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Index
This Preface contains these topics:

- Audience
- Documentation Accessibility
- Related Documents
- Conventions

Audience

Oracle Calendar Application Developer’s Guide is intended for any programmers and developers who want to use the Oracle Calendar SDK or the Oracle Calendar Web Services Toolkit to create custom applications that access Oracle Calendar.

Documentation Accessibility

Our goal is to make Oracle products, services, and supporting documentation accessible, with good usability, to the disabled community. To that end, our documentation includes features that make information available to users of assistive technology. This documentation is available in HTML format, and contains markup to facilitate access by the disabled community. Accessibility standards will continue to evolve over time, and Oracle is actively engaged with other market-leading technology vendors to address technical obstacles so that our documentation can be accessible to all of our customers. For more information, visit the Oracle Accessibility Program Web site at

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Screen readers may not always correctly read the code examples in this document. The conventions for writing code require that closing braces should appear on an otherwise empty line; however, some screen readers may not always read a line of text that consists solely of a bracket or brace.

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Related Documents
For more information, see the following manuals in the Oracle Collaboration Suite documentation set:

- Oracle Calendar SDK Java API Reference
- Oracle Calendar Web Services Java API Reference

Conventions
The following text conventions are used in this document:

<table>
<thead>
<tr>
<th>Convention</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>boldface</strong></td>
<td>Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.</td>
</tr>
<tr>
<td><em>italic</em></td>
<td>Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.</td>
</tr>
<tr>
<td>monospace</td>
<td>Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.</td>
</tr>
</tbody>
</table>
This part of the Oracle Calendar Application Developer’s Guide describes the Oracle Calendar SDK.

This part contains the following chapters:

- Chapter 1, "Overview of Oracle Calendar SDK"
- Chapter 2, "Oracle Calendar SDK Implementation Considerations"
- Chapter 3, "Oracle Calendar SDK Supported Data Components and Properties"
- Chapter 4, "Oracle Calendar SDK API Reference"
- Chapter 5, "Oracle Calendar SDK Flags, Capabilities and Type Definitions"
- Chapter 6, "Oracle Calendar SDK Status Codes"
- Chapter 7, "Oracle Calendar SDK Configuration Settings"
- Chapter 8, "Oracle Calendar SDK FAQ and Troubleshooting"
Overview of Oracle Calendar SDK

The Oracle Calendar SDK is a set of functions, written in C/C++ with corresponding Java functions, that a developer can use to create applications that interface with Oracle Calendar. Using a native C interface, the SDK allows for implementation using any language that can call C functions natively.

Using standard iCalendar objects to represent meetings and events, a developer can use Oracle Calendar SDK functions to create programs that read/write calendar data, storing the information on the Oracle Calendar server.

In addition, a developer can use vCard objects with the Oracle Calendar SDK to create programs with address book functionality.

Examples of programs that can be created include custom interfaces to the Oracle Calendar server and migration utilities that allow for data extraction from any other system capable of producing iCalendar output.

SDK Contents

The Oracle Calendar SDK includes the following:

- Shared library implementing the APIs
- C header file
- Java .jar file
- Javadoc HTML documentation for the SDK.
- Oracle Calendar client libraries
- Oracle Calendar ACE (authentication, compression, encryption) modules
- Sample/Demo programs.
This chapter discusses the following topics to be taken into consideration in your Oracle Calendar SDK implementations:

- Best Practices
- Character Sets
- Security Model
- Other Security Issues
- User Identification
- Date and Time Values
- Alarms
- Data Streams
- Access Control
- Multi-Threaded Applications

**Best Practices**

The Oracle Calendar SDK provides standards-based wrappers around a subset of Oracle Calendar core functions. It should be used for rapid development of utilities and applications that extend the existing Oracle Calendar applications, and not as a tool to replace existing interfaces or logic.

The SDK has been used to integrate with portals, FCGI-based applications, and even simple command-line scripts which might display a day's events. The SDK is best used to achieve a specific goal.

**Character Sets**

All SDK functions operate only on UTF-8 encoded text. All strings given to the SDK functions must be in UTF-8 and all strings returned by the SDK will be in UTF-8. For more information on UTF-8, refer to RFC 3629.

**Security Model**

There are two parts to the security model: storing and fetching events. These are handled by different security paradigms.
Security Model of Storing Events
The owner of an event can add or delete properties of that event. When an "ATTENDEE" property is created for a calendar user, the property is created with default values for its parameters. The owner of the event cannot modify the parameters of that property, only the user to whom it corresponds can do that. When a user is updating their "ATTENDEE" property no error will be returned if there is an attempt to modify other event data, but the modifications will not occur.

It is possible for a user to refuse invitations from another user. In that case an "ATTENDEE" property will not be created for that user and the status for that user's handle will indicate that the invitation was refused. This may also occur when attempting to double book resources.

Security Model of Fetching Events
When fetching events the security model is based on the iCalendar classification of the event. Users grant other users different access levels to different classes of events. The three access levels are: no read access, read the start and end times of the event only, and read all details of the event. When fetching events with the SDK this results in some events for which only the "UID," "DTSTART," "DURATION" and "DTEND" properties will be returned. All other events will be invisible or all of their properties will be returned.

The Oracle Calendar SDK does not allow users to modify the security records which govern this behavior.

Other Security Issues
Unlike many Oracle products, the Oracle Calendar SDK (nor Oracle Calendar Web services) does not filter data entered by users for malicious HTML that could be used for breaching security layers, such as cross-site scripting attacks. As such, it is the responsibility of any application that retrieves data from the Oracle Calendar server to ensure that user data is properly filtered before it is displayed in a Web browser.

User Identification
The Oracle Calendar SDK identifies users with a user identification string. The format of this string flexible and allows you to specify a number of optional parameters. Depending on the server configuration, some of these options (such as the Node ID) may be required in the user identification string. The same user identification string format is used both at logon and when obtaining a handle; however not all options will be applicable in both cases.

Logging into the server as a resource is not supported, but it is possible to work as a designate for a resource.

Format of User Identification Strings
A user identification string consists of a user ID string followed by a question mark (?) and a series of key-value pairs. This series of pairs is called the extended data. (In the above example, the user ID has not been defined.)

The Oracle SDK can identify calendar users with the user ID string or a search string that looks for specific information in the extended data, such as the user’s email address.
With a standalone Oracle Calendar server, the Oracle Calendar administrator sets the user ID string individually per user. As a result, the administrator may choose to leave the user ID string blank, as in the above example.

This user ID string is mapped to an LDAP attribute, typically \texttt{uid}. You may determine which attribute this is by looking at the file \texttt{ocal/misc/unison.ini}. In the LDAP section, look for the \texttt{attr_uid} key.

The key-value pairs of the extended data are separated by a delimiter. This delimiter is the character following the question mark (?) of the logon string. The delimiter may be any ASCII character except a digit, a letter, NUL, asterisk (*) or equal sign (=). Key-value pairs consist of a field name, followed by an equal sign (=), which is followed by the value. The value is a string that does not contain the delimiter character, the NUL character, and, for user identification strings, the slash (/) character. The logon string is terminated by a delimiter followed by a NUL character.

The following is a legal string for identifying a user:

\texttt{?/S=Bunny/G=Bugs/}

The field name \texttt{G} denotes the given name, and \texttt{S} denotes the surname. No user ID string is specified, so the extended data will be used to search for the user. (Note that if a search results in multiple matches, the SDK will return an error to the caller; a user ID is the best method of specifying a user, if it is available.) Even with no user ID, the question mark (?) still separates the user ID string from the extended data. The character immediately following the question mark, in this case a slash (/), is used as the delimiter. Note that the string ends with the delimiter character.

Any field used for identifying a user may be terminated with an asterisk (*), which is used as a wildcard. This is not available for specifying nodes. For example, the following will match the preceding user:

\texttt{?/S=Bu*/G=Bugs/}

Remember that if multiple users match a given search string, the SDK call will return an error.

### Identification Strings of Oracle Calendar Resources

The following is an example of an identification string of a calendar resource:

\texttt{?/RS=CA:MTRL:ConferenceRoomName/}

Calendar resources use the same string format as those for calendar users, except that calendar resource identification strings must define at least the field "RS" that indicates the resource's name.

Logging into the Oracle Calendar server as a resource is not supported, but it is possible to work as a designate for a resource.

### Syntax of Identification Strings

The following grammar (in ABNF form, as described in RFC 2234) describes legal identification strings. The description diverges from ABNF in that values in double quotes are case-sensitive; for example, field names must be in uppercase. Also, the delimiter character must be the same in all cases in a single string.

**Example 2–1 Oracle Calendar SDK Identification Strings Grammar**

\texttt{logon-string = { userid [ "?" DELIMITER node DELIMITER] \%x00}
Date and Time Values

The Oracle Calendar SDK uses the iCalendar data types DATE, DATE-TIME and DURATION.
DATE
Identifies values that contain a calendar date. For example, September 28, 2002 would be represented by the following:
20020928

DATE-TIME
Identifies values that specify a precise calendar date and time of day. It may be in either floating time or UTC time. Floating time uses the user’s timezone (the user’s timezone preference stored on the Oracle Calendar server).

For example, the following floating time value represents September 29, 2002, at noon:
20020929T120000

The following UTC time value represents September 29, 2002 at 1700 UTC:
20020929T170000Z

The Oracle Calendar SDK disregards (and does not store in the Oracle Calendar store) any seconds (the last two digits) in DATE-TIME values. However, the seconds are still mandatory for this format.

DURATION
Identify properties that contain a duration of time. For example, the following represents five days and three hours in the future:
+P5DT3H

The following represents one week in the past:
-P1W

Alarms
Alarms are considered private to each user, so users cannot read or write alarms for each other. Since users cannot read each other’s alarms it is not possible for users to do fetches by alarm range on each other’s calendars. Any user may set an alarm for an event which they are attending, so the same events can have a different alarm when fetched by a different user.

Data Streams
By default, the SDK deals with MIME (see RFC 2045) encapsulated iCalendar and vCard objects for both input and output. A single request may fetch data from a list of calendars. A reply to such a request will consist of a separate iCalendar object for each calendar in the list, inside separate MIME parts. That is, a request for events from calendar A and calendar B results in a MIME stream of this form:

```
MIME envelope
--MIMEBOUNDARYasdfsadfs
Content-type: text/calendar
Content-Transfer-Encoding: quoted-printable

BEGIN:VCALENDAR
events from calendarA
END:VCALENDAR
--MIMEBOUNDARYasdfsadfs
calendar B results in a MIME stream of this form:
```
A blank line separates the MIME header from the body (which in this case would be an iCalendar object).

The order of the iCalendar objects corresponds to the order of the calendars in the request list. If a request results in an empty solution set, the return stream will be an empty iCalendar object. If there is any sort of error with a calendar the iCalendar reply object corresponding to that calendar will be empty.

On a successful fetch the "VCALENDAR" may contain many "VEVENT" components, each containing the requested properties, if available. iCalendar allows these different components to contain information about different instances of the same event. The returned data may use any of the following methods to give instance specific information:

Data for each instance can be placed in a different "VEVENT" component, with a different "DTSTART".

Data for multiple instances can be placed in a single "VEVENT" by identifying instances with the properties "RRULE", "RDATE", "EXRULE" and "EXDATE".

Hybrids of the preceding two methods allow grouping of multiple instances which share all properties except their start time in a single "VEVENT" component, and returning many such components.

Note that the "DTSTART" property returned indicates the start time of the first instance identified in the "VEVENT" component in which it resides and not the start time of the first instance of the event in the Oracle Calendar store. Furthermore the number of "VEVENT" components returned in the calendar has no relation to the number of instances of the event. Consequently, when fetching events, if the recurrence identifying properties are not requested, there will be no way to determine how many instances exist, and to which instances each returned property applies.

When storing, data supplied to the Oracle Calendar SDK must consist of a single "VCALENDAR" component inside a single MIME part. The calendar may contain many "VEVENT" objects, but these must all be information about a single event. For example, this is a valid input:

```
Content-type: text/calendar
Content-Transfer-Encoding: 7bit

BEGIN:VCALENDAR
VERSION:2.0
BEGIN:VEVENT
event properties
END:VEVENT
BEGIN:VEVENT
event properties
END:VEVENT
END:VCALENDAR
```
Access Control

Access to data through the SDK is controlled by the Oracle Calendar server. It is based on the requester’s identity and the data or operation being requested. The SDK provides an interface to request reading any combination of properties. Properties that the requesting user is not authorized to read will not be returned.

Users will only have privileges to modify the events to which they are invited, or which they own. If the user is the owner of the event they will have full privileges to modify the event (except for modifying other users’ attendance information), otherwise if they are invited to the event they will have restricted privileges to modify information relating to their own attendance, such as acceptance and alarms.

Errors may occur for specific agendas when attempting to modify events or when creating events. These errors will be returned using a supplied array of status values, allowing the rest of the operation to proceed.

Multi-Threaded Applications

Session and handle usage has to be considered when designing multi-threaded applications with the C and Java Oracle Calendar SDK.

No two threads should concurrently use a session or handle object, even if the threads are performing operations on the same user’s agenda or handle: The SDK does not support the concurrent use of sessions and handles.

If a possibility exists that two threads could use the same session object, it is the application’s responsibility, using its own synchronization functionality, to guarantee that the same session will not be used concurrently by both threads.

The following scenario describes what might happen if a thread uses a session and a handle at the same time:

1. Both Thread1 and Thread2 use Session1.
2. Thread1 authenticates as User1.
3. Thread2 then deauthenticates and reauthenticates as User2.
4. Thread1 still assumes it is authenticated as User1 and inadvertently performs operations on User2.
The Oracle Calendar SDK uses the iCalendar format for dealing with Calendar data. However, not all iCalendar data is actively supported by this version of the SDK. In particular, VFREEBUSY and VJOURNAL components are not supported.

Data for these properties will not always be preserved because events are shared entities in Oracle Calendar. Some properties are stored only per event rather than per instance so only one value is preserved. In particular, a calendar event with several attendees will appear in each of the attendee’s agendas. However, that calendar event appears only once in the Oracle Calendar store.

For more information regarding data types, syntax, and other characteristics of iCalendar components and properties, see RFC 2445 - Internet Calendaring and Scheduling Core Object Specification (iCalendar).

The Oracle Calendar SDK also uses the vCard format for dealing with contact information. For more information regarding characteristics of vCard components and properties, see RFC 2426 - vCard MIME Directory Profile.

The following tables and sections describe the iCalendar and vCard components and properties that the Oracle Calendar SDK supports. The Oracle Calendar SDK also provides Oracle-specific components and properties whose names begin with "X-ORACLE."

Components of iCalendar

The Oracle Calendar SDK supports the VEVENT and VTODO iCalendar components. The following tables describe the component properties of VEVENT and VTODO. The following are clarifications of some of these table’s headings and abbreviations:

- Columns labeled "Minimum Occurrences" indicate the minimum number of each component property (or property parameter) that the client must create or generate in order to add the specified component to the Calendar store.
- Columns labeled "Maximum Occurrence" indicate the maximum number of each component property (or property parameter) the specified component may contain.
- The symbol "n" indicates no limit of the maximum number of the specified property or parameter.
VEVENT

Describes appointments, daily notes, day events, and holidays.

Table 3–1 Component Properties of VEVENT

<table>
<thead>
<tr>
<th>Component Property</th>
<th>Minimum Occurrences</th>
<th>Maximum Occurrences</th>
<th>Data Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATTACH</td>
<td>0</td>
<td>1</td>
<td>file location of the attachment</td>
</tr>
<tr>
<td>ATTENDEE</td>
<td>0</td>
<td>n</td>
<td>CAL-ADDRESS</td>
</tr>
<tr>
<td>CATEGORIES</td>
<td>0</td>
<td>n</td>
<td>TEXT</td>
</tr>
<tr>
<td>CLASS</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>COMMENT</td>
<td>0</td>
<td>n</td>
<td>TEXT</td>
</tr>
<tr>
<td>CONTACT</td>
<td>0</td>
<td>n</td>
<td>TEXT</td>
</tr>
<tr>
<td>CREATED</td>
<td>0</td>
<td>1</td>
<td>DATE-TIME</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>DTEND</td>
<td>1 (However, must</td>
<td>1</td>
<td>DATE-TIME (default), DATE</td>
</tr>
<tr>
<td></td>
<td>not appear with</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DURATION)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DTSTAMP</td>
<td>0</td>
<td>1</td>
<td>DATE-TIME</td>
</tr>
<tr>
<td>DTSTART</td>
<td>1</td>
<td>1</td>
<td>DATE-TIME (default), DATE</td>
</tr>
<tr>
<td>DURATION</td>
<td>1 (However, must</td>
<td>1</td>
<td>DURATION</td>
</tr>
<tr>
<td></td>
<td>not appear with</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DTEND)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXDATE</td>
<td>0</td>
<td>1</td>
<td>DATE-TIME (default), DATE</td>
</tr>
<tr>
<td>EXRULE</td>
<td>0</td>
<td>1</td>
<td>RECUR</td>
</tr>
<tr>
<td>GEO</td>
<td>0</td>
<td>1</td>
<td>two semicolon-separated FLOAT values.</td>
</tr>
<tr>
<td>LAST-MODIFIED</td>
<td>0</td>
<td>1</td>
<td>DATE-TIME</td>
</tr>
<tr>
<td>LOCATION</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>ORGANIZER</td>
<td>0</td>
<td>1</td>
<td>CAL-ADDRESS</td>
</tr>
<tr>
<td>PRIORITY</td>
<td>0</td>
<td>1</td>
<td>INTEGER</td>
</tr>
<tr>
<td>RDATE</td>
<td>0</td>
<td>n</td>
<td>DATE-TIME (default), DATE, PERIOD</td>
</tr>
<tr>
<td>RECURRENCE-IDENT</td>
<td>0</td>
<td>1</td>
<td>DATE-TIME</td>
</tr>
<tr>
<td>RELATED-TO</td>
<td>0</td>
<td>n</td>
<td>DATE-TIME (default), DATE</td>
</tr>
<tr>
<td>RESOURCES</td>
<td>0</td>
<td>n</td>
<td>TEXT</td>
</tr>
<tr>
<td>RRULE</td>
<td>0</td>
<td>1</td>
<td>RECUR</td>
</tr>
<tr>
<td>SEQUENCE</td>
<td>0</td>
<td>1</td>
<td>INTEGER</td>
</tr>
<tr>
<td>STATUS</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>SUMMARY</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>TRANSP</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>UID</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>URL</td>
<td>0</td>
<td>1</td>
<td>URI</td>
</tr>
<tr>
<td>X-ORACLE-CLASS</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-EVENT-GUID</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-EVENTINSTANCE-GUID</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
</tbody>
</table>
### Table 3–1 (Cont.) Component Properties of VEVENT

<table>
<thead>
<tr>
<th>Component Property</th>
<th>Minimum Occurrences</th>
<th>Maximum Occurrences</th>
<th>Data Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-ORACLE-EVENTTYPE</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-ISRTCENABLED</td>
<td>0</td>
<td>1</td>
<td>BOOLEAN</td>
</tr>
<tr>
<td>X-ORACLE-RTC-ATTENDEE-URL</td>
<td>0</td>
<td>1</td>
<td>URI</td>
</tr>
<tr>
<td>X-ORACLE-RTC-DIALINFO</td>
<td>0</td>
<td></td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-RTC-ENABLEDIRECTJOIN</td>
<td>0</td>
<td>1</td>
<td>BOOLEAN</td>
</tr>
<tr>
<td>X-ORACLE-RTC-HOST-URL</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-RTC-MEETINGID</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-RTC-PUBLISHATTENDEES</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-RTC-SECURITYTYPE</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-RTC-SENDEMAILNOTIFICATION</td>
<td>0</td>
<td>1</td>
<td>BOOLEAN</td>
</tr>
<tr>
<td>X-ORACLE-RTC-SITEID</td>
<td>0</td>
<td>1</td>
<td>INTEGER</td>
</tr>
<tr>
<td>X-ORACLE-RTC-VERSION</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
</tbody>
</table>

#### VALARM

Describes reminders for Calendar entries. Properties of VALARM include the type of reminder, such as a popup or an email, and the time before which the VALARM should notify the user of the Calendar event.

#### Table 3–2 Component Properties of VEVENT

<table>
<thead>
<tr>
<th>Component Property</th>
<th>Minimum Occurrences</th>
<th>Maximum Occurrences</th>
<th>Data Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTION</td>
<td>1</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>ATTENDEE</td>
<td>0 (May appear only if ACTION is EMAIL)</td>
<td>n</td>
<td>CAL-ADDRESS</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Required only if ACTION is DESCRIPTION or EMAIL</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>DURATION</td>
<td>0 (REPEAT must appear if DURATION appears)</td>
<td>1</td>
<td>DURATION</td>
</tr>
<tr>
<td>REPEAT</td>
<td>0 (DURATION must appear if REPEAT appears)</td>
<td>1</td>
<td>INTEGER</td>
</tr>
<tr>
<td>SUMMARY</td>
<td>Required only if ACTION is EMAIL</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>TRIGGER</td>
<td>1</td>
<td>1</td>
<td>TRIGGER</td>
</tr>
</tbody>
</table>

#### VTODO

The VTODO component describes tasks stored in the Oracle Calendar server.
The following describes the iCalendar and Oracle-specific component properties of the VEVENT, VTODO, and VALARM calendar components.

