. The client must check the data for the returned time range.

1172 **Format:** An XML UTC date-time

1173 **Example:**

1174 2011-12-01T10:15:00Z

1175 **Notes:** Specifying only a start date/time without specifying an end-date/time or period should be inter-  
1176 preted as in [RFC 5545]. The effective period should cover the remainder of that day.

#### 1177 13.1.2 end

1178 **Default:** Same as start

1179 **Description:** Specifies the end date for the Freebusy data. The server is free to ignore this value.

1180 **Format:** Same as start

1181 **Example:** Same as start

1182 The server is free to ignore the start, end and period parameters. It is recommended that the server return  
1183 at least 6 weeks of data from the current day.

1184 A client MUST check the time range in the response as a server may return a different time range than  
1185 the requested range.

## 1186 13.2 Examples

1187 The following is an unsuccessful request targeting an invalid resource.

```
1188 >> Request <<
1189
1190 <?xml version="1.0" encoding="UTF-8"?>
1191 <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
1192   <SOAP-ENV:Header/>
1193   <SOAP-ENV:Body>
1194     <ns2:freebusyReport
1195       xmlns:ns2="http://docs.oasis-open.org/ws-calendar/ns/soap"
1196       xmlns:ns3="urn:ietf:params:xml:ns:icalendar-2.0">
1197       <ns2:href>/user/douglm/calendar</ns2:href>
1198       <ns2:time-range>
1199         <ns2:start>2011-04-01T04:00:00Z</ns2:start>
```

```

1200     <ns2:end>2011-04-30T04:00:00Z</ns2:end>
1201     </ns2:time-range>
1202     </ns2:freebusyReport>
1203     </SOAP-ENV:Body>
1204 </SOAP-ENV:Envelope>

1205 >> Response <<
1206
1207 <?xml version="1.0" encoding="UTF-8"?>
1208 <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
1209   <SOAP-ENV:Header/>
1210   <SOAP-ENV:Body>
1211     <ns2:freebusyReportResponse
1212       xmlns:ns2="http://docs.oasis-open.org/ws-calendar/ns/soap"
1213       xmlns:ns3="urn:ietf:params:xml:ns:icalendar-2.0">
1214       <ns2:status>Error</ns2:status>
1215       <ns2:message>Only principal href supported</ns2:message>
1216     </ns2:freebusyReportResponse>
1217   </SOAP-ENV:Body>
1218 </SOAP-ENV:Envelope>
1219

```

1220 The following is an example of a request to retrieve Freebusy data for a user:

```

1221 >> Request <<
1222
1223 <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
1224   <SOAP-ENV:Header/>
1225   <SOAP-ENV:Body>
1226     <ns2:freebusyReport
1227       xmlns:ns2="http://docs.oasis-open.org/ws-calendar/ns/soap"
1228       xmlns:ns3="urn:ietf:params:xml:ns:icalendar-2.0">
1229       <ns2:href>/principals/users/douglm</ns2:href>
1230       <ns2:time-range>
1231         <ns2:start>2011-04-01T04:00:00Z</ns2:start>
1232         <ns2:end>2011-04-30T04:00:00Z</ns2:end>
1233       </ns2:time-range>
1234     </ns2:freebusyReport>
1235   </SOAP-ENV:Body>
1236 </SOAP-ENV:Envelope>

1237 >> Response <<
1238
1239 <?xml version="1.0" encoding="UTF-8"?>
1240 <SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/">
1241   <SOAP-ENV:Header/>
1242   <SOAP-ENV:Body>
1243     <ns2:freebusyReportResponse
1244       xmlns:ns2="http://docs.oasis-open.org/ws-calendar/ns/soap"
1245       xmlns:ns3="urn:ietf:params:xml:ns:icalendar-2.0">
1246       <ns2:status>OK</ns2:status>
1247       <ns3:icalendar>
1248         <ns3:vcalendar>
1249           <ns3:properties>
1250             <ns3:prodid>
1251               <ns3:text>//Bedework.org//BedeWork V3.7//EN</ns3:text>
1252             </ns3:prodid>
1253             <ns3:version>
1254               <ns3:text>2.0</ns3:text>
1255             </ns3:version>
1256           </ns3:properties>
1257           <ns3:components>
1258             <ns3:vfreebusy>
1259               <ns3:properties>
1260                 <ns3:attendee>
1261                   <ns3:parameters>
1262                     <ns3:partstat>
1263                       <ns3:text>NEEDS-ACTION</ns3:text>
1264                     </ns3:partstat>
1265                   </ns3:parameters>
1266                   <ns3:cal-address>mailto:douglm@mysite.edu</ns3:cal-address>
1267                 </ns3:attendee>
1268                 <ns3:created>
1269                   <ns3:utc-date-time>2011-06-30T15:45:56Z</ns3:utc-date-time>
1270                 </ns3:created>
1271               </ns3:properties>
1272             </ns3:vfreebusy>
1273           </ns3:components>
1274         </ns3:icalendar>
1275       </ns3:icalendar>
1276     </ns2:freebusyReportResponse>
1277   </SOAP-ENV:Body>
1278 </SOAP-ENV:Envelope>