**ACTION**

This property defines the action to be invoked when an alarm is triggered. It can have one of the following values:

- AUDIO:
- DISPLAY:

### Table 3–3 Component Properties of VTODO

<table>
<thead>
<tr>
<th>Component Property</th>
<th>Minimum Occurrences</th>
<th>Maximum Occurrences</th>
<th>Data Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATTENDEE</td>
<td>0</td>
<td>n</td>
<td>CAL-ADDRESS</td>
</tr>
<tr>
<td>CATEGORIES</td>
<td>0</td>
<td>n</td>
<td>TEXT</td>
</tr>
<tr>
<td>CLASS</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>COMMENT</td>
<td>0</td>
<td>n</td>
<td>TEXT</td>
</tr>
<tr>
<td>COMPLETED</td>
<td>0</td>
<td>1</td>
<td>DATE-TYPE</td>
</tr>
<tr>
<td>CONTACT</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>CREATED</td>
<td>0</td>
<td>1</td>
<td>DATE-TIME</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>DTSTAMP</td>
<td>0</td>
<td>1</td>
<td>DATE-TIME</td>
</tr>
<tr>
<td>DTSTART</td>
<td>0</td>
<td>1</td>
<td>DATE-TIME (default), DATE</td>
</tr>
<tr>
<td>DUE</td>
<td>1 (However, must not appear of DURATION appears)</td>
<td>1</td>
<td>DATE-TIME (default), DATE</td>
</tr>
<tr>
<td>DURATION</td>
<td>1 (However, must not appear if DUE appears)</td>
<td>1</td>
<td>DURATION</td>
</tr>
<tr>
<td>GEO</td>
<td>0</td>
<td>1</td>
<td>two semicolon separated FLOAT values</td>
</tr>
<tr>
<td>LAST-MODIFIED</td>
<td>0</td>
<td>1</td>
<td>DATE-TIME</td>
</tr>
<tr>
<td>LOCATION</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>ORGANIZER</td>
<td>0</td>
<td>1</td>
<td>CAL-ADDRESS</td>
</tr>
<tr>
<td>PERCENT-COMPLETE</td>
<td>0</td>
<td>1</td>
<td>INTEGER</td>
</tr>
<tr>
<td>PRIORITY</td>
<td>0</td>
<td>1</td>
<td>INTEGER</td>
</tr>
<tr>
<td>RELATED-TO</td>
<td>0</td>
<td>n</td>
<td>TEXT</td>
</tr>
<tr>
<td>RESOURCES</td>
<td>0</td>
<td>n</td>
<td>TEXT</td>
</tr>
<tr>
<td>REQUEST-STATUS</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>SEQUENCE</td>
<td>0</td>
<td>1</td>
<td>INTEGER</td>
</tr>
<tr>
<td>STATUS</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>SUMMARY</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>UID</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>URL</td>
<td>0</td>
<td>1</td>
<td>URI</td>
</tr>
<tr>
<td>X-ORACLE-CLASS</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
</tbody>
</table>
- EMAIL:

- PROCEDURE:

- X-ORACLE-ALARM-DEFAULT: Specifies that a VEVENT or VTTODO calendar component be created or modified to have an alarm based on the user's default alarm settings.

- X-ORACLE-ALARM-NONE: Specifies that a VEVENT or VTTODO calendar component be created or modified without an alarm.

- X-ORACLE-SMS: Indicates that the VALARM should have the server send an out-of-band reminder (such as an SMS or email) according to the user's preferences.

ATTACH

The current version of the Calendar SDK doesn't fully support the ATTACH property as stated in RFC 2045. Only file URIs are supported. The SDK must be configured to support the ATTACH property. This involves setting tmpDirectoryPath in the SDK section of the Oracle Calendar SDK configuration file. See Chapter 7, "Oracle Calendar SDK Configuration Settings" for more information about this setting. Temporary file attachments will be saved in the directory specified in tmpDirectoryPath when an event is exported.

When an event is imported or stored, the ATTACH property value is file location of the attachment. The following is an example of the ATTACH property of an event to be stored:

```
ATTACH:file:/tmp/my_attachment.txt
```

When an event is exported or fetched, if the configuration setting tmpDirectoryPath points to a valid directory, any attachments will be downloaded in subdirectories of this directory. These subdirectories will be in the following format:

```
./<UID>-<RECURRENCE_ID>
```

If tmpDirectoryPath does not point to a valid directory, attachments will not be downloaded.

The following is an example of the ATTACH property of a fetched event:

```
ATTACH:file:///c:/20050427T160642Z-45c-a90b-27b4a6d7-Oracle-20050427T040000Z/my_attachment.txt
```

ATTENDEE

Defines an attendee within a calendar component.

When storing ATTENDEE properties, an attempt will be made to correlate attendee properties with Calendar users. CSDK_StoreEvents performs a look-up on the Oracle Calendar server to find the corresponding calendar user. Non-calendar users will still be invited (as "external attendees") when using CSDK_StoreEvents.

Look-ups are performed first using the X-ORACLE-GUID parameter, if present. If this fails, the user is treated as an external attendee. If the X-ORACLE-GUID parameter is not present, the value of the ATTENDEE property is used to do a look-up by email address of the calendar user.

To add a resource as an attendee, use either the X-ORACLE-GUID parameter, or set the CUTYPE parameter to "RESOURCE" and the CN parameter to the resource's name.
When retrieving data with the Oracle Calendar SDK, a property is generated for each ATTENDEE. The parameters PARTSTAT, ROLE, CUTYPE, and CN are obtained from the attendee and user information.

The following table describes the property parameters of ATTENDEE:

### Table 3–4 Property Parameters of ATTENDEE

<table>
<thead>
<tr>
<th>Property Parameter</th>
<th>Minimum Occurrences</th>
<th>Maximum Occurrences</th>
<th>Data Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>CN</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>CUTYPE</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>DELEGATED-FROM</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>DELEGATED-TO</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>DIR</td>
<td>0</td>
<td>1</td>
<td>URI</td>
</tr>
<tr>
<td>MEMBER</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>PARTSTAT</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>ROLE</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>RSVP</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>SENT-BY</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-GUID</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-PERSONAL-COMMENT</td>
<td>0</td>
<td>1</td>
<td>A BASE64 encoded character string, as defined by [RFC 2045]</td>
</tr>
<tr>
<td>X-ORACLE-PERSONAL-COMMENT-ISDIRTY</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-PERSONAL-COMMENT-RTF</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-SHOWASFREE</td>
<td>0</td>
<td>1</td>
<td>TRUE/FALSE</td>
</tr>
</tbody>
</table>

**CATEGORIES**

Defines the categories for a calendar component.

When using CSDK_StoreEvents, the CATEGORIES value is stored on the server and will be returned by the various CSDK_FetchEvents functions. (The property X-ORACLE-EVENTTYPE is used with CSDK_StoreEvents to specify the event type and the same values are recognized).

Calling one of the CSDK_FetchEventsBy functions will return a user-specified value (which may have been stored using the Oracle Calendar SDK or another client).

**CLASS**

Defines the access classification for a calendar component.

This property is mapped to an Oracle Calendar server access level. The mapping between the CLASS value and the Oracle Calendar server access level is as follows:

### Table 3–5 Mapping Between CLASS Values and Oracle Calendar Server Access Levels

<table>
<thead>
<tr>
<th>iCalendar CLASS Value</th>
<th>Oracle Calendar Server Access Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLASS:PUBLIC</td>
<td>PUBLIC</td>
</tr>
<tr>
<td>CLASS:PRIVATE</td>
<td>PERSONAL</td>
</tr>
<tr>
<td>CLASS:CONFIDENTIAL</td>
<td>CONFIDENTIAL</td>
</tr>
</tbody>
</table>
If the CLASS property is not specified, the access level for the calendar component is PUBLIC. This is the behavior as defined in RFC 2445.

This property is stored per event, which implies that all recurrence instances of an event must have the same CLASS value.

**COMMENT**

Specifies non-processing information intended to provide a comment to the calendar user.

**COMPLETED**

Defines the date and time that a task was actually completed.

**CONTACT**

Represents contact information or alternately a reference to contact information associated with the calendar component.

**CREATED**

Specifies the date and time that the calendar information was created by the calendar user agent in the calendar store. The date and time is a UTC value.

**DESCRIPTION**

Provides a more complete description of the calendar component than that provided by the SUMMARY property.

This is set to the Event’s details. It will be truncated if it is longer than 32 Kb. This property is stored per instance when calling CSDK_StoreEvents.

**DTEND**

Specifies the date and time that a calendar component ends.

**DTSTAMP**

Indicates the date/time that the instance of the iCalendar object was created. The value must be specified in the UTC time format. This property is different than the CREATED and LAST-MODIFIED properties. These two properties are used to specify when the particular Calendar data in the calendar store was created and last modified. This is different than when the iCalendar object representation of the Calendar service information was created or last modified.

**DTSTART**

Specifies when the Calendar component begins.

<table>
<thead>
<tr>
<th>iCalendar CLASS Value</th>
<th>Oracle Calendar Server Access Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLASS:PRIVATE</td>
<td>NORMAL</td>
</tr>
<tr>
<td>X-ORACLE-CLASS:NORMAL</td>
<td></td>
</tr>
</tbody>
</table>
If DTEND is present, it will be used to calculate the event duration; the actual end time is not stored. As event times are measured in minutes, the start time and duration will have their 'seconds' component set to zero.

**DUE**

Defines the date and time that a task is expected to be completed.

**DURATION**

Specifies a positive duration of time.

For example, a duration of 15 days, 5 hours and 20 seconds would be represented as P15DT5H0M20S. A duration of 7 weeks would be represented as P7W

**EXDATE**

Defines the list of date/time exceptions for a recurring calendar component. The following is an example of this property:

```
EXDATE:19960402T010000Z,19960403T010000Z,19960404T010000Z
```

**EXRULE**

Defines a rule or repeating pattern for an exception to a recurrence set. For example, the following excludes, for a recurrence set, dates that occur every other week on Tuesday and Thursday for 4 occurrences:

```
EXRULE:FREQ=WEEKLY;COUNT=4;INTERVAL=2;BYDAY=TU,TH
```

The following excludes dates that occur every day for 10 occurrences:

```
EXRULE:FREQ=DAILY;COUNT=10
```

The following excludes dates that occur every year in June and July for 8 occurrences

```
EXRULE:FREQ=YEARLY;COUNT=8;B YMTH=6,7
```

**GEO**

Specifies information related to the global position for the activity specified by a calendar component. The property value specifies latitude and longitude, in that order.

**LAST-MODIFIED**

Specifies the date and time that the information associated with the calendar component was last revised in the calendar store. This is analogous to the modification date and time for a file in the file system. The property value must be specified in the UTC time format.

**LOCATION**

Defines the intended venue for the activity defined by a calendar component.

**ORGANIZER**

Defines the organizer for a calendar component. Uses the same property parameters as ATTENDEE.
**PERCENT-COMPLETE**

Used by an assignee or delegatee of a VTODO to convey the percent completion of a task to the Organizer. The property value is a positive integer between zero and one hundred.

**PRIORITY**

Defines the relative priority for a calendar component.

This property is mapped to one of the Oracle Calendar server’s five priority values. This property is stored per event.

**RDATE**

Defines the list of date/times for a recurrence set. The following are examples of this property:

RDATE:19970714T123000Z

RDATE;TZID=US-EASTERN:19970714T083000

RDATE;VALUE=DATE:19970101,19970120,19970217,19970421,19970526,19970704,19970901,19971105,19971128,19971225

RDATEs of the type VALUE=PERIOD are not supported.

**RECURRENCE-ID**

Used in conjunction with the UID property to identify a specific instance of a recurring VEVENT or VTODO calendar component. The property value is the effective value of the DTSTART property of the recurrence instance.

**RELATED-TO**

Represent a relationship or reference between one calendar component and another. It consists of the persistent, globally unique identifier of another calendar component. This value would be represented in a calendar component by the UID property.

The Oracle Calendar SDK stores this value as-is, but does not use it; there is no business logic associated with it.

**REQUEST-STATUS**

Ignored by the Oracle Calendar SDK.

**RESOURCES**

 Defines the equipment or resources anticipated for an activity specified by a calendar entity.

**RRULE**

Defines a rule or repeating pattern for recurring events, to-dos, or time zone definitions.
REPEAT
Defines the number of time the alarm should be repeated, after the initial trigger.
If the alarm triggers more than once, then this property must be specified along with the "DURATION" property.

SEQUENCE
Defines the revision sequence number of the calendar component within a sequence of revisions.

STATUS
Defines the overall status or confirmation for the calendar component.
A tentative event will have a TENTATIVE status. Non-tentative events will be marked as CONFIRMED. No other STATUS values are generated.

SUMMARY
Defines the title of the event or instance.

TRANSP
Defines whether an event is transparent or not to busy time searches. Time transparency is the characteristic of an event that determines whether it appears to consume time on a calendar.
Events that consume actual time for the individual or resource associated with the calendar are recorded as OPAQUE, allowing them to be detected by free-busy time searches. Other events, which do not take up the individual's (or resource's) time are recorded as TRANSPARENT, making them invisible to free-busy time searches.
The Oracle Calendar SDK keeps track of transparency separately per attendee with the X-ORACLE-SHOWASFREE parameter on the ATTENDEE property, which can have the values FREE, BUSY, OUT, or TENTATIVE.
However, the Oracle Calendar SDK uses the TRANSP property only on output. It is set to OPAQUE for regular events and TRANSPARENT for day events, daily notes, and holidays.

TRIGGER
Specifies when an alarm will trigger.

UID
Defines the persistent, globally unique identifier for the calendar component.
If a UID is not specified in stored data the Oracle Calendar server will assign a UID. When using CSDK_StoreEvents, the generated UIDs are returned as part of the results in CSDKRequestResult.

URL
Defines a Uniform Resource Locator (URL) associated with the iCalendar object.
**X-ORACLE-CLASS**

This property defines an Oracle-specific access classification for an iCalendar component.

This property describes the access classification specific to Oracle for the iCalendar component. Currently, this property is only being used for iCalendar components with the "NORMAL" access level. For interoperability and security considerations, "X-ORACLE-CLASS:NORMAL" is always returned with "CLASS:PRIVATE".

**X-ORACLE-EVENT-GUID**

Uniquely identifies VEVENT components.

**X-ORACLE-EVENTINSTANCE-GUID**

Uniquely identifies VEVENT instances.

**X-ORACLE-EVENTTYPE**

Identifies the type of event that the VEVENT represents. The property can be specified once in the VEVENT component. Possible values are "daily note", "holiday", "day event", and "appointment".

The following is an example of this property:

```
X-ORACLE-EVENTTYPE: DAY EVENT
```

**X-ORACLE-ISRTCENABLED**

Indicates that an instance is Web conference-enabled. This property is generated by the Oracle Calendar server and used by Calendar clients. This property can be specified in the VEVENT calendar component.

**X-ORACLE-ORGANIZATION**

Specifies the organization associated with the task described by the VTODO. The property may be specified multiple times in a VTODO calendar component.

The following is an example of this property:

```
X-ORACLE-ORGANIZATION: ACME, Inc.
```

**X-ORACLE-RTC-ATTENDEE-URL**

This property may be specified once in the VEVENT calendar component.

**X-ORACLE-RTC-DIALININFO**

Specifies dial-in information required by attendees to join a teleconference, such as the phone number and conference ID. This property may be specified once in the VEVENT calendar component.

The following is an example of this property:

```
X-ORACLE-RTC-DIALININFO: 1-999-999-9999 Conference Id: 999999
```
**X-ORACLE-RTC-ENABLEDIRETCJOIN**

A boolean value that specifies whether Calendar Web services should include Web conference details (including the Join URL) to allow attendees to join a conference through an email invitation. This property may be specified once in the VEVENT calendar component.

The following is an example of this property:

```
X-ORACLE-RTC-ENABLEDIRETCJOIN:TRUE
```

**X-ORACLE-RTC-HOST-URL**

Specifies the URL of the Web page hosting the Web conference associated with this calendar component instance. This value is set by Web conference. This property may be specified once in the VEVENT calendar component.

The following is an example of this property:

```
X-ORACLE-RTC-HOST-URL:http://www.example.com
```

**X-ORACLE-RTC-MEETINGID**

Specifies the Web conference ID associated with the VEVENT calendar component instance. The value is strictly generated by the Web conference server. This property may be specified once in the VEVENT calendar component.

**X-ORACLE-RTC-PASSWORD**

The optional key (the password) of a Web conference. The property can be specified in the VEVENT calendar component.

**X-ORACLE-RTC-PUBLISHATTENDEES**

Currently not supported by the Oracle Calendar server and its clients. The Oracle Calendar server will always set this value to TRUE. Oracle Calendar server clients should not expose this property to users. This property may be specified once in the VEVENT calendar component.

**X-ORACLE-RTC-SECURITYTYPE**

Indicates the security type of an Web conference enabled instance. Possible types are "restricted", "regular", and "public". The property may be specified once in the VEVENT calendar component. This property may be specified once in the VEVENT calendar component.

**X-ORACLE-RTC-SENDEMAILNOTIFICATION**

If set to TRUE, specifies that the Calendar client should create the notification email addressed to the attendees of the conference. This property may be specified once in the VEVENT calendar component.

**X-ORACLE-RTC-SITEID**

Specifies the site ID associated with the Web conference represented by the VEVENT. The value for this property is generated by the Oracle Calendar server. Clients will not access this value. An administrator will be able to change the designated value in
order to track sites integrated with Web conferencing. This property may be specified once in the VEVENT calendar component.

**X-ORACLE-RTC-VERSION**

Used by the Oracle Calendar server to ensure that it supports this type of Web conference. The property may be specified once in the "VEVENT" calendar component.

**Property Parameters**

The following describes iCalendar and Oracle-specific property parameters of CAL-ADDRESS (the data type of ATTENDEE and ORGANIZER).

**CUTYPE**

Indicates the type of calendar user.

**CN**

Common or displayable name associated with the component property (in this case, ATTENDEE or ORGANIZER).

**DELEGATED-FROM**

Indicates whom the request was delegated from.

**DELEGATED-TO**

Indicates the calendar users that the original request was delegated to.

**DIR**

Indicates the URI that points to the directory information corresponding to the ATTENDEE or ORGANIZER.

**MEMBER**

Indicates the groups that the ATTENDEE or ORGANIZER belongs to.

**PARTSTAT**

Indicates the participation status of the ATTENDEE or ORGANIZER.

This parameter may have the following values, which have the following responses and replies from Oracle Connector for Outlook and the Oracle Calendar native client:

<table>
<thead>
<tr>
<th>ATTENDEE Property Parameters</th>
<th>Native Client Reply</th>
<th>OCFO Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARTSTAT=NEEDS-ACTION</td>
<td>Decide later</td>
<td>None</td>
</tr>
<tr>
<td>PARTSTAT=ACCEPTED</td>
<td>Accepted</td>
<td>Accepted</td>
</tr>
<tr>
<td>PARTSTAT=DECLINED</td>
<td>Declined</td>
<td>Declined</td>
</tr>
</tbody>
</table>
Note that X-ORACLE-UNAVAILABLE is only meaningful when set to TRUE and PARTSTAT is set to DECLINED.

### ROLE

The intended role that the ATTENDEE or ORGANIZER will have in the calendar component.

### RSVP

Indicates whether the ATTENDEE should reply or contact the organizer of the calendar event.

### SENT-BY

Indicates who is acting on behalf of the ATTENDEE or ORGANIZER.

### X-ORACLE-GUID

Uniquely identifies Oracle Collaboration Suite users.

The following is an example of this property:

```
ATTENDEE;X-ORACLE-GUID=D99DBDBAAAF8D6D3DE0340003BA18F2E9:mailto:john.doe@example.com
```

### X-ORACLE-PERSONAL-COMMENT

Specifies the personal comment of a Calendar user. This parameter can be specified in the ATTENDEE property.

The value type of this property is a BASE64 encoded character string as defined by RFC 2045.

The following is an example of an attendee component with the X-ORACLE-PERSONAL-COMMENT property defined:

```
ATTENDEE;X-ORACLE-PERSONAL-COMMENT=
RoXMgaXMgYSBzdWx0aS1saW5lXG4NCiAgcGVyc29uYWwgYW5ub3RhdGlvdG9yIHN0cmluZyB0eXA=
MAILTO:john.doe@example.com
```

### X-ORACLE-PERSONAL-COMMENT-ISDIRTY

If set to TRUE, specifies that the DESCRIPTION property of the VEVENT component was modified after the value of the X-ORACLE-PERSONAL-COMMENT and

```
<table>
<thead>
<tr>
<th>ATTENDEE Property Parameters</th>
<th>Native Client Reply</th>
<th>OCFO Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARTSTAT=DECLINED</td>
<td>Declined; would prefer another time</td>
<td>Declined</td>
</tr>
<tr>
<td>X-ORACLE-UNAVAILABLE=TRUE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(This is only applicable when connecting to</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Release 2 (9.0.4) of the Oracle Calendar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>server)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PARTSTAT=TENTATIVE</td>
<td>Accepted; would prefer another time</td>
<td>Tentative</td>
</tr>
</tbody>
</table>

Table 3–6 (Cont.) PARTSTAT Possible Values
X-ORACLE-PERSONAL-COMMENT-RTF parameters were last modified. This parameter can be specified on the ATTENDEE property.

**X-ORACLE-PERSONAL-COMMENT-RTF**

Specifies the personal comment in Rich Text Format (RTF) of the Calendar user. This parameter can be specified in the ATTENDEE property.

**X-ORACLE-SHOWASFREE**

Specifies whether an event is transparent or not to searches for busy times for a specific attendee. It can have one of the following values:

- FREE
- BUSY
- OUT
- TENTATIVE

### Components of vCard

Describes business and personal contacts in a Calendar user’s address book. The following is a sample of a vCard:

```
BEGIN:VCARD
UID:ORACLE:CALSERV:CONTACT/AAAAAAABBBBBBBBBCCCCCCCCDDDDDDDD
REV:20040802T195051Z
EMAIL;TYPE=PREF;TYPE=INTERNET:calendar.user@my-company.com
ADR;TYPE=X-ORACLE-OTHER:;;;;;;
ADR;TYPE=HOME:;;;;;;
ADR;TYPE=WORK:;;;;;;
N:User;Calendar;;
FN:User, Calendar
VERSION:3.0
END:VCARD
```

<table>
<thead>
<tr>
<th>Component Property</th>
<th>Minimum Occurrences</th>
<th>Maximum Occurrences</th>
<th>Data Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADR</td>
<td>1</td>
<td>n</td>
<td>TEXT values separated by semicolons</td>
</tr>
<tr>
<td>AGENT</td>
<td>0</td>
<td>1</td>
<td>vCard (default), TEXT, URI</td>
</tr>
<tr>
<td>BDAY</td>
<td>0</td>
<td>1</td>
<td>DATE (default), DATE-TIME</td>
</tr>
<tr>
<td>CATEGORIES</td>
<td>0</td>
<td>n</td>
<td>TEXT values separated by commas</td>
</tr>
<tr>
<td>CLASS</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>EMAIL</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>FN</td>
<td>1</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>GEO</td>
<td>0</td>
<td>1</td>
<td>two FLOAT values separated by semicolons</td>
</tr>
<tr>
<td>KEY</td>
<td>0</td>
<td>1</td>
<td>BINARY (default), TEXT</td>
</tr>
<tr>
<td>LABEL</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>LOGO</td>
<td>0</td>
<td>1</td>
<td>BINARY (default), URI</td>
</tr>
<tr>
<td>MAILER</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
</tbody>
</table>
The following describes the iCalendar and Oracle-specific component properties of vCard.

### ADR

Specifies the components of the delivery address for the vCard object.

### AGENT

Specifies information about another person who will act on behalf of the individual or resource associated with the vCard.

### BDAY

Specifies the birth date of the object the vCard represents. The default is a single date value. It can also be reset to a single date-time value.

### CATEGORIES

Specifies application category information about the vCard.

### CLASS

Specifies the access classification for a vCard object.
<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMAIL</td>
<td>Specifies email address for communication with the object the vCard represents.</td>
</tr>
<tr>
<td>FN</td>
<td>Specifies the formatted text corresponding to the name of the object the vCard represents.</td>
</tr>
<tr>
<td>GEO</td>
<td>Specifies information related to the global positioning of the object the vCard represents.</td>
</tr>
<tr>
<td>KEY</td>
<td>Specifies a public key or authentication certificate associated with the object that the vCard represents.</td>
</tr>
<tr>
<td>LABEL</td>
<td>Specifies the formatted text corresponding to the delivery address of the object the vCard represents. It can include the type parameter TYPE to specify the delivery label type.</td>
</tr>
<tr>
<td>LOGO</td>
<td>Specifies a graphic image of a logo associated with the object the vCard represents.</td>
</tr>
<tr>
<td>MAILER</td>
<td>Specifies the type of electronic mail software that is used by the individual associated with the vCard.</td>
</tr>
<tr>
<td>N</td>
<td>Specifies the components of the name of the object the vCard represents.</td>
</tr>
<tr>
<td>NICKNAME</td>
<td>Specifies the descriptive name given instead of or in addition to the one that the vCard represents. It can also be used to specify a familiar form of a proper name specified by the FN or N types.</td>
</tr>
<tr>
<td>NOTE</td>
<td>Specifies supplemental information or a comment that is associated with the vCard.</td>
</tr>
<tr>
<td>ORG</td>
<td>Specifies the organizational name and units associated with the vCard.</td>
</tr>
<tr>
<td>PHOTO</td>
<td>Specifies an image or photograph information that annotates some aspect of the object the vCard represents. The default is a binary value. It can also be reset to uri value.</td>
</tr>
</tbody>
</table>
vCard Component Properties

PRODID
Specifies the identifier for the product that created the vCard object.

REV
Specifies revision information about the current vCard.

ROLE
Specify information concerning the role, occupation, or business category of the object the vCard represents.

SORT-STRING
Specifies the family name or given name text to be used for national-language-specific sorting of the FN and N types.

TEL
Specifies the telephone number of the object the vCard represents.

TZ
Specifies information related to the time zone of the object the vCard represents.

SOUND
This property is not supported.

TITLE
Specifies the job title, functional position or function of the object the vCard represents.

UID
Specifies a globally unique identifier corresponding to the individual or resource associated with the vCard component.

URL
Specifies a uniform resource locator associated with the object that the vCard refers to.

VERSION
Specifies the version of the vCard specification used to format this vCard. The property must be present in the vCard object. The value must be "3.0".
This chapter contains detailed information on functions included with the Oracle Calendar SDK.

## Functions

This section provides details on the following functions:

<table>
<thead>
<tr>
<th>Function Declaration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPIStatus CSDK_AddConditionToQuery (CSDKQuery in_query, CSDKCondition *in_condition, CSDKOperator in_operator)</td>
<td>Adds a condition to a query object.</td>
</tr>
<tr>
<td>CAPIStatus CSDK_Authenticate (CAPISession in_session, CAPIFlag in_flags, const char *in_user, const char *in_password)</td>
<td>Authenticates a calendar user.</td>
</tr>
<tr>
<td>CAPIStatus CSDK_ConfigureACE (CAPISession in_session, CAPIFlag in_flags, const char *in_authenticationMechanism, const char *in_compressionMechanism, const char *in_encryptionMechanism)</td>
<td>Configures the given session to use specific ACE (Authentication, Compression, and Encryption) mechanisms between the SDK client and the Calendar server.</td>
</tr>
<tr>
<td>CAPIStatus CSDK_Connect (CAPISession in_session, CAPIFlag in_flags, const char *in_host)</td>
<td>Establishes a connection with a calendar service.</td>
</tr>
<tr>
<td>CAPIStatus CSDK_ConnectAsSysop (CAPISession in_session, CAPIFlag in_flags, const char *in_host, const char *in_nodeId, const char *in_password)</td>
<td>Logs on as SYSOP; once logged on, SYSOP can assume the identity of any user on the same node by calling CSDK_SetIdentity().</td>
</tr>
<tr>
<td>CAPIStatus CSDK_CreateCallbackStream (CAPISession in_session, CAPIStream *out_stream, CAPICallback in_sendCallback, void *in_sendUserData, CAPICallback in_recvCallback, void *in_recvUserData, CAPIFlag in_flags)</td>
<td>Creates a callback stream that can be used to either supply data to, or receive data from, the SDK.</td>
</tr>
<tr>
<td>CAPIStatus CSDK_CreateFileStreamFromFilenames (CAPISession in_session, CAPIStream *out_stream, const char *in_readFileName, const char *in_readMode, const char *in_writeFileName, const char *in_writeMode, CAPIFlag in_flags)</td>
<td>Creates a file stream to allow the SDK to read from or write to files.</td>
</tr>
<tr>
<td>CAPIStatus CSDK_CreateMemoryStream (CAPISession in_session, CAPIStream *out_stream, const char *in_readBuffer, const char **in_writeBufferPtr, CAPIFlag in_flags)</td>
<td>Creates a memory stream, which uses data buffers to pass data between your application and the SDK.</td>
</tr>
<tr>
<td>CAPIStatus CSDK_CreateQuery (CSDKCondition *in_condition, CSDKQuery *out_query)</td>
<td>Creates a query object to be used with CSDK_FetchEventsByQuery or CSDK_FetchContactsByQuery.</td>
</tr>
<tr>
<td>CAPIStatus CSDK_CreateSession (CAPIFlag in_flags, CAPISession *out_session)</td>
<td>Creates a new session.</td>
</tr>
<tr>
<td>CAPIStatus CSDK_Deauthenticate (CAPISession in_session, CAPIFlag in_flags)</td>
<td>Deauthenticate the current user.</td>
</tr>
<tr>
<td>CAPIStatus CSDK_DeleteContacts (CAPISession in_session, CAPIFlag in_flags, CAPIUIDSet in_UIDs, CSDKRequestResult *out_requestResult)</td>
<td>Deletes vCards specified by a set of UIDs.</td>
</tr>
</tbody>
</table>
Table 4–1 (Cont.) Functions

<table>
<thead>
<tr>
<th>Function Declaration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPIStatus <code>CSDK_DeleteEvents</code> (CAPISession <code>in_session</code>, CAPIFlag <code>in_flags</code>, CAPIUIDSet <code>in_UIDs</code>, const char *<code>in_RECURRENCEID</code>, int <code>in_modifier</code>, CSDKRequestResult *<code>out_requestResult</code>)</td>
<td>Deletes specified events; must be acting as the event owner for this to succeed.</td>
</tr>
<tr>
<td>CAPIStatus <code>CSDK_DeleteTasks</code> (CAPISession <code>in_session</code>, CAPIFlag <code>in_flags</code>, CAPIUIDSet <code>in_UIDs</code>, CSDKRequestResult *<code>out_requestResult</code>)</td>
<td>Deletes tasks from the current user’s agenda.</td>
</tr>
<tr>
<td>CAPIStatus <code>CSDK_DestroyHandle</code> (CAPISession <code>in_session</code>, CAPIHandle *<code>in_handle</code>)</td>
<td>Destroys one handle.</td>
</tr>
<tr>
<td>CAPIStatus <code>CSDK_DestroyMultipleHandles</code> (CAPISession <code>in_session</code>, CAPIHandle *<code>in_handles</code>, int <code>in_numHandles</code>, CAPIFlag <code>in_flags</code>)</td>
<td>Destroys multiple handles returned by calls to CSDK_GetHandle().</td>
</tr>
<tr>
<td>CAPIStatus <code>CSDK_DestroyMultipleStreams</code> (CAPISession <code>in_session</code>, CAPIStream *<code>in_streams</code>, int <code>in_numStreams</code>, CAPIFlag <code>in_flags</code>)</td>
<td>Destroys streams created by the various CSDK_Create...Stream functions.</td>
</tr>
<tr>
<td>CAPIStatus <code>CSDK_DestroyQuery</code> (CSDKQuery *<code>io_query</code>)</td>
<td>Destroys a query object created by CSDK_CreateQuery.</td>
</tr>
<tr>
<td>CAPIStatus <code>CSDK_DestroyResult</code> (CSDKRequestResult *<code>io_requestResult</code>)</td>
<td>Disposes of all the results in <code>in_requestResult</code>.</td>
</tr>
<tr>
<td>CAPIStatus <code>CSDK_DestroySession</code> (CAPISession *<code>io_session</code>)</td>
<td>Destroys a session.</td>
</tr>
<tr>
<td>CAPIStatus <code>CSDK_DestroyStream</code> (CAPISession <code>in_session</code>, CAPIStream *<code>io_stream</code>)</td>
<td>Destroys a stream created by any of the various CSDK_Create...Stream functions.</td>
</tr>
<tr>
<td>CAPIStatus <code>CSDK_Disconnect</code> (CAPISession <code>in_session</code>, CAPIFlag <code>in_flags</code>)</td>
<td>Disconnects from the Oracle Calendar server.</td>
</tr>
<tr>
<td>CAPIStatus <code>CSDK_FetchContactsByQuery</code> (CAPISession <code>in_session</code>, CAPIFlag <code>in_flags</code>, CSDKQuery <code>in_query</code>, const char **<code>in_requestProperties</code>, CAPIStream <code>in_stream</code>, CSDKRequestResult *<code>out_requestResult</code>)</td>
<td>Fetches contacts which satisfy the conditions specified in the query.</td>
</tr>
<tr>
<td>CAPIStatus <code>CSDK_FetchContactsByUID</code> (CAPISession <code>in_session</code>, CAPIFlag <code>in_flags</code>, CAPIUIDSet <code>in_UIDs</code>, const char **<code>in_requestProperties</code>, CAPIStream <code>in_stream</code>, CSDKRequestResult *<code>out_requestResult</code>)</td>
<td>Fetches vCards from an authenticated connection.</td>
</tr>
<tr>
<td>CAPIStatus <code>CSDK_FetchEventsByAlarmRange</code> (CAPISession <code>in_session</code>, CAPIFlag <code>in_flags</code>, CAPIHandle *<code>in_agendas</code>, const char *<code>in_start</code>, const char *<code>in_end</code>, const char **<code>in_requestProperties</code>, CAPIStream <code>in_stream</code>, CSDKRequestResult *<code>out_requestResult</code>)</td>
<td>Fetches events which have alarms (reminders) that will trigger within the time range specified; the end of the time range is exclusive.</td>
</tr>
<tr>
<td>CAPIStatus <code>CSDK_FetchEventsByRange</code> (CAPISession <code>in_session</code>, CAPIFlag <code>in_flags</code>, CAPIHandle *<code>in_agendas</code>, const char *<code>in_start</code>, const char *<code>in_end</code>, const char **<code>in_requestProperties</code>, CAPIStream <code>in_stream</code>, CSDKRequestResult *<code>out_requestResult</code>)</td>
<td>Fetches events which occur within the time range specified.</td>
</tr>
<tr>
<td>CAPIStatus <code>CSDK_FetchEventsByUID</code> (CAPISession <code>in_session</code>, CAPIFlag <code>in_flags</code>, CAPIHandle *<code>in_agenda</code>, CAPIUIDSet <code>in_UIDs</code>, const char *<code>in_RECURRENCEID</code>, int <code>in_modifier</code>, const char **<code>in_requestProperties</code>, CAPIStream <code>in_stream</code>, CSDKRequestResult *<code>out_requestResult</code>)</td>
<td>Fetches events by their UIDs.</td>
</tr>
<tr>
<td>CAPIStatus <code>CSDK_FetchTasksByAlarmRange</code> (CAPISession <code>in_session</code>, CAPIFlag <code>in_flags</code>, CAPIHandle *<code>in_handles</code>, const char *<code>in_start</code>, const char *<code>in_end</code>, const char **<code>in_requestProperties</code>, CAPIStream <code>in_stream</code>, CSDKRequestResult *<code>out_requestResult</code>)</td>
<td>Fetches tasks that have alarms (reminders) that will trigger within the time range specified (the end of the time range is exclusive).</td>
</tr>
<tr>
<td>CAPIStatus <code>CSDK_FetchTasksByRange</code> (CAPISession <code>in_session</code>, CAPIFlag <code>in_flags</code>, CAPIHandle *<code>in_handles</code>, const char *<code>in_start</code>, const char *<code>in_end</code>, const char **<code>in_requestProperties</code>, CAPIStream <code>in_stream</code>, CSDKRequestResult *<code>out_requestResult</code>)</td>
<td>Fetches tasks which are active within the time range specified (the end of the time range is exclusive).</td>
</tr>
<tr>
<td>Function Declaration</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>CAPIStatus CSDK_FetchTasksByUID (CAPISession in_session, CAPIHandle in_handle, CAPIFlag in_flags, CAPIUIDSet in_UIDs, const char **in_requestProperties, CAPIStream in_stream, CSDKRequestResult *out_requestResult)</td>
<td>Retrieves tasks with given UIDs on the given agenda.</td>
</tr>
<tr>
<td>CAPIStatus CSDK_GetCapabilities (CAPISession in_session, CAPICapabilityID in_capabilityID, CAPIFlag in_flags, const char **out_value)</td>
<td>Returns information about this SDK release and/or the Oracle Calendar server.</td>
</tr>
<tr>
<td>CAPIStatus CSDK_GetFirstFailure (CSDKRequestResult in_requestResult, CAPIHandle *out_user, const char **out_uid, CAPIStatus *out_status)</td>
<td>Returns the first failure obtained from the function from which in_requestResult was returned.</td>
</tr>
<tr>
<td>CAPIStatus CSDK_GetFirstParseError (CSDKRequestResult in_requestResult, CAPIStatus *out_status, const char **out_errorBuffer, const char **out_errorLocation, const char **out_message)</td>
<td>Returns the first parsing error obtained from a request result.</td>
</tr>
<tr>
<td>CAPIStatus CSDK_GetFirstResult (CSDKRequestResult in_requestResult, CAPIHandle *out_user, const char **out_uid, CAPIStatus *out_status)</td>
<td>Returns the first result obtained from the function from which in_requestResult was returned.</td>
</tr>
<tr>
<td>CAPIStatus CSDK_GetHandle (CAPISession in_session, const char *in_user, CAPIFlag in_flags, CAPIHandle *out_handle)</td>
<td>Returns a handle to a particular user's calendar store.</td>
</tr>
<tr>
<td>CAPIStatus CSDK_GetHandleInfo (CAPISession in_session, CAPIHandle in_handle, CAPIFlag in_flags, const char **out_info)</td>
<td>Returns information about the agenda of the supplied handle.</td>
</tr>
<tr>
<td>CAPIStatus CSDK_GetNextFailure (CSDKRequestResult in_requestResult, CAPIHandle *out_user, const char **out_uid, CAPIStatus *out_status)</td>
<td>Returns the next failure contained in a CSDKRequestResult.</td>
</tr>
<tr>
<td>CAPIStatus CSDK_GetNextParseError (CSDKRequestResult in_requestResult, CAPIStatus *out_status, const char **out_errorBuffer, const char **out_errorLocation, const char **out_message)</td>
<td>Returns the next parsing error obtained from a request result.</td>
</tr>
<tr>
<td>CAPIStatus CSDK_GetNextResult (CSDKRequestResult in_requestResult, CAPIHandle *out_user, const char **out_uid, CAPIStatus *out_status)</td>
<td>Returns the next result contained in a CSDKRequestResult.</td>
</tr>
<tr>
<td>CSDK_GetStatusCode (CAPIStatus in_status, int *out_statusCode)</td>
<td>A status returned by the CALENDAR_SDK is composed of a status code and some extra bits giving extra context to the error that occurred.</td>
</tr>
<tr>
<td>CSDK_GetStatusLevels (CAPIStatus in_status, unsigned long *out_field1, unsigned long *out_field2, unsigned long *out_field3, unsigned long *out_field4, unsigned long *out_field5)</td>
<td>Decomposes a CAPIStatus into its subparts; each part of the status code specifies more precisely the actual error.</td>
</tr>
<tr>
<td>CSDK_GetStatusString (CAPIStatus in_status, const char **out_errorString)</td>
<td>Returns a read-only string representation of a CAPIStatus (this is generally more useful than the numeric representation).</td>
</tr>
<tr>
<td>CAPIStatus CSDK_setConfigFile (const char *in_configFileName, const char *in_logFileIdName)</td>
<td>Allows the SDK to read configuration settings that control error logging and the other configuration parameters listed in the &quot;Configuration&quot; section of this manual.</td>
</tr>
<tr>
<td>CAPIStatus CSDK_SetIdentity (CAPISession in_session, const char *in_user, CAPIFlag in_flags)</td>
<td>Allows an authenticated user to work on behalf of another calendar user or resource.</td>
</tr>
<tr>
<td>CAPIStatus CSDK_StoreContacts (CAPISession in_session, CAPIFlag in_flags, CAPIStream in_stream, CSDKRequestResult *out_requestResult)</td>
<td>Stores vCards on a server through an authenticated connection by in_session; The vCards must be passed in via a CAPIStream.</td>
</tr>
<tr>
<td>CAPIStatus CSDK_StoreEvents (CAPISession in_session, CAPIFlag in_flags, CAPIStream in_stream, CSDKRequestResult *out_requestResult)</td>
<td>This function reads one VCALENDAR object from in_stream and stores each contained VEVENT on the server.</td>
</tr>
<tr>
<td>CAPIStatus CSDK_StoreTasks (CAPISession in_session, CAPIFlag in_flags, CAPIStream in_stream, CSDKRequestResult *out_requestResult)</td>
<td>Creates/modifies tasks on the current user's agenda depending on the store flag passed in.</td>
</tr>
</tbody>
</table>
CSDK_AddConditionToQuery

Adds a condition to a query object.