```

```
1273         <ns3:date-time>2011-04-30T00:00:00Z</ns3:date-time>
1274     </ns3:dtend>
1275     <ns3:dtstamp>
1276         <ns3:utc-date-time>2011-06-30T15:45:56Z</ns3:utc-date-time>
1277     </ns3:dtstamp>
1278     <ns3:dtstart>
1279         <ns3:date-time>2011-04-01T00:00:00Z</ns3:date-time>
1280     </ns3:dtstart>
1281     <ns3:freebusy>
1282         <ns3:parameters>
1283             <ns3:fbtype>
1284                 <ns3:text>BUSY</ns3:text>
1285             </ns3:fbtype>
1286         </ns3:parameters>
1287         <ns3:period>
1288             <ns3:start>2011-04-06T15:00:00Z</ns3:start>
1289             <ns3:end>2011-04-06T16:00:00Z</ns3:end>
1290         </ns3:period>
1291     </ns3:freebusy>
1292     <ns3:last-modified>
1293         <ns3:utc-date-time>2011-06-30T15:45:56Z</ns3:utc-date-time>
1294     </ns3:last-modified>
1295     <ns3:organizer>
1296         <ns3:parameters/>
1297         <ns3:cal-address>mailto:douglm@mysite.edu</ns3:cal-address>
1298     </ns3:organizer>
1299     <ns3:uid>
1300         <ns3:text>2UTDVPZ9H0EQL9QISI44SP5IFPC4N75</ns3:text>
1301     </ns3:uid>
1302     </ns3:properties>
1303 </ns3:vfreebusy>
1304 </ns3:components>
1305 </ns3:vcalendar>
1306 </ns3:icalendar>
1307 </ns2:freebusyReportResponse>
1308 </SOAP-ENV:Body>
1309 </SOAP-ENV:Envelope>
```

1310

---

## 1311 14 Multiple operations

1312 Each of the previously described operations acts upon a single entity or resource only. Frequently we  
1313 have the need to update an interconnected set of entities so that we maintain the consistency of the struc-  
1314 ture. This requires an atomic operation which can successfully update all the entities or roll back the oper-  
1315 ation on failure.

1316 The MultiOpType operation provides such a feature. It is essentially a wrapper around any of the other  
1317 operations which guarantees the success of the entire set or a roll back. Using the id attribute for re-  
1318 quests, each individual response can be located in the result.

1319 The MultiOpType request takes the following elements

Field	Type	#	?	Description
operations	Sequence of BaseOpera- tionType	1	Y	Contains one or more operations

1320 Table 48: MultiOpType elements

1321 The response type is also simple containing a single element containing all the responses.

Field	Type	#	?	Description
responses	Sequence of BaseRespon- seType	1	Y	Contains zero or more responses

1322 Table 49: MultiOpResponseType elements

1323

1324

1325

1326

---

1327 **15 Conformance**

1328 The last numbered section in the specification must be the Conformance section. Conformance State-  
1329 ments/Clauses go here. [Remove the “#” marker and the text in the two sentences before this bracketed  
1330 material, and the brackets, and the text inside the brackets.]

---

1331 **Appendix A Acknowledgments**

1332 The following individuals have participated in the creation of this specification and are gratefully acknow-  
1333 ledged:

1334  
1335 **Participants:**

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## Appendix B Revision History

Revision	Date	Editor	Changes Made
Initial	Mar 15 2011	M. Douglass (CALCONNECT)	Initial publication - a first pass at a rewrite from CalWS-REST
WD01	July 15 2011	M. Douglass (CALCONNECT)	Added etoken to ensure consistent updates. Added a multi op which allows the atomic processing of multiple operations in one request. Added an id attribute to requests and responses.
WD02		M. Douglass (CALCONNECT)	Added href to fetch response. Change propstat to be extension of BaseResponseType
WD03	September 7 2011	M. Douglass (CALCONNECT)	Add test attribute to calendar query elements.
WD04	November 11 2011	M. Douglass (CALCONNECT)	Updated calendar query to use xcal types instead of names. Assumes a later version of the xcalendar schema to make this possible. Change references to "etoken" to "changeToken", Update the error codes with descriptions and a type per error. Added some new errors.
WD05	December 15 2011	M. Douglass (CALCONNECT)	Change example from CalDAV to CalWS
WD06	January 3 2012	M. Douglass (CALCONNECT)	Remove all references to XRD. Define CalWS properties in their place.
WD07	February 7 2012	M. Douglass (CALCONNECT)	Align more closely with the OASIS template. Correct one or two minor spelling errors.
WD08	02/13/12	M. Douglass	Initial hand-off from CalConnect to OASIS

<b>Revision</b>	<b>Date</b>	<b>Editor</b>	<b>Changes Made</b>
WD09	February 14 2012	M. Douglass T Considine	Change namespace to <a href="http://docs.oasis-open.org/ws-calendar/ns/soap">http://docs.oasis-open.org/ws-calendar/ns/soap</a> Fixed example, broken references. Added namespace declaration Added Summary

1343