```c
CAPIStatus CSDK_AddConditionToQuery (
    CSDKQuery in_query,
    CSDKCondition * in_condition,
    CSDKOperator in_operator
)
```

Each query may have multiple conditions, each AND'ed or OR'ed with the previous condition(s). There is no way to group conditions, and the OR operator (CSDK_LOP_OR) has a higher priority than the AND operator (CSDK_LOP_AND). Thus, C1 OR C2 AND C3 evaluates as (C1 OR C2) AND C3.

**Parameters**

- **in_query**
  A query object created by CSDK_CreateQuery

- **in_condition**
  Condition to add to query

- **in_operator**
  Specifies the operator to use between existing conditions and this one (for example, "OR", "AND")

**Returns**

- CAPIStatus

**Equivalent Java Method**

```
aracle.calendar.sdk.Query.addCondition()
```
CSDK_Authenticate

Authenticates a calendar user.

CAPIStatus CSDK_Authenticate (  
    CAPISession in_session,  
    CAPIFlag in_flags,  
    const char * in_user,  
    const char * in_password  
)

This must be done prior to making any calls to store or fetch data.
Refer to the section on User Identification for the format of the in_user parameter.

Parameters

in_session
Login session handle

in_flags
Bit flags modifying behavior. This must be CSDK_FLAG_NONE currently.

in_user
Must be a null-terminated string. Refer to the "User Identification" section for syntax.

in_password
User's password. May be NULL.

Returns

CAPIStatus

Sample

Connect to a server running on the default port of calserver.acme.com to authenticate as userid "keithm" using default ACE settings When no node is specified, either a master node or default node must be configured on the specified host):

{  
    CAPISession mySession = CSDK_SESSION_INITIALIZER;  
    status = CSDK_CreateSession(&mySession);  
    if (myStatus == CAPI_STAT_OK)  
    {  
        myStatus = CSDK_Connect(mySession, CAPI_FLAG_NONE, "calserver.acme.com");  
    }  
    if (myStatus == CAPI_STAT_OK)  
    {  
        myStatus = CSDK_Authenticate(mySession,  
            CAPI_FLAG_NONE,  
            "keithm",  
            "abcdefg");  
    }  
}
Sample

Connect to a server running on the default port of calserver.acme.com to authenticate as user "Keith MacDonald" using default ACE settings:

```c
{ CAPISession mySession = CSDK_SESSION_INITIALIZER; status = CSDK_CreateSession(&mySession); if (myStatus == CAPI_STAT_OK) { myStatus = CSDK_Connect(mySession, CAPI_FLAG_NONE, "calserver.acme.com"); } if (myStatus == CAPI_STAT_OK) { myStatus = CSDK_Authenticate(mySession, CAPI_FLAG_NONE, "/ND=200/", "abcdefg"); } }
```

Sample

Connect to a server running on the default port of calserver.acme.com to authenticate as userid keithm on node 200 using default ACE settings:

```c
{ CAPISession mySession = CSDK_SESSION_INITIALIZER; status = CSDK_CreateSession(&mySession); if (myStatus == CAPI_STAT_OK) { myStatus = CSDK_Connect(mySession, CAPI_FLAG_NONE, "calserver.acme.com"); } if (myStatus == CAPI_STAT_OK) { myStatus = CSDK_Authenticate(mySession, CAPI_FLAG_NONE, "keithm/ND=200/", "abcdefg"); } }
```

Sample

Connect to a server running on port 12345 of calserver.acme.com and use gssapi:kerberos5 authentication:

```c
{ CAPISession mySession = CSDK_SESSION_INITIALIZER; status = CSDK_CreateSession(&mySession); if (myStatus == CAPI_STAT_OK) { myStatus = CSDK_Connect(mySession, CAPI_FLAG_NONE, "calserver.acme.com:12345"); } if (myStatus == CAPI_STAT_OK) { myStatus = CSDK_ConfigureACE(mySession, CAPI_FLAG_NONE, "gssapi:kerberos5"); } }
```
if (myStatus == CAPI_STAT_OK) {
    myStatus = CSDK_Authenticate(mySession,
        CAPI_FLAG_NONE,
        "", // don't pass in user string
        ""); // don't pass in password
}

Cleanup

A call to CSDK_Deauthenticate must be made between calls to CSDK_Authenticate

Equivalent Java Method

oracle.calendar.sdk.Session.authenticate()
CSDK_ConfigureACE

Configures the given session to use specific ACE (Authentication, Compression, and Encryption) mechanisms between the SDK client and the Calendar server.

CAPIStatus CSDK_ConfigureACE (  
    CAPISession in_session,  
    CAPIFlag in_flags,  
    const char * in_authenticationMechanism,  
    const char * in_compressionMechanism,  
    const char * in_encryptionMechanism  
)  

If this function is not called, the default mechanisms as set on the Oracle Calendar server will be used.

The server needs proper configuration for some ACE mechanisms
NULL values can be specified to select the server's default mechanism for any of the three types of mechanisms.

Parameters

in_session
Login session handle

in_flags
SDK_FLAG_NONE

in_authenticationMechanism
Name of authentication mechanism (for example, "cs-standard", "gssapi:kerberos5", NULL)

in_compressionMechanism
Name of compression mechanism (for example, "cs-simple", "NONE", NULL)

in_encryptionMechanism
Name of encryption mechanism (for example, "cs-acipher1", "NONE", NULL)

Returns

CAPIStatus

Equivalent Java Method

oracle.calendar.sdk.Session.configureACE()
CSDK_Connect

Establishes a connection with a calendar service.

CAPIStatus CSDK_Connect (  
    CAPISession in_session,  
    CAPIFlag in_flags,  
    const char * in_host  
)

Parameters

in_session  
Login session handle

in_flags  
Bit flags (pass CSDK_FLAG_NONE)

in_host  
Calendar server host (with optional port number, for example "calserver.acme.com" or "calserver.acme.com:12345"). The host[:port] may optionally be followed by ?/CD=<calendar domain>/

Returns

CAPIStatus

Sample

Connect to the Oracle Calendar server calserver.acme.com. This connection can be used to authenticate as any user known to the masternode:

{
    CAPIStatus myStatus = CAPI_STAT_OK;
    CAPISession mySession = CSDK_SESSION_INITIALIZER;
    myStatus = CSDK_CreateSession(CSDK_FLAG_NONE, &mySession);
    if (myStatus == CAPI_STAT_OK) {
        myStatus = CSDK_connect(mySession, CSDK_FLAG_NONE, "calserver.acme.com");
    }
}

Cleanup

The server connection should be released by calling CSDK_Disconnect

Equivalent Java Method

oracle.calendar.sdk.Session.connect()
CSDK_ConnectAsSysop

Logs on as SYSOP; once logged on, SYSOP can assume the identity of any user on the same node by calling CSDK_SetIdentity().

```
CAPIStatus CSDK_ConnectAsSysop (  
  CAPISession in_session,  
  CAPIFlag in_flags,  
  const char * in_host,  
  const char * in_nodeId,  
  const char * in_password  
)
```

A node must always be specified since masternode and Calendar domain functionality is not available during logon as SYSOP.

If ACE mechanisms have been configured on the session, these will be ignored. The admin default ACE settings from the Oracle Calendar server will be used for all SYSOP connections.

SYSOP authentication is only available with version 5.3 and newer servers. An error will be returned if the specified host does not support this feature. A Calendar server may be configured to refuse SYSOP logon via the SDK in which case a security error will be returned.

The operations available to SYSOPs are limited to the following:

- Disconnecting by calling CSDK_Disconnect()
- Switching identity to a user by calling CSDK_SetIdentity()

Once the identity has been set to a user, all operations will be performed as if that user had logged in.

See CSDK_Connect() for the format of the in_host parameter.

**Parameters**

- **in_session**
  Login session handle

- **in_flags**
  Bit flags modifying behavior. This must be CSDK_FLAG_NONE currently.

- **in_host**
  Calendar server host name (with optional port number)

- **in_nodeId**
  Node ID to connect to as SYSOP. Node aliases are not currently supported.

- **in_password**
  SYSOP's password

**Returns**

CAPIStatus
See

CSDK_SetIdentity

Equivalent Java Method

oracle.calendar.sdk.Session.connectAsSysop()
CSDK_CreateCallbackStream

Creates a callback stream that can be used to either supply data to, or receive data from, the SDK.

```c
CAPIStatus CSDK_CreateCallbackStream (  
    CAPISession in_session,  
    CAPIStream * out_stream,  
    CAPICallback in_sendCallback,  
    void * in_sendUserData,  
    CAPICallback in_recvCallback,  
    void * in_recvUserData,  
    CAPIFlag in_flags  
)
```

C function pointers are supplied for each action (send, receive) that the SDK will call to either read or send data.

During a CSDK_Store...() call, the SDK will call the function in_sendCallback, passing in the value in_sendUserData (which is typically used to store some context to be used by the callback function).

During a CSDK_Fetch...() call, the SDK will call the function in_recvCallback, passing in the value in_recvUserData (which is typically used to store some context to be used by the callback function).

Both types of callback functions use the same function signature:

```c
typedef int (*CAPICallback)(  
    void * in_userData,    // user-defined data (the value supplied in CAPI_CreateCallbackStream)  
    char * io_data,        // buffer to read or write  
    size_t in_dataSize,    // the number of characters to read or write  
    size_t * out_dataSize); // the number of characters read or written
```

The return values from the callbacks must be one of the following:

- **Send callback:**
  - CAPI_CALLBACK_CONTINUE: There is more data to be read from the stream
  - CAPI_CALLBACK_DONE: There is no more data to be read from the stream
  - A positive integer: An error has occurred. This positive integer will be returned as part of the CAPIStatus returned in bit 5 with the value CAPI_STAT_API_CALLBACK_ERROR

- **Receive callback:**
  - CAPI_CALLBACK_CONTINUE: No error
  - A positive integer: An error has occurred (e.g. the stream cannot receive any more data). This positive integer will be returned as part of the CAPIStatus returned in bit 5 with the value CAPI_STAT_API_CALLBACK_ERROR

When the SDK has finished writing data to the receive callback, the callback will be called with in_dataSize == 0.
In many applications, it is easier to use either a memory stream or file stream than a callback stream.

**Parameters**

- **in_session**
  Login session handle

- **out_stream**
  On output, will point to new stream.

- **in_sendCallback**
  Send data callback

- **in_sendUserData**
  A value that will be passed to in_sendCallback

- **in_recvCallback**
  Receive data callback

- **in_recvUserData**
  A value that will be passed to in_recvCallback

- **in_flags**
  Bit flags (must be CSDK_FLAG_NONE at this time)

**Returns**

CAPIStatus

**Cleanup**

The stream returned by this function must be destroyed by calling CSDK_DestroyStreams()

**Return values**

- **CAPI_STAT_API_NULL**
  Both supplied callbacks were NULL

**See**

CSDK_CreateMemoryStream()

**See**

CSDK_CreateFileStreamFromFilenames()

**Equivalent Java Method**

None. The Java APIs only use String and StringBuffer objects to send and receive data.
CSDK_CreateFileStreamFromFilenames

Creates a file stream to allow the SDK to read from or write to files.

```c
CAPIStatus CSDK_CreateFileStreamFromFilenames (  
    CAPISession in_session,  
    CAPIStream * out_stream,  
    const char * in_readFileName,  
    const char * in_readMode,  
    const char * in_writeFileName,  
    const char * in_writeMode,  
    CAPIFlag in_flags  
)
```

**Parameters**

- `in_session`
  Login session handle

- `out_stream`
  On output, will point to new stream

- `in_readFileName`
  Name of file from which to read

- `in_readMode`
  Mode to pass while opening `in_readFileName`

- `in_writeFileName`
  Name of file to which to write

- `in_writeMode`
  Mode to pass while opening `in_writeFileName`

- `in_flags`
  Bit flags (must be CSDK_FLAG_NONE at this time)

**Returns**

CAPIStatus

**Cleanup**

The stream returned by this function must be destroyed by calling CSDK_DestroyStreams.

**Return values**

- `CAPI_STAT_SERVICE_FILE_MODE`
  An invalid mode was passed in

- `CAPI_STAT_SERVICE_FILE_OPEN`
  Failed to open a file
Sample

Store events from the file "events.ics"

```c
CAPIStream myInputStream = NULL;
CAPIStatus status = CAPI_CreateFileStreamFromFilenames(mySession,
&myInputStream,
"events.ics",
"rb",
NULL, // no output file
NULL, // no output file
CSDK_FLAG_NONE);

if (status == CAPI_STAT_OK)
{
    status = CAPI_StoreEvent(mySession,
        myHandles,
        numHandles,
        handleStatus,
        CAPI_STORE_REPLACE,
        myInputStream);

    CAPI_DestroyStreams(mySession,
        &myInputStream,
        1,
        CSDK_FLAG_NONE);
}
```

Sample

Fetch events and write them to the file "myAgenda.ics"

```c
CAPIStream myOutputStream = NULL;
CAPIStatus status = CSDK_CreateFileStreamFromFilenames(mySession,
&myOutputStream,
"myAgenda.ics",
"wb",
CSDK_FLAG_NONE);

if (status == CAPI_STAT_OK)
{
    status = CAPI_FetchEventsByRange(mySession,
        myHandles,
        numHandles,
        handleStatus,
        CSDK_FLAG_NONE,
        "20020722T000000",
        "20020722T235900",
        NULL,
        0,
        myOutputStream);

    CAPI_DestroyStreams(mySession,
        &myOutputStream,
        1,
        CSDK_FLAG_NONE);
}
```
Equivalent Java Method

None. The Java APIs only use String and StringBuffer objects to send and receive data.
CSDK_CreateMemoryStream

Creates a memory stream, which uses data buffers to pass data between your application and the SDK.

CAPIStatus CSDK_CreateMemoryStream (
    CAPISession in_session,
    CAPIStream * out_stream,
    const char * in_readBuffer,
    const char ** out_writeBufferPtr,
    CAPIFlag in_flags
)

This is often the simplest type of stream to use.

Read buffers are read by the SDK during CSDK_Store...() calls and write buffers are written to by the SDK during CSDK_Fetch...() calls. The read buffers are managed by your application, whereas the SDK will allocate and free memory for the write buffers. The write buffer is freed by the SDK when the memory stream is destroyed.

Parameters

in_session
Login session handle

out_stream
On output, will point to new stream.

in_readBuffer
Buffer for the SDK to read from

out_writeBufferPtr
This address will point to the buffer CAPI is writing into.

in_flags
Bit flags (must be CSDK_FLAG_NONE at this time)

Returns

CAPIStatus

Cleanup

The stream returned by this function must be destroyed by calling CSDK_DestroyStreams.

Return values

CAPI_STAT_API_NULL
: both supplied buffers were NULL

Sample

Store events from the buffer "events":

    const char events[] = "MIME-Version: 1.0\r\n"    "Content-Type: text/calendar\r\n"
Sample

Fetch events and write them to a buffer:

```
const char * todaysEvents = NULL;
CAPIStream myOutputStream = NULL;
CAPIStatus status = CAPI_CreateMemoryStream(mySession,
    &myOutputStream,
    NULL, // no read buffer
    &todaysEvents,
    CSDK_FLAG_NONE);
if (status == CAPI_STAT_OK)
{
    status = CAPI_FetchEventsByRange(mySession,
        myHandles,
        numHandles,
        handleStatus,
        CSDK_FLAG_NONE,
        "20020722T000000",
        "20020722T235900",
        NULL,
        0,
        myOutputStream);
    if (status == CAPI_STAT_OK)
    {
        printf("Today's events:\n%s", todaysEvents);
    }
}
CAPI_DestroyStreams(mySession,
    &myOutputStream,
    1,
    CSDK_FLAG_NONE);
```
**Equivalent Java Method**

None. The Java APIs only use String and StringBuffer objects to send and receive data.
CSDK_CreateQuery

Creates a query object to be used with CSDK_FetchEventsByQuery or CSDK_FetchContactsByQuery.

CAPIStatus CSDK_CreateQuery (  
    CSDKCondition * in_condition,  
    CSDKQuery * out_query  
)

An initial condition is specified (for example, "LOCATION equals "pub") and more conditions may be added using CSDK_AddConditionToQuery.

Parameters

**in_condition**  
Initial condition for query

**out_query**  
On output, will contain new query object

Returns

CAPIStatus

Cleanup

The query object MUST be destroyed by calling CSDK_DestroyQuery

Sample

Create a query that specifies SUMMARY properties whose values contain "lunch". Add a condition that specifies DESCRIPTION properties whose values contain "lunch". Add another condition that specifies LOCATION properties whose values are equal to "pub":

```
//
CSDKCondition cond;
//
cond.prop = "SUMMARY";
cond.op = CSDK_OP_CONTAINS;
cond.value = "lunch";
/
CSDKQuery myQuery = CSDK_QUERY_INITIALIZER;
stat = CSDK_CreateQuery(&cond,  
    &myQuery);
/
cond.prop = "DESCRIPTION";
cond.op = CSDK_OP_CONTAINS;
cond.value = "lunch";
/
stat = CSDK_AddConditionToQuery(myQuery,  
    &cond,  
    CSDK_LOP_OR);
/
cond.prop = "LOCATION";
cond.op = CSDK_OP_EQ;
cond.value = "pub";
```
//
stat = CSDK_AddConditionToQuery(myQuery,
    &cond,
    CSDK_LOP_AND);
//
stat = CSDK_FetchEventsByQuery(mySession,
    CSDK_FLAG_FETCH_MATCH_CASE,
    searchAgendas,
    "+P0D", // aka "now"
    "+P1W", // +1 week from now
    myQuery,
    attendees,
    NULL, // get all properties
    myStream,
    &requestResult);
//
CSDK_DestroyQuery(&myQuery);

Equivalent Java Method
oracle.calendar.sdk.Query constructor
CSDK_CreateSession

Creates a new session.

```c
CAPIStatus CSDK_CreateSession ( 
    CAPIFlag in_flags, 
    CAPISession * out_session 
)
```

**Parameters**

- **in_flags**
  Bit flags (currently, set this to CSDK_FLAG_NONE)

- **out_session**
  Pointer to new session

**Cleanup**

The session must be destroyed using CSDK_DestroySession()

**Equivalent Java Method**

oracle.calendar.sdk.Session constructor

**Returns**

CAPIStatus
CSDK_Deauthenticate

Deauthenticates the current user.

```c
CAPIStatus CSDK_Deauthenticate (  
    CAPISession in_session,  
    CAPIFlag in_flags  
)
```

An unauthenticated server connection is kept open and can be used to re-authenticate again. The server connection is kept open until either a call to CSDK_Disconnect() or the session is destroyed.

**Parameters**

- **in_session**
  Login session handle

- **in_flags**
  Bit flags modifying behavior. This must be CSDK_FLAG_NONE currently.

**Returns**

CAPIStatus

**Equivalent Java Method**

`oracle.calendar.sdk.Session.deauthenticate()`
CSDK_DeleteContacts

Deletes vCards specified by a set of UIDs.

CAPIStatus CSDK_DeleteContacts {
    CAPISession in_session,
    CAPIFlag in_flags,
    CAPIUIDSet in_UIDs,
    CSDKRequestResult * out_requestResult
}

This function is blocked for SYSOP that has not assumed the identity of a user.

Parameters

in_session
Login session handle

in_flags
Bit flags:

■ CSDK_FLAG_NONE
■ CSDK_FLAG_CONTINUE_ON_ERROR: if the fetch fails on one uid we still fetch the other valid uid's and return the stream with these *valid* events. out_requestResult will contain information on every uid's we tried to fetch.

in_UIDs
NULL terminated array of strings containing UIDs of vCards to delete

out_requestResult
Pointer to a RequestResult that will get filled

Returns

CAPIStatus

Return values

CAPI_STAT_API_HANDLE_NULL
The session was NULL

CAPI_STAT_API_NULL
in_UIDs was NULL

Equivalent Java Method

oracle.calendar.sdk.Session.deleteContacts()
CSDK_DeleteEvents

Deletes specified events; must be acting as the event owner for this to succeed.

```c
CAPIStatus CSDK_DeleteEvents ( 
    CAPISession in_session, 
    CAPIFlag in_flags, 
    CAPIUIDSet in_UIDs, 
    const char * in_RECURRENCEID, 
    int in_modifier, 
    CSDKRequestResult * out_requestResult 
)
```

This does not "uninvite" attendees; it deletes the event. Individual (or a range) of instances can be deleted using [in_RECURRENCEID, in_modifier], but only a single UID can be used in this case.

**Parameters**

- **in_session**
  Login session handle

- **in_flags**
  Bit Flags:
  - CSDK_FLAG_NONE: Default behavior
  - CSDK_FLAG_CONTINUE_ON_ERROR: if the delete fails on one UID we still delete the other valid UIDs. `out_requestResult` will contain information on every UID we tried to fetch.

- **in_UIDs**
  An array of strings containing the UID(s) of the event(s) to delete. The array MUST be terminated with either a NULL (zero) pointer, or an empty (length zero) string.

- **in_RECURRENCEID**
  To delete ALL occurrences of an event, pass in NULL or an empty string. To delete individual (or a range of) occurrences, specify an iCalendar recurrence-id in either DATE or DATE-TIME format that identifies one occurrence of the event.

- **in_modifier**
  When a recurrence-id is specified using in_RECURRENCEID, this modifier determines whether the specified occurrences, or a range of occurrences will be deleted. The following are the possible values:
  - CAPI_THISINSTANCE
  - CAPI_THISANDPRIOR
  - CAPI_THISANDFUTURE

- **out_requestResult**
  If non-NULL, will be filled in with detailed results of the transaction

**Returns**

- CAPIStatus
Cleanup

The request result must be destroyed using CSDK_DestroyRequestResult

Equivalent Java Method

oracle.calendar.sdk.Session.deleteEvents()
CSDK_DeleteTasks

Deletes tasks from the current user's agenda.

```c
CAPIstatus CSDK_DeleteTasks (  
    CAPISession in_session,  
    CAPIFlag in_flags,  
    CAPIUIDSet in_UIDs,  
    CSDKRequestResult * out_requestResult  
)
```

This function is blocked for SYSOP that has not assumed the identity of a user.

**Parameters**

- **in_session**
  Login handle session

- **in_flags**
  Bit Flags:
  - CSDK_FLAG_NONE: Default behavior
  - CSDK_FLAG_CONTINUE_ON_ERROR: if the delete fails on one uid we still delete the other valid UIDs. out_requestResult will contain information on every UID we tried to fetch.

- **in_UIDs**
  NULL terminated array of task UIDs

- **out_requestResult**
  Returned request result object

**Returns**

- CAPIStatus

**Return values**

- **CAPI_STAT_OK**
- **CAPI_STAT_API_SESSION_NULL**
  in_session is NULL
- **CAPI_STAT_API_NULL**
  in_UIDSet is NULL

**Equivalent Java Method**

```java
oracle.calendar.sdk.Session.deleteTasks()
```
CSDK_DestroyHandle

Destroys one handle.

```c
CAPIStatus CSDK_DestroyHandle (
    CAPISession in_session,
    CAPIHandle * in_handle
)
```

Parameters

**in_session**
Login session handle

**in_handle**
Handle (returned by CSDK_GetHandle) to destroy

Returns

CAPIStatus

Sample

Destroy one handle:

```c
{
    CAPIHandle h1 = CSDK_HANDLE_INITIALIZER;
    CSDK_GetHandle(mySession, 'arthur', CSDK_FLAG_NONE, &h1);
    ...
    OCAP_DestroyHandle(mySession, &h1);
}
```

Equivalent Java Method

None. oracle.calendar.sdk.Handle finalizer will destroy handles.
CSDK_DestroyMultipleHandles

Destroys multiple handles returned by calls to CSDK_GetHandle().

```
CAPIStatus CSDK_DestroyMultipleHandles {
  CAPISession in_session,
  CAPIHandle * in_handles,
  int in_numHandles,
  CAPIFlag in_flags
}
```

Parameters

- **in_session**
  Login session handle

- **in_handles**
  Array of handles (returned by CSDK_GetHandle) to destroy

- **in_numHandles**
  The size of the handle array

- **in_flags**
  Bit flags (none at this time, set to CSDK_FLAG_NONE)

Returns

- CAPIStatus

Sample

Destroy two handles:

```
{
  CAPIHandle h1 = CSDK_HANDLE_INITIALIZER;
  CAPIHandle h2 = CSDK_HANDLE_INITIALIZER;
  CSDK_GetHandle(mySession, "arthur", CSDK_FLAG_NONE, &h1);
  CSDK_GetHandle(mySession, "tim..." , CSDK_FLAG_NONE, &h2);
  ...
  CAPIHandle handles[] = {h1, h2};
  CSDK_DestroyMultipleHandles(mySession, handles, 2, CSDK_FLAG_NONE);
}
```

Equivalent Java Method

None. oracle.calendar.sdk.Handle finalizer will destroy handles.
CSDK_DestroyMultipleStreams

Destroys streams created by the various CSDK_Create...Stream functions.

```c
CAPIStatus CSDK_DestroyMultipleStreams (  
    CAPISession in_session,  
    CAPIStream * in_streams,  
    int in_numStreams,  
    CAPIFlag in_flags  
)
```

**Parameters**

- **in_session**
  The session with which streams are associated

- **in_streams**
  Array of streams to destroy

- **in_numStreams**
  The number of streams in in_streams to destroy

- **in_flags**
  Bit flags modifying behavior. Must be CSDK_FLAG_NONE at this time.

**Returns**

- CAPIStatus

**Equivalent Java Method**

None. The Java APIs only use String and StringBuffer objects to send and receive data.
CSDK_DestroyQuery

Destroys a query object created by CSDK_CreateQuery.

```c
CAPIStatus CSDK_DestroyQuery (  
    CSDKQuery * io_query  
)
```

**Parameters**

- `io_query`  
  A pointer to a query object to destroy. Will point to CSDK_QUERY_INITIALIZER on exit.

**Returns**

- CAPIStatus

**Equivalent Java Method**

None. oracle.calendar.sdk.Query finalizer destroys object.
CSDK_DestroyResult

Disposes of all the results in in_requestResult.

CAPIStatus CSDK_DestroyResult (  
    CSDKRequestResult * io_requestResult  
)

Parameters

io_requestResult
The RequestResult to destroy

Returns

CAPIStatus

Return values

CAPI_STAT_API_NULL
The result io_requestResult has a NULL value

Equivalent Java Method

oracle.calendar.sdk.Result finalizer
CSDK_DestroySession

Destroys a session.

```c
CAPIStatus CSDK_DestroySession ( 
    CAPISession * io_session
)
```

**Parameters**

* io_session
  Pointer to session to destroy. Will point to CAPI_SESSION_INITIALIZER on output.

**Returns**

CAPIStatus

**Equivalent Java Method**

```
oracle.calendar.sdk.Session finalizer
```
CSDK_DestroyStream

CSDK_DestroyStream

Destroys a stream created by any of the various CSDK_Create...Stream functions.

```c
CAPIStatus CSDK_DestroyStream (
    CAPISession in_session,
    CAPIStream * io_stream
)
```

Parameters

- **in_session**
  The session with which the stream is associated

- **io_stream**
  Stream to destroy

Returns

CAPIStatus

Equivalent Java Method

None. The Java APIs only use String and StringBuffer objects to send and receive data.
CSDK_Disconnect

Disconnects from the Oracle Calendar server.

```c
CAPIStatus CSDK_Disconnect (  
    CAPISession in_session,  
    CAPIFlag in_flags  
)
```

**Parameters**

- **in_session**
  Login session handle

- **in_flags**
  Bit flags modifying behavior. This must be CSDK_FLAG_NONE currently.

**Returns**

CAPIStatus

**Equivalent Java Method**

```java
oracle.calendar.sdk.Session.disconnect()
```
CSDK_FetchContactsByQuery

Fetches contacts which satisfy the conditions specified in the query.

```c
CAPIStatus CSDK_FetchContactsByQuery (
    CAPISession in_session,
    CAPIFlag in_flags,
    CSDKQuery in_query,
    const char ** in_requestProperties,
    CAPIStream in_stream,
    CSDKRequestResult * out_requestResult
)
```

The returned vCards are returned via in_sendStream, and by default will be in MIME format. Each vCard fetched vCard will be in a separate MIME part. The character set will be UTF-8.

To avoid having the stream MIME-encapsulated, pass in the flag CSDK_FLAG_STREAM_NOT_MIME.

Currently the supported types for the queries are N, FN, BDAY, TITLE, ROLE, NOTE, CATEGORIES, NICKNAME, X-ORACLE-SPOUSE, X-ORACLE-ANNIVERSARY, X-ORACLE-OFFICE, and X-ORACLE-ASSISTANTNAME.

Parameters

- **in_session**
  Login session handle

- **in_flags**
  Bit flags
  - CSDK_FLAG_NONE
  - CSDK_FLAG_STREAM_NOT_MIME: Do NOT wrap the output in a MIME container

- **in_query**
  A query object containing the search criteria

- **in_requestProperties**
  To fetch only specific vCard properties of the contacts, pass in an array of property names. The array MUST be terminated with either a NULL (zero) pointer, or an empty (length zero) string. An empty array (i.e. NULL or an empty string), will cause all available properties to be returned.

- **in_stream**
  Stream for the SDK to write into

- **out_requestResult**
  If non-NULL, will be filled in with detailed results of the transaction.

Returns

- CAPIStatus
Cleanup

The request result must be destroyed using CSDK_DestroyRequestResult

Equivalent Java Method

oracle.calendar.sdk.Session.fetchContactsByQuery()

See

CSDK_CreateQuery
CSDK_FetchContactsByUID

Fetches vCards from an authenticated connection.

CAPIStatus CSDK_FetchContactsByUID (
    CAPISession in_session,
    CAPIFlag in_flags,
    CAPIUIDSet in_UIDs,
    const char ** in_requestProperties,
    CAPIStream in_stream,
    CSDKRequestResult * out_requestResult
)

The fetched vCards are by default in MIME format. Each vCard fetched vCard will be in a separate MIME part. The character set will be UTF-8.

To avoid having the stream MIME-encapsulated, pass in the flag CSDK_FLAG STREAM_NOT_MIME.

This function is blocked for SYSOP that has not assumed the identity of a user.

Parameters

in_session
Login session handle

in_flags
Bit flags:

■ CSDK_FLAG_NONE
■ CSDK_FLAG_STREAM_NOT_MIME: Do not wrap the output in a MIME container
■ CSDK_FLAG_CONTINUE_ON_ERROR: if the fetch fails on one uid we still fetch the other valid uid's and return the stream with these *valid* events. out_requestResult will contain information on every uid's we tried to fetch.

in_UIDs
NULL terminated array of strings containing UIDs of vCards to fetch

in_requestProperties
To fetch only specific vCard properties of the contacts, pass in an array of property names. The array MUST be terminated with either a NULL (zero) pointer, or an empty (length zero) string. An empty array (i.e. NULL or an empty string), will cause all available properties to be returned.

in_stream
Stream for the SDK to write into

out_requestResult
If non-NULL, will be filled in with detailed results of the transaction.

Returns

CAPIStatus
Cleanup

The request result must be destroyed using CSDK_DestroyRequestResult

Return values

- **CAPI_STAT_API_HANDLE_NULL**
  The session was NULL

- **CAPI_STAT_API_STREAM_NULL**
  The stream was NULL

- **CAPI_STAT_API_NULL**
  in_UIDSet was NULL

- **CAPI_STAT_API_BADPARAM**
  in_UIDCount was 0

Equivalent Java Method

oracle.calendar.sdk.Session.fetchContactsByUID()
CSDK_FetchEventsByAlarmRange

Fetches events which have alarms (reminders) that will trigger within the time range specified; the end of the time range is exclusive.

CAPIStatus CSDK_FetchEventsByAlarmRange (  
    CAPISession in_session,  
    CAPIFlag in_flags,  
    CAPIHandle * in_agendas,  
    const char * in_start,  
    const char * in_end,  
    const char ** in_requestProperties,  
    CAPIStream in_stream,  
    CSDKRequestResult * out_requestResult  
)  

Parameters

in_session
Login session handle

in_flags
Bit flags:

- CSDK_FLAG_NONE: Default behavior
- CSDK_FLAG_FETCH_AGENDA_ATTENDEE_ONLY: Only get/return ATTENDEE for the agenda being viewed
- CSDK_FLAG_FETCH_COMBINED: Return all events in one VCALENDAR rather than one VCALENDAR per agenda. This is faster.
- CSDK_FLAG_FETCH_EXCLUDE_HOLIDAYS: Do not fetch holidays
- CSDK_FLAG_FETCH_EXCLUDE_DAILYNOTES: Do not fetch daily notes
- CSDK_FLAG_FETCH_EXCLUDE_DAYEVENTS: Do not fetch day events
- CSDK_FLAG_FETCH_EXCLUDE_APPOINTMENTS: Do not fetch appointments
- CSDK_FLAG_FETCH_EXCLUDE_ACCEPTED: Do not fetch accepted events
- CSDK_FLAG_FETCH_EXCLUDE_DECLINED: Do not fetch declined events
- CSDK_FLAG_FETCH_EXCLUDE_UNCONFIRMED: Do not fetch unconfirmed events
- CSDK_FLAG_FETCH_LOCALTIMES: Return all dates and times in the user's time zone (the user's time zone preference stored on the Oracle Calendar server)
- CSDK_FLAG_FETCH_DO_NOT_EXPAND_RRULE: Do not expand recurrence rules. This will cause the entire event to be returned instead of only the instances which have alarms scheduled to trigger during the range.
- CSDK_FLAG_STREAM_NOT_MIME: Do not wrap the iCalendar in a MIME container

in_agendas
The agenda(s) in which to search for events. This parameter is an array of CAPIHandles, and MUST be terminated with a zero value (CSDK_HANDLE_
CSDK_FetchEventsByAlarmRange

INITIALIZER). A NULL value, or an empty array will search on the current user’s agenda.

**in_start**
Beginning of date/time range. May be of any of the following forms:

- **DATE**: For example, 20020928
- **DATE-TIME**: Must be in either floating (for example, 20020929T120000) or UTC time (e.g. 20020929T170000Z). Floating time uses the user’s time zone (the user’s time zone preference stored on the Calendar server).
- **DURATION**: A relative date or date-time expressed using the duration notation (for example, +PT5DT3H represents 5 days 3 hours in the future, -PT1W 1 week in the past). in_start is relative to the current time at the moment of the fetch.

**in_end**
End of date/time range. May be in any of the formats shown for in_start.

- **NOTE** for DURATION: duration specified as the in_end is relative to the in_start.
  
  ex: in_end = +P2D, means in_end = in_start + 2 Days

**in_requestProperties**
To fetch only specific iCalendar properties of the events, pass in an array of property names. The array MUST be terminated with either a NULL (zero) pointer, or an empty (length zero) string. An empty array (such as NULL or an empty string) will cause all available properties to be returned.

**in_stream**
Stream for CAPI to write into

**out_requestResult**
If non-NULL, will be filled in with detailed results of the transaction.

**Returns**

CAPIStatus

**Cleanup**

The request result must be destroyed using CSDK_DestroyRequestResult

**Equivalent Java Method**

oracle.calendar.sdk.Session.fetchEventsByAlarmRange()
CSDK_FetchEventsByRange

Fetches events which occur within the time range specified.

```c
CAPIStatus CSDK_FetchEventsByRange (
    CAPISession in_session,
    CAPIFlag in_flags,
    CAPIHandle * in_agendas,
    const char * in_start,
    const char * in_end,
    const char ** in_requestProperties,
    CAPIStream in_stream,
    CSDKRequestResult * out_requestResult
)
```

The end of the time range is exclusive.

**Parameters**

- **in_session**
  Login session handle

- **in_flags**
  Bit flags:
  - CSDK_FLAG_NONE: Default behavior
  - CSDK_FLAG_FETCH_AGENDA_ATTENDEE_ONLY: Only get/return ATTENDEE for the agenda being viewed
  - CSDK_FLAG_FETCH_COMBINED: Return all events in one VCALENDAR rather than one VCALENDAR per agenda. This is faster.
  - CSDK_FLAG_FETCH_EXCLUDE_HOLIDAYS: Do not fetch holidays
  - CSDK_FLAG_FETCH_EXCLUDE_DAILYNOTES: Do not fetch daily notes
  - CSDK_FLAG_FETCH_EXCLUDE_DAYEVENTS: Do not fetch day events
  - CSDK_FLAG_FETCH_EXCLUDE_APPOINTMENTS: Do not fetch appointments
  - CSDK_FLAG_FETCH_EXCLUDE_ACCEPTED: Do not fetch accepted events
  - CSDK_FLAG_FETCH_EXCLUDE_DECLINED: Do not fetch declined events
  - CSDK_FLAG_FETCH_EXCLUDE_UNCONFIRMED: Do not fetch unconfirmed events
  - CSDK_FLAG_FETCH_LOCALTIMES: Return all dates & times in the user's time zone (the user's time zone preference stored on the Oracle Calendar server)
  - CSDK_FLAG_FETCH_DO_NOT_EXPAND_RRULE: Do not expand recurrence rules. This will cause the entire event to be returned instead of only the instances which fall during the range.
  - CSDK_FLAG_STREAM_NOT_MIME: Do not wrap the iCalendar in a MIME container

- **in_agendas**
  The agenda(s) in which to search for events. This parameter is an array of CAPIHandles, and MUST be terminated with a zero value (CSDK_HANDLE_
INITIALIZER). A NULL value, or an empty array will search on the current user's agenda.

**in_start**
Beginning of date/time range. May be of any of the following forms:
- DATE: For example, 20020928
- DATE-TIME: Must be in either floating (for example, 20020929T120000) or UTC time (e.g. 20020929T170000Z). Floating time uses the user's time zone (the user's time zone preference stored on the Calendar server).
- DURATION: A relative date or date-time expressed using the duration notation (for example, +PT5DT3H represents 5 days 3 hours in the future, -PT1W 1 week in the past). in_start is relative to the current time at the moment of the fetch.

**in_end**
End of date/time range. May be in any of the formats shown for in_start.
- NOTE for DURATION: duration specified as the in_end is relative to the in_start.
  ex: in_end = +P2D, means in_end = in_start + 2 Days

**in_requestProperties**
To fetch only specific iCalendar properties of the events, pass in an array of property names. The array MUST be terminated with either a NULL (zero) pointer, or an empty (length zero) string. An empty array (such as NULL or an empty string), will cause all available properties to be returned.

**in_stream**
Stream for CAPI to write into

**out_requestResult**
If non-NULL, will be filled in with detailed results of the transaction.

**Returns**
CAPIStatus

**Cleanup**
The request result must be destroyed using CSDK_DestroyRequestResult

**Equivalent Java Method**
oracle.calendar.sdk.Session.fetchEventsByRange()
CSDK_FetchEventsByUID

Fetches events by their UIDs.

```
CAPIStatus CSDK_FetchEventsByUID (  
  CAPISession in_session,  
  CAPIFlag in_flags,  
  CAPIHandle in_agenda,  
  CAPIUIDSet in_UIDs,  
  const char * in_RECURRENTCEID,  
  int in_modifer,  
  const char ** in_requestProperties,  
  CAPIStream in_stream,  
  CSDKRequestResult * out_requestResult  
)
```

Specific instances of one event may be fetched using the in_RECURRENTCEID and in modifier parameters.

Specific properties can be requested using the in_requestProperties parameter. This parameter is a NULL(zero)-terminated or "empty string"-terminated array of C strings containing the property names to be returned.

For maximum performance, limit the properties you request (particularly the ATTENDEE property) to only what you need.

**Parameters**

`in_session`
Login session handle

`in_flags`
Bit flags:

- CSDK_FLAG_NONE: Default behavior
- CSDK_FLAG_FETCH_AGENDA_ATTENDEE_ONLY: Only get/return ATTENDEE for the agenda being viewed
- CSDK_FLAG_FETCH_LOCALTIMES: Return all dates & times in the user's time zone (the user's time zone preference stored on the Oracle Calendar server)
- CSDK_FLAG_FETCH_EXPAND_RRULE: Expand recurrence rules and return a set of VEVENTs one per instance generated by the recurrence rule
- CSDK_FLAG_CONTINUE_ON_ERROR: If the fetch fails on one uid we still fetch the other valid UIDs and return the stream with these *valid* events. out_requestResult will contain information on every UID we tried to fetch.
- CSDK_FLAG_STREAM_NOT_MIME: Do not wrap the iCalendar in a MIME container

`in_agenda`
The agenda on which to search for event(s) with the given UID(s). A NULL value will search on the current user's agenda.

`in_UIDs`
An array of strings containing the UID(s) of the events to fetch. The array MUST be terminated with either a NULL (zero) pointer, or an empty (length zero) string.
**in_RECURRENCEID**
To fetch ALL occurrences of an event, pass in NULL or an empty string. To fetch individual (or a range of) occurrences, specify an iCalendar recurrence-id in either DATE or DATE-TIME format which identifies one occurrence of the event.

**in_modifier**
When a recurrence-id is specified using in_RECURRENCEID, this modifier determines whether the specified occurrences, or a range of occurrences will be fetched. Values are:

- CAPI_THISINSTANCE
- CAPI_THISANDPRIOR
- CAPI_THISANDFUTURE

**in_requestProperties**
To fetch only specific iCalendar properties of the events, pass in an array of property names. The array MUST be terminated with either a NULL (zero) pointer, or an empty (length zero) string. An empty array (such as NULL or an empty string), will cause all available properties to be returned.

**in_stream**
Stream for CAPI to write into

**out_requestResult**
If non-NULL, will be filled in with detailed results of the transaction.

**Returns**
CAPIStatus

**Cleanup**
The request result must be destroyed using CSDK_DestroyRequestResult

**Equivalent Java Method**
oracle.calendar.sdk.Session.fetchEventsByUID()
CSDK_FetchTasksByAlarmRange

Fetches tasks that have alarms (reminders) that will trigger within the time range specified (the end of the time range is exclusive).

```c
CAPIStatus CSDK_FetchTasksByAlarmRange (
    CAPISession in_session,
    CAPIFlag in_flags,
    CAPIHandle * in_handles,
    const char * in_start,
    const char * in_end,
    const char ** in_requestProperties,
    CAPIStream in_stream,
    CSDKRequestResult * out_requestResult
)
```

**Parameters**

- **in_session**
  Login session handle

- **in_flags**
  Bit flags:
  - CSDK_FLAG_NONE
  - CSDK_FLAG_STREAM_NOT_MIME: Do NOT wrap the iCalendar in a MIME container

- **in_handles**
  The agenda(s) on which to search for tasks. This parameter is an array of CAPIHandles, and MUST be terminated with a zero value (CSDK_HANDLE_INITIALIZER). A NULL value, or an empty array will search on the current user's agenda.

- **in_start**
  Beginning of date/time range. May be in any of the following forms:
  - DATE: For example, 20020928
  - DATE-TIME: Must be in either floating (for example, 20020929T120000) or UTC time (for example, 20020929T170000Z)
  - DURATION: A relative date or date-time expressed using the duration notation (for example, +PT5DT3H represents 5 days 3 hours in the future, -PT1W 1 week in the past). in_start is relative to the current time at the moment of the fetch.

- **in_end**
  End of date/time range. May be in any of the formats shown for in_start.
  - NOTE for DURATION: duration specified as the in_end is relative to the in_start.
    ex: in_end = +P2D, means in_end = in_start + 2 Days

- **in_requestProperties**
  To fetch only specific iCalendar properties of the tasks, pass in an array of property names. The array MUST be terminated with either a NULL (zero) pointer, or an empty
(length zero) string. An empty array (such as NULL or an empty string), will cause all available properties to be returned.

**in_stream**
Stream for CAPI to write into

**out_requestResult**
If non-NULL, will be filled in with detailed results of the transaction.

**Returns**

CAPIStatus

**Cleanup**

The request result must be destroyed using CSDK_DestroyRequestResult

**Equivalent Java Method**

oracle.calendar.sdk.Session.fetchTasksByAlarmRange()
CSDK_FetchTasksByRange

Fetches tasks which are active within the time range specified (the end of the time range is exclusive).

CAPIStatus CSDK_FetchTasksByRange (  
    CAPISession in_session,  
    CAPIFlag in_flags,  
    CAPIHandle * in_handles,  
    const char * in_start,  
    const char * in_end,  
    const char ** in_requestProperties,  
    CAPIStream in_stream,  
    CSDKRequestResult * out_requestResult  
)

Parameters

in_session  
Login session handle

in_flags  
Bit flags:

■ CSDK_FLAG_NONE

■ CSDK_FLAG_STREAM_NOT_MIME: Do not wrap the iCalendar in a MIME container

in_handles  
The agenda(s) on which to search for tasks. This parameter is an array of CAPIHandles, and MUST be terminated with a zero value (CSDK_HANDLE_INITIALIZER). A NULL value, or an empty array will search on the current user’s agenda.

in_start  
Beginning of date/time range. May be of any of the following forms:

■ DATE: For example, 20020928

■ DATE-TIME: Must be in either floating (for example, 20020929T120000) or UTC time (for example, 20020929T170000Z)

■ DURATION: A relative date or date-time expressed using the duration notation (for example, +PT5DT3H represents 5 days 3 hours in the future, -PT1W 1 week in the past). in_start is relative to the current time at the moment of the fetch.

in_end  
End of date/time range. May be in any of the formats shown for in_start.

■ NOTE for DURATION: duration specified as the in_end is relative to the in_start.  
  ex: in_end = +P2D, means in_end = in_start + 2 Days

in_requestProperties  
To fetch only specific iCalendar properties of the tasks, pass in an array of property names. The array MUST be terminated with either a NULL (zero) pointer, or an empty
(length zero) string. An empty array (i.e. NULL or an empty string), will cause all available properties to be returned.

**in_stream**
Stream for CAPI to write into

**out_requestResult**
If non-NULL, will be filled in with detailed results of the transaction.

**Returns**

CAPIStatus

**Cleanup**

The request result must be destroyed using CSDK_DestroyRequestResult

**Equivalent Java Method**

oracle.calendar.sdk.Session.fetchTasksByRange()
CSDK_FetchTasksByUID

Retrieves tasks with given UIDs on the given agenda.

```c
CAPIStatus CSDK_FetchTasksByUID (
    CAPISession in_session,
    CAPIHandle in_handle,
    CAPIFlag in_flags,
    CAPIUIDSet in_UIDs,
    const char ** in_requestProperties,
    CAPIStream in_stream,
    CSDKRequestResult * out_requestResult
)
```

### Parameters

**in_session**
Login session handle

**in_flags**
Bit flags:
- CSDK_FLAG_NONE
- CSDK_FLAG_CONTINUE_ON_ERROR: if the fetch fails on one uid we still fetch the other valid UIDs and return the stream with these *valid* events. `out_requestResult` will contain information on every UID we tried to fetch.
- CSDK_FLAG_STREAM_NOT_MIME: Do not wrap the iCalendar in a MIME container

**in_handle**
The agenda on which to search for tasks with the given UIDs. A NULL value will search on the current user’s agenda.

**in_UIDs**
An array of strings containing the UID(s) of the tasks to fetch. The array MUST be terminated with either a NULL (zero) pointer, or an empty (length zero) string.

**in_requestProperties**
To fetch only specific iCalendar properties of the tasks, pass in an array of property names. The array MUST be terminated with either a NULL (zero) pointer, or an empty (length zero) string. An empty array (i.e. NULL or an empty string), will cause all available properties to be returned.

**in_stream**
Stream for CAPI to write into

**out_requestResult**
If non-NULL, will be filled in with detailed results of the transaction.

### Returns

CAPIStatus
Cleanup

The request result must be destroyed using CSDK_DestroyRequestResult

Equivalent Java Method

oracle.calendar.sdk.Session.fetchTasksByUID()
CSDK_GetCapabilities

Returns information about this SDK release and/or the Oracle Calendar server.

```c
CAPIstatus CSDK_GetCapabilities ( 
  CAPISession in_session, 
  CAPICapabilityID in_capabilityID, 
  CAPIFlag in_flags, 
  const char ** out_value
)
```

**Parameters**

- **in_session**
  Login session handle. If NULL, then no server capabilities can be requested.

- **in_capabilityID**
  ID for a capability (see CAPI_CAPAB_* in ctapi.h)

- **in_flags**
  CSDK_FLAG_NONE at this time

- **out_value**
  Information is returned in this parameter. The values are returned as read-only strings and are only valid until the next SDK function call that uses the same session.

**Changes**

CAPI 2.5: type of in_capabilityID was changed from "long" to "CAPICapabilityID"

**Equivalent Java Method**

```
oracle.calendar.sdk.Session.getCapabilities
```
CSDK_GetFirstFailure

Returns the first failure obtained from the function from which in_requestResult was returned.

```c
CAPIStatus CSDK_GetFirstFailure (  
    CSDKRequestResult in_requestResult,  
    CAPIHandle * out_user,  
    const char ** out_uid,  
    CAPIStatus * out_status  
)
```

A failure is a result which has a status other than CAPI_STAT_OK.

Note: A request result contains the reference to the “current” failure, so only one thread should extract failures from a given request result at a time.

Parameters

- **in_requestResult**
  The RequestResult from which to extract information

- **out_user**
  The user whose agenda was being read or written

- **out_uid**
  The uid of the calendar object being read or written, if applicable

- **out_status**
  The status code for the portion of the operation involving the user and uid specified

Returns

CAPIStatus

Return values

- **CAPI_STAT_API_NULL**
  One of the required parameters has a NULL value

- **CAPI_STAT_DATA_RRESULT_EOR**
  No failures in the RequestResult

Sample

```c
const char * vcardUID = 0;
CAPIStatus vcardStatus = CAPI_STAT_OK;
CSDKRequestResult * myRequestResult = 0;

//
stat = CSDK_StoreContacts(mySession,  
    myStream,  
    CSDK_FLAG_STORE_IMPORT,  
    &myRequestResult);
//
CAPIStatus failStat = CSDK_GetFirstFailure(myRequestResult,
```
NULL,
&vcardUID,
&vcardStatus);

//
if (failStat == CAPI_STAT_DATA_RRESULT_EOR)
{
    cout << "Store of VCARD with UID " << vcardUID << " succeeded." << endl;
}
else
{
    const char * statusName = 0;
    CSDK_GetStatusString(vcardStatus, &statusName);
    cout << "Store of VCARD with UID " << vcardUID << " failed with CAPIStatus "
    << statusName << "." << endl;
}
//
CSDK_DestroyResult(&myRequestResult);

**Equivalent Java Method**

oracle.calendar.sdk.Result.getFirstFailure()
CSDK_GetFirstParseError

Returns the first parsing error obtained from a request result.

```c
CAPIStatus CSDK_GetFirstParseError (
    CSDKRequestResult in_requestResult,
    CAPIStatus * out_status,
    const char ** out_errorBuffer,
    const char ** out_errorLocation,
    const char ** out_message
)
```

A parse error can be generated by any of the CSDK_Store* functions as they attempt to interpret incoming iCalendar or vCard.

Note: A request result contains the reference to the “current” parse error, so only one thread should extract parse errors from a given request result at a time.

A pointer to a copy of the data stream is returned through `out_errorBuffer`, and a pointer to the parse error location in the buffer is returned via `out_errorLocation`. Both pointers are valid only until the request result is destroyed.

**Parameters**

- **in_requestResult**
The RequestResult to extract information from

- **out_status**
The result’s status

- **out_errorBuffer**
The beginning of the buffer with the error

- **out_errorLocation**
The location in `out_errorBuffer` where the error occurred

- **out_message**
May contain additional information (NULL may be returned if no message is available)

**Returns**

CAPIStatus

**Return values**

- **CAPI_STAT_API_NULL**
One of the required parameters has a NULL value

- **CAPI_STAT_DATA_RRESULT_EOR**
No parse errors in `in_requestResult`

**Sample**

Get the first parsing error from a call to CSDK_StoreContacts:

```c
CAPIStatus stat = CAPI_STAT_OK;
CSDKRequestResult * myRequestResult = 0;
```
//
stat = CSDK_StoreContacts(mySession,
    myStream,
    CSDK_FLAG_STORE_IMPORT,
    &myRequestResult);

//
const char * buffer = 0;
const char * errorLocation = 0;
const char * message = 0;

//
CAPIStatus parseStat = CSDK_GetFirstParseError(myRequestResult,
    NULL,
    &buffer,
    &errorLocation,
    &message);

//
if (parseStat != CAPI_STAT_DATA_RRESULT_EOR)
{
    cout << "Error (" << message << ") parsing vCard. Buffer:'" << vcardUID << 
    " Error starting at:'" << errorLocation << "'" << endl;
}
//
CSDK_DestroyResult(&myRequestResult);

Equivalent Java Method

oracle.calendar.sdk.Result.getFirstParseError()
CSDK_GetFirstResult

Returns the first result obtained from the function from which in_requestResult was returned.

```c
CAPIStatus CSDK_GetFirstResult (
    CSDKRequestResult in_requestResult,
    CAPIHandle * out_user,
    const char ** out_uid,
    CAPIStatus * out_status
)
```

A result is either a failure or a success. A failure is a result which has a status other than CAPI_STAT_OK.

Note: A request result contains the reference to the "current" result, so only one thread should extract result from a given request result at a time.

Parameters

in_requestResult
The RequestResult from which to extract information

out_user
The user whose agenda was being read or written

out_uid
The uid of the calendar object being read or written, if applicable

out_status
The status code for the portion of the operation involving the user and uid specified

Returns

CAPIStatus

Return values

**CAPI_STAT_API_NULL**
One of the required parameters has a NULL value

**CAPI_STAT_DATA_RRESULT_EOR**
No results in the RequestResult

Sample

Output first result from call to CSDK_StoreContacts:

```c
const char * vcardUID = 0;
CAPIStatus vcardStatus = CAPI_STAT_OK;
CSDKRequestResult * myRequestResult = 0;
//
stat = CSDK_StoreContacts(mySession,
    myStream,
    CSDK_FLAG_STORE_IMPORT,
    &myRequestResult);
//
```
CSDK_GetFirstResult

CSDK_GetFirstResult(myRequestResult,
    NULL,
    &vcardUID,
    &vcardStatus);

    //
    if (vcardStatus == CAPI_STAT_OK)
    {
        cout << "Store of VCARD with UID ' " << vcardUID << " succeeded." << endl;
    }
    else
    {
        const char * statusName = 0;
        CSDK_GetStatusString(vcardStatus, &statusName);
        cout << "Store of VCARD with UID ' " << vcardUID << " failed with CAPIStatus "
        << statusName << "." << endl;
    }
    //
CSDK_DestroyResult(&myRequestResult);

Equivalent Java Method

    oracle.calendar.sdk.Result.getFirstResult()
CSDK_GetHandle

Returns a handle to a particular user’s calendar store.

```c
CAPIStatus CSDK_GetHandle (
    CAPISession in_session,
    const char * in_user,
    CAPIFlag in_flags,
    CAPIHandle * out_handle
)
```

With this handle, subsequent calls can access items in this agenda. If an error is returned no CAPIHandle will be allocated and no cleanup is required.

The `in_user` string follows the same format as that of the string used by CSDK_Authenticate.

A handle to the current user is returned if `in_user` is NULL.

This function is blocked for sysop that has not assumed the identity of a user.

**Parameters**

- **in_session**
  Login session handle

- **in_user**
  User as defined for CSDK_Authenticate. May be NULL in which case a handle to the current user is returned.

- **in_flags**
  Bit flags (none at this time, set to CSDK_FLAG_NONE)

- **out_handle**
  Handle for `in_user`. Must point to NULL on entry.

**Returns**

CAPIStatus

**Return values**

- **CAPI_STAT_OK**
- **CAPI_STAT_DATA_USERID**
- **CAPI_STAT_SERVICE_MEM**
- **CAPI_STAT_SERVICE_FILE**
- **CAPI_STAT_SERVICE_NET**
CSDK_GetHandle

CAPI_STAT_API_FLAGS

CAPI_STAT_API_NULL

CAPI_STAT_API_HANDLE

CAPI_STAT_API_SESSION

CAPI_STAT_LIBRARY

Cleanup

This function allocates a handle which must be cleaned up with a call to CSDK_DestroyHandle. If an error is returned no handle is allocated and no clean up is required.

Sample

Get a handle for a user whose userid is "roger":

```c
{    CAPIHandle shrubber = CSDK_HANDLE_INITIALIZER;
    stat = CSDK_GetHandle(mySession, "roger", CSDK_FLAG_NONE, &shrubber);
}
```

Sample

Get a handle for a user named "Arnold Layne" (Surname Layne, Given name Arnold):

```c
{    CAPIHandle arnold = CSDK_HANDLE_INITIALIZER;
    stat = CSDK_GetHandle(mySession, "/S=Layne/G=Arnold/, CSDK_FLAG_NONE, &arnold);
}
```

Sample

Get a handle for a resource named "keg" on node "1234":

```c
{    CAPIHandle keg = CSDK_HANDLE_INITIALIZER;
    stat = CSDK_GetHandle(mySession, "/RS=keg/ND=1234/", CSDK_FLAG_NONE, &keg);
}
```

Sample

Get a handle for the current user:

```c
{    CAPIHandle currUser = CSDK_HANDLE_INITIALIZER;
    stat = CSDK_GetHandle(mySession, NULL, CSDK_FLAG_NONE, &currUser);
}
```
Changes

CAPI 2.5: Resource names must be an exact match. (There used to be an implicit wildcard at the end of the string.)

Equivalent Java Method

oracle.calendar.sdk.Session.getHandle()
CSDK_GetHandleInfo

Returns information about the agenda of the supplied handle.

CAPIStatus CSDK_GetHandleInfo (  
    CAPISession in_session,
    CAPIHandle in_handle,
    CAPIFlag in_flags,
    const char ** out_info
)

Three pieces of information can be returned, chosen by the value of in_flags. The information is returned as a pointer to a static read-only string.

The following are the types of information that can be returned:

- CAPI_HANDLE_TYPE indicates the type of the handle. This can be "user" or "resource" and indicates what type of agenda this is.

- CAPI_HANDLE_NAME returns the name of the agenda owner, or resource, in the form of a sequence of field-value pairs, separated by "/". This string, when prepended with a '?' is of an appropriate format to be passed to CSDK_GetHandle. A description of this format is given in "User identification" section of this manual.

- CAPI_HANDLE_MAILTO returns the email address of who the agenda belongs to. Since not all users (and no resources) will have e-mail addresses set on the Oracle Calendar server, an error (CAPI_STAT_DATA_EMAIL_NOTSET) will be returned when no e-mail address is set.

Parameters

in_session
Login session handle

in_handle
Handle to get info for

in_flags
CAPI_HANDLE_TYPE, CAPI_HANDLE_NAME or CAPI_HANDLE_MAILTO

out_info
Read-only handle information

Returns

CAPIStatus

Changes

CAPI 2.5: now returns CAPI_STAT_DATA_EMAIL_NOTSET if no e-mail address is set on the server.

Sample

Print the name of the logged in user:

{  
    CAPIHandle loginUser = CSDK_HANDLE_INITIALIZER;  
    const char * fullName = NULL;  
}
stat = CSDK_GetHandle(mySession, NULL, CSDK_FLAG_NONE, &loginUser);
stat = CSDK_HandleInfo(mySession, loginUser, CAPI_HANDLE_NAME, &fullName);
cout << 'Currently logged in as ' << fullName << endl;
CSDK_DestroyHandle(mySession, &loginUser);
}

Sample

Print out Doctor Winston's e-mail address:
{
    CAPIHandle   doctor = CSDK_HANDLE_INITIALIZER;
    const char * email = NULL;
    stat = CAPI_GetHandle(mySession, "drwinston", CSDK_FLAG_NONE, &doctor);
    stat = CAPI_HandleInfo(mySession, doctor, CAPI_HANDLE_MAILTO, &email);
    cout << 'drwinston's email address is ' << email << endl;
    CSDK_DestroyHandle(mySession, &doctor);
}
CSDK_GetNextFailure

Returns the next failure contained in a CSDKRequestResult.

CAPIStatus CSDK_GetNextFailure (  
    CSDKRequestResult in_requestResult,  
    CAPIHandle * out_user,  
    const char ** out_uid,  
    CAPIStatus * out_status  
)

A call to CSDK_GetFirstFailure must precede this call.
Note: A request result contains the reference to the "current" failure, so only one thread should extract failures from a given request result at a time.

Parameters

**in_requestResult**  
The RequestResult from which to extract information

**out_user**  
The user whose agenda was being read or written

**out_uid**  
The uid of the calendar object being read or written, if applicable

**out_status**  
The status code for the portion of the operation involving the user and uid specified

Returns

CAPIStatus

Return values

**CAPI_STAT_API_NULL**  
One of the required parameters has a NULL value

**CAPI_STAT_DATA_RRESULT_EOR**  
No more failure in the RequestResult

Sample

Get all failures from a call to CSDK_StoreContacts by calling CSDK_GetNextFailure in a while loop

    const char * vcardUID = 0;  
    CAPIStatus stat = CAPI_STAT_OK;  
    CSDKRequestResult * myRequestResult = 0;  
    //  
    stat = CSDK_StoreContacts(mySession,  
                                myStream,  
                                CSDK_FLAG_STORE_IMPORT,  
                                &myRequestResult);  
    //  
    stat = CSDK_GetFirstFailure(myRequestResult,  
                                NULL,
&vcardUID,
&vcardStatus);

//
while (stat != CAPI_STAT_DATA_RRESULT_EOR)
{
    const char * statusName = 0;
    CSDK_GetStatusString(vcardStatus, &statusName);
    cout << "Store of VCARD with UID " << vcardUID << " failed with status " <<
    statusName << endl;
    //
    stat = CSDK_GetNextFailure(myRequestResult,
            NULL,
            &vcardUID,
            &vcardStatus);

    //
    CSDK_DestroyResult(&myRequestResult);

**Equivalent Java Method**

oracle.calendar.sdk.Result.getNextFailure()
CSDK_GetNextParseError

Returns the next parsing error obtained from a request result.

CAPIStatus CSDK_GetNextParseError (  
    CSDKRequestResult in_requestResult,  
    CAPIStatus * out_status,  
    const char ** out_errorBuffer,  
    const char ** out_errorLocation,  
    const char ** out_message  
)

A call to CSDK_GetFirstParseError must precede this call.

Note: A request result contains the reference to the "current" parse error, so only one thread should extract parse errors from a given request result at a time.

A pointer to a copy of the data stream is returned through out_errorBuffer, and a pointer to the parse error location in the buffer is returned via out_errorLocation. Both pointers are valid only until the request result is destroyed.

Parameters

in_requestResult  
The RequestResult to extract information from

out_status  
The result's status

out_errorBuffer  
The beginning of the buffer with the error

out_errorLocation  
The location in *out_errorBuffer where the error occurred

out_message  
May contain additional information (NULL may be returned if no message is available)

Returns

CAPIStatus

Return values

CAPI_STAT_API_NULL  
One of the required parameters has a NULL value

CAPI_STAT_DATA_RRESULT_EOR  
No parse errors in in_requestResult

Sample

Get all the parsing errors from a call to CSDK_StoreContacts by calling CSDK_GetNextParseError in a while loop

CAPIStatus stat = CAPI_STAT_OK;
CSDKRequestResult * myRequestResult = 0;
//
stat = CSDK_StoreContacts(mySession,
    myStream,
    CSDK_FLAG_STORE_IMPORT,
    &myRequestResult);

//
const char * buffer = 0;
const char * errorLocation = 0;
const char * message = 0;

//
CAPIStatus parseStat = CSDK_GetFirstParseError(myRequestResult,
    NULL,
    &buffer,
    &errorLocation,
    &message);

//
while (parseStat != CAPI_STAT_DATA_RRESULT_EOR)
{
    cout << "Error (" << message << ") parsing vCard. Buffer:'" << vcardUID << 
        " Error starting at:'" << errorLocation << "' " << endl;
    parseStat = CSDK_GetNextParseError(myRequestResult,
        NULL,
        &buffer,
        &errorLocation,
        &message);
}

//
CSDK_DestroyResult(&myRequestResult);

Equivalent Java Method

oracle.calendar.sdk.Result.getNextParseError()
CSDK_GetNextResult

Returns the next result contained in a CSDKRequestResult.

CAPIStatus CSDK_GetNextResult (
    CSDKRequestResult in_requestResult,
    CAPIHandle * out_user,
    const char ** out_uid,
    CAPIStatus * out_status
)

A call to CSDK_GetFirstResult must precede this call.
Note: A request result contains the reference to the "current" result, so only one thread
should extract result from a given request result at a time.

Parameters

in_requestResult
The RequestResult from which to extract information

out_user
The user whose agenda was being read or written

out_uid
The uid of the calendar object being read or written, if applicable

out_status
The status code for the portion of the operation involving the user and uid specified

Returns

CAPIStatus

Return values

CAPI_STAT_API_NULL
One of the required parameters has a NULL value

CAPI_STAT_DATA_RRESULT_EOR
No more results in the RequestResult

Sample

Get all results from a call to CSDK_StoreContacts by calling CSDK_GetNextResult in a
while loop:

    const char * vcardUID = 0;
    CAPIStatus stat = CAPI_STAT_OK;
    CSDKRequestResult * myRequestResult = 0;
    //
    stat = CSDK_StoreContacts(mySession,
                              myStream,
                              CSDK_FLAG_STORE_IMPORT,
                              &myRequestResult);
    //
    stat = CSDK_GetFirstResult(myRequestResult,
                                NULL,
//
while (stat != CAPI_STAT_DATA_RRESULT_EOR)
{
    const char * statusName = 0;
    CSDK_GetStatusString(vcardStatus, &statusName);
    cout << "Store of VCARD with UID " << vcardUID << " returned status " << sta
tusName << endl;
    //
    stat = CSDK_GetNextResult(myRequestResult,
        NULL,
        &vcardUID,
        &vcardStatus);
//
CSDK_DestroyResult(&myRequestResult);

**Equivalent Java Method**

`oracle.calendar.sdk.Result getNextResult()`
A status returned by the CALENDAR_SDK is composed of a status code and some extra bits giving extra context to the error that occurred.

```c
CSDK_GetStatusCode (  
    CAPIStatus in_status,  
    int * out_statusCode  
)
```

This can cause the API user to have to mask these extra bits to compare the status codes. So this helper returns the status without these extra bits s.t. it is comparable with other status codes.

**Parameters**

- **in_status**
  CAPI status

- **out_statusCode**
  contains a statusCode with extra level bits removed

**Equivalent Java Method**

```java
oracle.calendar.sdk.Api.getStatusCode()
```
CSDK_GetStatusLevels

Decomposes a CAPIStatus into its subparts; each part of the status code specifies more precisely the actual error.

```c
CSDK_GetStatusLevels (  
    CAPIStatus in_status,  
    unsigned long * out_field1,  
    unsigned long * out_field2,  
    unsigned long * out_field3,  
    unsigned long * out_field4,  
    unsigned long * out_field5  
)
```

Parameters

- `in_status`
  CAPI status

- `out_field1`
  Contains the int result for level1

- `out_field2`
  Contains the int result for level2

- `out_field3`
  Contains the int result for level3

- `out_field4`
  Contains the int result for level4

- `out_field5`
  Contains the int result for level5

Equivalent Java Method

`oracle.calendar.sdk.Api.getStatusLevels()`

Changes

CAPI 2.5: types of "out_level[12345]" changed from "int *" to "unsigned long *"
CSDK_GetStatusString

Returns a read-only string representation of a CAPIStatus (this is generally more useful than the numeric representation).

CSDK_GetStatusString (
  CAPIStatus in_status,  
  const char ** out_errorString
)

Parameters

in_status
CAPI status

out_errorString
Contains const pointer to the result string

Cleanup

None. The string returned is a const string that cannot be freed.

Equivalent Java Method

oracle.calendar.sdk.Api.getStatusString()
CSDK_SetConfigFile

Allows the SDK to read configuration settings that control error logging and the other configuration parameters listed in the "Configuration" section of this manual.

CAPIStatus CSDK_SetConfigFile (const char * in_configFileName, const char * in_logFileName)

If called, this function should be the first SDK function called by your process and should not be called by each thread.

If you require assistance from Oracle Support for your development with the SDK, you should expect to be asked to call this function in order to generate logs.

Parameters

in_configFileName
A null-terminated string containing the filename of the config file.

in_logFileName
The name of a file to write log messages to. If this file cannot be created or written to, output will be sent to a file named Console.log in the current directory.

Returns

CAPIStatus

Return values

CAPI_STAT_API_NULL
One of the input parameters was NULL

CAPI_STAT_CONFIG_CANNOT_OPEN
Failed to open in_configFileName

Equivalent Java Method

oracle.calendar.sdk.Api.init()

See

The Configuration section.

Sample

Create a file "capi.ini" with the contents:

[LOG]
log_activity = true
log_modulesinclude = { CAPI }

Sample

Call CSDK_SetConfigFile (after creating capi.ini). This will turn on "activity" level logging in CAPI and the output will go into capi.log:
CAPIStatus status = CSDK_SetConfigFile("capi.ini", "capi.log");

Sample

Using absolute and relative paths:

CAPIStatus status = CSDK_SetConfigFile("../config/csdk.ini", "/var/log/csdk.log");
CSDK_SetIdentity

Allows an authenticated user to work on behalf of another calendar user or resource.

```c
CAPIStatus CSDK_SetIdentity (  
    CAPISession in_session,  
    const char * in_user,  
    CAPIFlag in_flags  
)
```

For subsequent calls to this function to work, designate rights must have been granted to the authenticated user.

The format of the in_user parameter is the same as in the CSDK_Authenticate function. The authenticated user may revert to his or her original identity by using NULL as username.

If you’ve logged in as Calendar SYSOP (CSDK_ConnectAsSysop), then designate rights are ignored and you will be able to work as any Calendar user or resource. All Calendar operations will appear to have been done by the user, rather than on behalf of the user by a designate.

**Parameters**

- **in_session**
  Login session handle

- **in_user**
  Person (or resource) to work as, an X400 or UID

- **in_flags**
  Bit flags (CSDK_FLAG_NONE at this time)

**Returns**

CAPIStatus

**Sample**

Work on behalf of another user:

```c
myStatus = CSDK_SetIdentity(mySession, "keithm", CSDK_FLAG_NONE);
myStatus = CSDK_SetIdentity(mySession, "/S=MacDonald/G=Keith/", CSDK_FLAG_NONE);
myStatus = CSDK_SetIdentity(mySession, "/RS=Conference Room/ND=1234/", CSDK_FLAG_NONE);
```

**Changes**

CAPI 2.5: Resource names must be an exact match. (There used to be an implicit wildcard at the end of the string.)

9.0.4: SetIdentity can be used to work on behalf of a user on another node using designate rights. This does NOT apply to connections opened via CSDK_ConnectAsSysop().
Equivalent Java Method

oracle.calendar.sdk.Session.setIdentity()
CSDK_StoreContacts

Stores vCards on a server through an authenticated connection by in_session; The vCards must be passed in via a CAPIStream.

CAPIStatus CSDK_StoreContacts (
    CAPISession in_session,
    CAPIFlag in_flags,
    CAPIStream in_stream,
    CSDKRequestResult * out_requestResult
)

By default, the incoming stream is assumed to be MIME-encapsulated vCard. When storing a stream that is not MIME-encapsulated, specify the flag CSDK_FLAG_STREAM_NOT_MIME.

Versions 2.1 and 3.0 of vCard are supported.

When storing multiple vCards, every vCard must be in a separate MIME part and any MIME part containing a vCard to be stored must contain the "Content-Type: text/x-vcard" header. The only supported character sets for the MIME parts are UTF-8 and US-ASCII.

The following are the store modes that can be used:

- CAPI_FLAG_NONE: A regular store of one or more vCards. If the vCard contains a UID property, that property is read and a verification is made to ensure that the contact does not already exist on the server. If it does, CAPI_STAT_DATA_VCARD_DUPERROR is returned and the contact is not stored on the server.

- CSDK_FLAG_STORE_REPLACE: This completely replaces a vCard that already exists on the server. It reads the UID contained within the UID property of the given vCard, removes that contact from the server, and stores the new one. An error is returned if no contact with the given UID exists on the server.

- CSDK_FLAG_STORE_MODIFY: Updates a contact already on the server with the new vCard. The UID is extracted in the same way as in _MODIFY and _NONE. The vCard with that UID is then updated: all properties contained in the vCard on the server that are present in the passed-in vCard are modified to contain the property values of the passed-in vCard. Also, All properties that exist in the passed-in vCard that don’t exist on the server vCard are added to the server vCard. All other properties not present in the passed-in vCard that exist on the server are ignored.

- CSDK_FLAG_STORE_REMOVE: The contact on the server is fetched, the properties contained within the passed-in vCard are deleted from the fetched vCard, and then the fetched vCard is stored onto the server.

- CSDK_FLAG_STORE_IMPORT: This mode checks if the contact already exists on the server via the UID. If it does, then it acts exactly as if CSDK_FLAG_STORE_REPLACE was passed in. Otherwise, it acts exactly like as if CSDK_FLAG_STORE_CREATE was passed in.

The flags supplied are used for each vCard supplied. Results are written to the CSDKRequestResult.

This version of the SDK cannot preserve the supplied UIDs when adding contacts to the server. This ability is planned for the next major release of the SDK with the next major server release.
The CSDKRequestResult contains the UIDs which can be used to refer to the stored vCards.

The CSDKRequestResult may contain information about errors parsing the vCard streams.

This function is blocked for SYSOP that has not assumed the identity of a user.

### Parameters

**in_session**
Login session handle

**in_flags**
Flags modifying behavior. One of the following:

- **CSDK_FLAG_STORE_CREATE**: Create if no task with the given UID exists, otherwise return an error
- **CSDK_FLAG_STORE_REPLACE**: Completely replace task on server with this copy - error if object doesn’t exist
- **CSDK_FLAG_STORE_IMPORT**: If task exists, **CSDK_FLAG_STORE_REPLACE**, else **CSDK_FLAG_STORE_CREATE**
- **CSDK_FLAG_STORE_MODIFY**: Modify only the supplied properties of an existing task
- **CSDK_FLAG_STORE_REMOVE**: Remove specified properties

and optionally:

- **CSDK_FLAG_STREAM_NOT_MIME**: Incoming stream is not inside a MIME wrapper

**in_stream**
The stream containing vCards

**out_requestResult**
Pointer to a RequestResult that will get filled (pass NULL if you don’t want this information returned).

### Returns

CAPIStatus

### Return values

- **CAPI_STAT_API_HANDLE_NULL**: The session was NULL
- **CAPI_STAT_API_STREAM_NULL**: The stream was NULL
- **CAPI_STAT_DATA_VCARD_DUPERROR**: Tried to store vCard in **CSDK_FLAG_STORE_CREATE** mode that already exists on the server.
- **CAPI_STAT_DATA_UID_NOTFOUND**: Tried to update, replace, or delete properties but no UID was found in the passed-in vCard.
Invalid flag, or multiple store flags were set

The request result must be destroyed using CSDK_DestroyRequestResult

Store a non-MIME formatted contact:
```
stat = CSDK_StoreContacts(mySession,
    myStream,
    CSDK_FLAG_STORE_IMPORT | CSDK_FLAG_STREAM_NOT_MIME,
    &myRequestResult);
```

Store a contact with vCard:
```
strcpy(outVCard,
    "MIME-Version: 1.0\015\012Content-Type: multipart/mixed;\015\012boundary="--------CA94974D4D8713DE5B12E6CD\015\012\015\012This is a multi-part message in MIME format.\015\012--------CA94974D4D8713DE5B12E6CD\015\012Content-Type: text/x-vcard; charset=UTF-8;\015\012name="example.vcf"\015\012Content-Disposition: attachment;\015\012filename="example.vcf"\015\012Content-Transfer-Encoding: quoted-printable\015\012\015\012BEGIN:VCARD\015\012URL:http://www.somewebsite.com\015\012ORG:steltor;windows;\015\012TITLE:worker\015\012EMAIL;TYPE=INTERNET:someone@somewhere.com\015\012ADR;TYPE=WORK:;;who knows;snodown;qc;h1 2H1;Canada\015\012NOTE;ENCODING=QUOTED-PRINTABLE:This is a note\015\012N;ENCODING=QUOTED-PRINTABLE:Last;First;Middle\015\012FN;ENCODING=QUOTED-PRINTABLE:First Middle Last\015\012REV:20011105T145136Z\015\012VERSION:2.1\015\012\015\012END:VCARD\015\012\015\012--------CA94974D4D8713DE5B12E6CD--\015\012\015\012//
CAPIStatus stat;
//
stat = CAPI_CreateMemoryStream(mySession,
    &myStream,
    outVCard,
    NULL,
    CAPI_FLAG_NONE);
//
stat = CSDK_StoreContacts(mySession,
    myStream,
    CSDK_FLAG_STORE_IMPORT,
    CSDK_FLAG_STREAM_MIME,
    &myRequestResult);

```
&myRequestResult;

**Equivalent Java Method**

```java
oracle.calendar.sdk.Session.storeContacts()
```
CSDK_StoreEvents

This function reads one VCALENDAR object from in_stream and stores each contained VEVENT on the server.

CAPIStatus CSDK_StoreEvents (  
    CAPISession in_session,  
    CAPIFlag in_flags,  
    CAPIStream in_stream,  
    CSDKRequestResult * out_requestResult  
)

Attendees

Unlike CAPI_StoreEvent, the only attendees of the event will be those specified using ATTENDEE properties in the iCalendar (with the exception of the case where CSDK_FLAG_STORE_INVITE_SELF is used, in which case the logged-in user will always be invited regardless of whether an ATTENDEE property is supplied for that user).

The address specified in the ATTENDEE properties is used to identify calendar users. If no calendar user exists with the address specified in the ATTENDEE property value, then the attendee is considered "external" and will be invited using an Internet standard protocol such as iMIP if the Oracle Calendar server is capable of doing so.

The ATTENDEE PARTSTAT parameter is ignored except for the following:

- The logged in user
- External (non-calendar) attendees

Resources

The Oracle Calendar server stores a PARTSTAT value for each resource, but resources do not have e-mail addresses. To permit the usage of the ATTENDEE property for inviting resources, the following syntax is supported:

ATTENDEE;CUTYPE=RESOURCE;CN=projecter:MAILTO:ignored@foobar.com

Groups

Oracle Calendar Groups can be invited using a non-standard (but legal) ATTENDEE property of the following form:

ATTENDEE;CUTYPE=GROUP;CN=developers:MAILTO:ignored@foobar.com

As suggested by the example, the property value (MAILTO:ignored@foobar.com) is NOT used. In this example, the group "developers" will be expanded and the members will be invited as calendar users. When fetching this event, the members of the group (at the time of the call to CSDK_StoreEvents) will be returned as individual ATTENDEE properties.

The server does not enforce uniqueness of group names - if multiple matches are found, an error will be returned.

Errors

Detailed error information is returned through the out_requestResult parameter. Unless a parse error result is returned, there will be at least one result per VEVENT stored, containing a CAPI_STATUS value for storing that VEVENT. Passing in a NULL (zero) value for out_requestResult will prevent the request results from being returned, but is not considered an error.
Recurrence Rules

Recurrence rules (RRULE) are supported by this function and require that the event’s DTSTART be specified in local (using a TZID=... and a VTIMEZONE component) or floating time (as per RFC 2445). A limitation of the Oracle Calendar server requires that no more that one RRULE can be specified for a given VEVENT, nor can the RRULE be changed when modifying an event (the only way to change the occurrences is to use RDATEs and/or EXDATEs).

UIDs

The Oracle Calendar server prevents any user/resource from owning more than one event with a given UID. However, UIDs are not necessarily unique on the Oracle Calendar server, so a user/resource may be invited to more than one event with a given UID. Users of the SDK should attempt to provide globally unique UIDs when adding events to the Oracle Calendar server.

Storing an event without a UID will result in a new UID being generated by the Oracle Calendar server and there will be a small performance penalty. The generated UIDs are returned as part of the results in out_requestResult.

Per-Instance Properties (DESCRIPTION and ATTACH)

Currently there are only two such properties, DESCRIPTION and ATTACH. These properties are in one of the following states for a given instance:

■ The property is not defined in the instance
■ The property is defined in the instance
■ The property is defined in the event (the instance uses the event’s property)

If an event has only one instance, by default, that instance property becomes the event’s property.

To replace or modify these properties, use the flags CSDK_FLAG_STORE_MODIFY and CSDK_FLAG_STORE_REPLACE.

To modify, replace, or remove a property defined in an instance, the RECURRENCE-ID of the instance must be specified in the VEVENT passed as input.

To modify, replace, or remove a property defined in an event, do not specify a RECURRENCE-ID in the VEVENT passed in input.

Example 1: You have a meeting with three instances and all instances use the ATTACH property defined in the event. This property refers to the file attach1.txt. You want to modify the attachment of that event (for each of the 3 instances) so that the property refers to the file attach2.txt instead. You therefore need to use the flag CSDK_FLAG_STORE_MODIFY and a VEVENT without a RECURRENCE-ID that contains an ATTACH property that refers to attach2.txt. The ATTACH property will be modified at the event level, so all three instances will now refer to attach2.txt.

Example 2: You have a meeting with three instances and all the instances use the event’s ATTACH property. This property refers to attach1.txt. You want to modify the ATTACH property of the third instance so that it refers to attach2.txt. You therefore need to use the flag CSDK_FLAG_STORE_MODIFY and a VEVENT with the RECURRENCE-ID of the third instance that contains an ATTACH property that refers to the new attachment. The ATTACH property will be modified for the third instance, which will now refer to attach2.txt. The first two instances will still refer to attach1.txt.

How Can I...

■ add instances to an event?
For recurring events (which use RRULEs), simply store a VEVENT with the event's UID and one or more RDATE properties using the flag CSDK_FLAG_STORE_MODIFY.

For repeating events (not using RRULEs), store a VEVENT with the event's UID and the flag CSDK_FLAG_STORE_MODIFY.

- add attendees to an event?
  - Store VEVENT(s) with ATTENDEE properties for new attendees using flag CSDK_FLAG_STORE_MODIFY. RECURRENCE-ID property can be specified in the VEVENT to invite the attendee to only the specified instance.

- remove attendees from an event?
  - Fetch event, remove the ATTENDEE property for the user to uninvite, then store using the mode CSDK_FLAG_STORE_REPLACE

Parameters

**in_session**
Login session handle

**in_flags**
Bit flags modifying behavior. It may be one of the following:

- CSDK_FLAG_STORE_CREATE: Create if no event with the given UID exists, otherwise return an error
- CSDK_FLAG_STORE_REPLACE: Completely replace event on server with this copy, error if object doesn't exist
- CSDK_FLAG_STORE_IMPORT: If event exists, CSDK_FLAG_STORE_REPLACE, else CSDK_FLAG_STORE_CREATE
- CSDK_FLAG_STORE_MODIFY: Modify only the supplied properties of an existing event
- CSDK_FLAG_STORE_REPLY: Any attendee of an event can use this mode to update their own attendance status and alarms

and optionally, a combination of:

- CSDK_FLAG_STORE_INVITE_SELF: Add current user as an attendee, even if no ATTENDEE is in the iCal
- CSDK_FLAG_STREAM_NOT_MIME: Incoming stream is not inside a MIME wrapper
- CAPI_NOTIFY_EMAIL: Send e-mail notification (default is to NOT send)
- CAPI_NOTIFY_SMS: Send SMS notification (default is to NOT send)

**in_stream**
Stream for CAPI to read data from

**out_requestResult**
If non-NULL, will be filled in with detailed results of the transaction. This may include error messages from reading the iCalendar data or any other errors encountered while processing the request.
Returns

CAPIStatus

Cleanup

The request result must be destroyed using CSDK_DestroyRequestResult

Sample

Simple case of adding an event into the current user's calendar:

```c
static const char * ical = {
    "BEGIN:VCALENDAR\r\n    "VERSION:2.0\r\n    "BEGIN:VEVENT\r\n    "DTSTART:20021225T100000Z\r\n    "DTEND:20021225T233000Z\r\n    "SUMMARY:work\r\n    "LOCATION:office\r\n    "END:VEVENT\r\n    "END:VCALENDAR\r\n"};
```

```c
CAPIStream memoryStream = CSDK_STREAM_INITIALIZER;
status = CSDK_CreateMemoryStream(mySession,
    &memoryStream,
    ical,
    NULL,
    CSDK_FLAG_NONE);
if (!status)
{
    status = CSDK_StoreEvents(mySession,
        CSDK_FLAG_STORE_CREATE | CSDK_FLAG_STORE_INVITE_SELF | CSDK_FLAG_STREAM_NOT_MIME,
        memoryStream,
        NULL);
```

```c
cSample

Invite several people to a meeting

```c
const char * attendees[] = {
    "?/S=Who/G=Cindy Lou/",
    "?/S=Who/G=Lou Lou/",
    "?/S=Who/G=Betty Lou/",
    "grinch"
};
```

```c
const int numAttendees = (sizeof(attendees) / sizeof(attendees[0]));
const char ** emailAddresses = (const char **)malloc((numAttendees + 1) * sizeof(char *));
const CAPHandle * handles = (CAPHandle *)malloc(numAttendees * sizeof(CAPHandle));
```
{ 
    status = CSDK_GetHandle(mySession, attendees[i], CSDK_FLAG_NONE, &handles[i]);
} 
//
// terminate the array:
handles[numAttendees] = CSDK_HANDLE_INITIALIZER;
//
if (!status) {
    // get e-mail addresses for each handle using CSDK_GetHandleInfo()
    ...
}
//
if (!status) {
    static const char * iCalEvent1 = {"BEGIN:VCALENDAR\r\n" "VERSION:2.0\r\n" "BEGIN:VEVENT\r\n" "DTSTART:20021225T100000Z\r\n" "DTEND:20021225T103000Z\r\n" "SUMMARY:SING\r\n" "LOCATION:Town square\r\n"};
    static const char * iCalEvent2 = {"END:VEVENT\r\n" "END:VCALENDAR\r\n"};
    
    string iCalEvent = iCalEvent1;
    for (int attendee = 0; attendee < numAttendees; attendee++){
        if (emailAddresses[attendee]) {
            iCalEvent += "ATTENDEE:mailto:
            iCalEvent += emailAddresses[attendee];
            iCalEvent += "\r\n";
        }
    }
    iCalEvent += iCalEvent2;
}
//
if (emailAddresses) {
    free(emailAddresses);
}
//
CSDK_DestroyMultipleHandles(mySession,
    handles,
    numAttendees,
    CSDK_FLAG_NONE);
if (handles) {
    free(handles);
}
//
if (!status) {
    CAPIStream memoryStream = CSDK_STREAM_INITIALIZER;
    status = CSDK_CreateMemoryStream(mySession,
        &memoryStream,
        iCalEvent.c_str(),
        ...}
if (!status)
{
    status = CSDK_StoreEvents(mySession,
                               CSDK_FLAG_STORE_CREATE | CSDK_FLAG_STREAM_NOT_MIME,
                               NULL);
}

CSDK_DestroyStream(mySession, &memoryStream);

Equivalent Java Method

oracle.calendar.sdk.Session.storeEvents
CSDK_StoreTasks

Creates/modifies tasks on the current user's agenda depending on the store flag passed in.

```c
CAPIStatus CSDK_StoreTasks (  
    CAPISession in_session,  
    CAPIFlag in_flags,  
    CAPIStream in_stream,  
    CSDKRequestResult * out_requestResult  
)
```

Only one store flag should be used. If multiple flags are passed the error CAPI_STAT_API_FLAGS will be returned. There are five possible flags that can be used:

- **CSDK_FLAG_STORE_IMPORT**: Stores the task if it does not exist and replaces the task if it exists.
- **CSDK_FLAG_STORE_CREATE**: Stores the task. If the task exists the error will be returned.
- **CSDK_FLAG_STORE_REPLACE**: Replaces the existing task. If the task does not exist the error is returned.
- **CSDK_FLAG_STORE_MODIFY**: Modifies specified properties
- **CSDK_FLAG_STORE_REMOVE**: Deletes specified properties

Other flags may be specified along with one of the above store flags:

- **CSDK_FLAG_STREAM_NOT_MIME**: Incoming stream is not inside a MIME wrapper

This function is blocked for SYSOP that has not assumed the identity of a user.

**Parameters**

- **in_session**: Login session handle
- **in_flags**: Store bit flags
- **in_stream**: Input stream
- **out_requestResult**: Returned request result object (may be NULL)

**Returns**

CAPIStatus

**Cleanup**

The request result must be destroyed using CSDK_DestroyRequestResult
Return values

CAPI_STAT_OK

CAPI_STAT_API_SESSION_NULL
in_session is NULL

CAPI_STAT_API_STREAM_NULL
in_inputStream is NULL

CAPI_STAT_API_FLAGS
in_flags is invalid

Equivalent Java Method

oracle.calendar.sdk.Session.storeTasks
Oracle Calendar SDK Flags, Capabilities and Type Definitions

This chapter documents all the flags, capabilities, and type definitions of Oracle Calendar SDK.

Oracle Calendar SDK Flags

The following flags are defined in the ctapi.h header file.

Table 5–1 Defines

<table>
<thead>
<tr>
<th>Define Declaration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSDK_FLAG_CONTINUE_ON_ERROR</td>
<td>Can be passed to CSDK_Fetch<em>ByUID or CSDK_Delete</em>ByUID calls to request that, if possible, we continue the operations even if we encountered an error. Furthermore we return partial data if applicable (CSDK_Fetch<em>ByUID). Example, if we do a CSDK_Fetch</em>ByUID with multiple UID, and there is a UID that is not found. Instead of the function returning a STATUS CODE and no data (default behavior), we would return STATUS CODE CSDK_STAT_OK (error would only be reported in RequestResult) and the partial data found for the valid UID’s.</td>
</tr>
<tr>
<td>CSDK_FLAG_FETCH_AGENDA_ATTENDEE_ONLY</td>
<td>Used with CSDK_FetchEvent* calls to filter out ATTENDEE properties for all attendees other than the agenda being viewed.</td>
</tr>
<tr>
<td>CSDK_FLAG_FETCH_COMBINED</td>
<td>Used with CSDK_FetchEvent* calls to return all events in a single VCALENDAR rather than one VCALENDAR per agenda. This is faster and produces smaller output.</td>
</tr>
<tr>
<td>CSDK_FLAG_FETCH_DO_NOT_EXPAND_RRULE</td>
<td>Can be passed to CSDK_FetchEvent* calls to request that recurrence rules not be expanded. This flag is set by default with CSDK_FetchEventsByUID and can be overridden by using CSDK_FLAG_FETCH_EXPAND_RRULE.</td>
</tr>
<tr>
<td>CSDK_FLAG_FETCH_EXCLUDE_ACCEPTED</td>
<td>Used with CSDK_FetchEvent* calls to exclude events the caller has accepted.</td>
</tr>
<tr>
<td>CSDK_FLAG_FETCH_EXCLUDE_APPOINTMENTS</td>
<td>Used with CAPI_FetchEvent* and CSDK_FetchEvent* calls to exclude regular meetings (appointments).</td>
</tr>
<tr>
<td>CSDK_FLAG_FETCH_EXCLUDE_DAILYNOTES</td>
<td>Used with CAPI_FetchEvent* and CSDK_FetchEvent* calls to exclude daily notes.</td>
</tr>
</tbody>
</table>
### Table 5–1 (Cont.) Defines

<table>
<thead>
<tr>
<th>Define Declaration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSDK_FLAG_FETCH_EXCLUDE_DAYEVENTS</td>
<td>Used with CAPI_FetchEvent* and CSDK_FetchEvent* calls to exclude day events.</td>
</tr>
<tr>
<td>CSDK_FLAG_FETCH_EXCLUDE_DECLINED</td>
<td>Used with CSDK_FetchEvent* calls to exclude events the caller has declined.</td>
</tr>
<tr>
<td>CSDK_FLAG_FETCH_EXCLUDE_HOLIDAYS</td>
<td>Used with CAPI_FetchEvent* and CSDK_FetchEvent* calls to exclude holidays.</td>
</tr>
<tr>
<td>CSDK_FLAG_FETCH_EXCLUDE_NOTOWNER</td>
<td>Used with CSDK_FetchEvent* calls to exclude events which are not owned by the caller.</td>
</tr>
<tr>
<td>CSDK_FLAG_FETCH_EXCLUDE_UNCONFIRMED</td>
<td>Used with CSDK_FetchEvent* calls to exclude events the caller has not confirmed.</td>
</tr>
<tr>
<td>CSDK_FLAG_FETCH_EXPAND_RRULE</td>
<td>Can be passed to CSDK_FetchEvent* calls to request that recurrence rules be expanded. This flag is set by default with CSDK_FetchEventsByRange and CSDK_FetchEventsByAlarmRange and can be overridden by using CSDK_FLAG_FETCH_DO_NOT_EXPAND_RRULE.</td>
</tr>
<tr>
<td>CSDK_FLAG_FETCH_LOCALTIMES</td>
<td>Used with CSDK_FetchEvent* and CSDK_FetchTask* calls to request that times be returned in the “local” timezone. The current user’s preferred timezone as set on the Oracle Calendar server is considered the “local” timezone.</td>
</tr>
<tr>
<td>CSDK_FLAG_FETCH_RESOURCES_WITHOUT_ADDRESSES</td>
<td>Can be passed to CSDK_FetchEvent* calls to request that resources without email addresses not be exported using invalid email addresses.</td>
</tr>
<tr>
<td>CSDK_FLAG_FETCH_USERS_WITHOUT_ADDRESSES</td>
<td>Can be passed to CSDK_FetchEvent* calls to request that users without email addresses not be exported using invalid email addresses.</td>
</tr>
<tr>
<td>CSDK_FLAG_FETCH_VCARD_VERSION_2_1</td>
<td>Used with CSDK_FetchContacts* calls to request version 2.1 vCards.</td>
</tr>
<tr>
<td>CSDK_FLAG_FETCH_VCARD_VERSION_3_0</td>
<td>Used with CSDK_FetchContacts* calls to request version 3.0 vCards (default).</td>
</tr>
<tr>
<td>CSDK_FLAG_NONE</td>
<td>Used to select the default behavior (same as CAPI_FLAG_NONE).</td>
</tr>
<tr>
<td>CSDK_FLAG_STORE_CREATE</td>
<td>Used with CSDK_Store* calls to create a new object on the server. If an object already exists with the same UID, an error will be returned.</td>
</tr>
<tr>
<td>CSDK_FLAG_STORE_IMPORT</td>
<td>Used with CSDK_Store* calls to create (CAPI_FLAG_STORE_CREATE) a new object (task/contact) on the server if none exists with the given UID, or to completely replace (CAPI_FLAG_STORE_REPLACE) an existing object.</td>
</tr>
<tr>
<td>CSDK_FLAG_STORE_INVITE_SELF</td>
<td>Used with CSDK_StoreEvents to invite the current user without requiring an ATTENDEE property.</td>
</tr>
</tbody>
</table>
The following capabilities are defined in the ctapi.h header file.

### Table 5-2  Calendar SDK Capabilities

<table>
<thead>
<tr>
<th>Define Declaration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPI_CAPAB_ABOUT_BOX</td>
<td>Returns information about CAPI.</td>
</tr>
<tr>
<td>CAPI_CAPAB_AUTH</td>
<td>Returns the authentication mechanisms supported by the server (e.g. &quot;cs-standard,gssapi:kerberos5,sasl:KERBEROS_V4&quot;). A server connection must exist to read this capability.</td>
</tr>
<tr>
<td>CAPI_CAPAB_CAPI_VERSION</td>
<td>Returns the SDK version as a string. (e.g. &quot;9.0.4&quot;)</td>
</tr>
<tr>
<td>CAPI_CAPAB_COMP</td>
<td>Returns the compression mechanisms supported by the server (e.g. &quot;cs-simple,none&quot;). A server connection must exist to read this capability.</td>
</tr>
<tr>
<td>CAPI_CAPAB_ENCR</td>
<td>Returns the encryption mechanisms supported by the server (e.g. &quot;cs-light,none&quot;). A server connection must exist to read this capability.</td>
</tr>
<tr>
<td>CAPI_CAPAB_MAXDATE</td>
<td>Returns the largest date which CAPI can handle (&quot;20371129&quot;).</td>
</tr>
<tr>
<td>CAPI_CAPAB_MINREFRESHRATE</td>
<td>Returns the minimum idle refresh rate for SDK clients.</td>
</tr>
<tr>
<td>CAPI_CAPAB_SERVER_VERSION</td>
<td>Returns the server version as a string. (e.g. &quot;6.0&quot;). A server connection must exist to read this capability.</td>
</tr>
</tbody>
</table>
Oracle Calendar SDK Type Definitions

The Oracle Calendar SDK has the following type definitions defined:

Table 5–2  Calendar SDK Capabilities

<table>
<thead>
<tr>
<th>Define Declaration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPI_CAPAB_UNSUPPORTED_ICAL_COMP</td>
<td>Returns a comma delimited list of iCal components which CAPI does not process. ('VJOURNAL,VFREEBUSY')</td>
</tr>
<tr>
<td>CAPI_CAPAB_UNSUPPORTED_ICAL_PROP</td>
<td>Returns a comma delimited list of iCal properties which CAPI does not process. ('GEO,COMMENT'). A server connection must exist to read this capability.</td>
</tr>
<tr>
<td>CAPI_CAPAB_VERSION</td>
<td>Same as CAPI_CAPAB_CAPI_VERSION.</td>
</tr>
</tbody>
</table>

Table 5–3  Typedefs

<table>
<thead>
<tr>
<th>Typedef Declaration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>typedef int(* CAPICallback)(void *in_userData, char *io_data, size_t in_dataSize, size_t *out_datSize)</td>
<td></td>
</tr>
<tr>
<td>typedef long CAPICapabilityID</td>
<td></td>
</tr>
<tr>
<td>typedef unsigned long CAPIFlag</td>
<td></td>
</tr>
<tr>
<td>typedef void* CAPIHandle</td>
<td></td>
</tr>
<tr>
<td>typedef void* CAPIStream</td>
<td></td>
</tr>
<tr>
<td>typedef unsigned long CAPIStatus</td>
<td></td>
</tr>
<tr>
<td>typedef void* CAPIStream</td>
<td></td>
</tr>
<tr>
<td>typedef char const* const* CAPIUIDSet</td>
<td></td>
</tr>
<tr>
<td>typedef struct CSDKCondition { const char * prop; CSDKOperator op; const char * value; } CSDKCondition</td>
<td></td>
</tr>
<tr>
<td>typedef int CSDKOperator</td>
<td></td>
</tr>
<tr>
<td>typedef void* CSDKQuery</td>
<td></td>
</tr>
<tr>
<td>typedef void* CSDKQuery</td>
<td></td>
</tr>
<tr>
<td>typedef struct ScapiAbstractRequestResult*</td>
<td></td>
</tr>
</tbody>
</table>
Oracle Calendar SDK Status Codes

This chapter documents all CAPIStatus values that may be returned by the SDK functions, in alphabetical order. The functions CSDK_GetStatusString and CSDK_GetStatusLevels may be useful when interpreting CAPIStatus values.

Status Codes

The following codes are defined in the ctapi.h header file.

Table 6–1  Oracle Calendar SDK Status Codes

<table>
<thead>
<tr>
<th>Status Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPI_STAT_API</td>
<td>API class status.</td>
</tr>
<tr>
<td>CAPI_STAT_API_BADPARAM</td>
<td>A bad parameter was passed.</td>
</tr>
<tr>
<td>CAPI_STAT_API_CALLBACK</td>
<td>There was a problem with a callback.</td>
</tr>
<tr>
<td>CAPI_STAT_API_CALLBACK_ERROR</td>
<td>The callback returned an error, which is returned in bit field 5.</td>
</tr>
<tr>
<td>CAPI_STAT_API_FLAGS</td>
<td>Bad flags were passed.</td>
</tr>
<tr>
<td>CAPI_STAT_API_HANDLE</td>
<td>There was a problem with a handle.</td>
</tr>
<tr>
<td>CAPI_STAT_API_HANDLE_BAD</td>
<td>The passed handle was corrupt.</td>
</tr>
<tr>
<td>CAPI_STAT_API_HANDLE_NOTNULL</td>
<td>The passed handle was not null.</td>
</tr>
<tr>
<td>CAPI_STAT_API_HANDLE_NULL</td>
<td>The passed handle was null.</td>
</tr>
<tr>
<td>CAPI_STAT_API_INCOMPLETE_TRANSACTION</td>
<td>There was a problem with the transaction (probably a store operation) and the data has been stored partially, so the data on the server might be inconsistent with the data the user was trying to store.</td>
</tr>
<tr>
<td>CAPI_STAT_API_NULL</td>
<td>A null pointer was passed.</td>
</tr>
<tr>
<td>CAPI_STAT_API_POOL</td>
<td>There was a problem with the connection pool.</td>
</tr>
<tr>
<td>Status Code</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>CAPI_STAT_API_POOL_LOCKFAILED</td>
<td>The connection pool couldn't obtain a lock.</td>
</tr>
<tr>
<td>CAPI_STAT_API_POOL_NOCONNECTIONS</td>
<td>The connection pool has no appropriate connections available.</td>
</tr>
<tr>
<td>CAPI_STAT_API_POOL_NOTINITIALIZED</td>
<td>The connection pool was not initialized.</td>
</tr>
<tr>
<td>CAPI_STAT_API_SESSION</td>
<td>There was a problem with a session.</td>
</tr>
<tr>
<td>CAPI_STAT_API_SESSION_BAD</td>
<td>The passed session was corrupt.</td>
</tr>
<tr>
<td>CAPI_STAT_API_SESSION_NOTNULL</td>
<td>The passed session was not null.</td>
</tr>
<tr>
<td>CAPI_STAT_API_SESSION_NULL</td>
<td>The passed session was null.</td>
</tr>
<tr>
<td>CAPI_STAT_API_STREAM</td>
<td>There was a problem with a stream.</td>
</tr>
<tr>
<td>CAPI_STAT_API_STREAM_BAD</td>
<td>The passed stream was corrupt.</td>
</tr>
<tr>
<td>CAPI_STAT_API_STREAM_NOTNULL</td>
<td>The passed stream was not null.</td>
</tr>
<tr>
<td>CAPI_STAT_API_STREAM_NULL</td>
<td>The passed stream was null.</td>
</tr>
<tr>
<td>CAPI_STAT_CONFIG</td>
<td>Configuration class status.</td>
</tr>
<tr>
<td>CAPI_STAT_CONFIG_CANNOT_OPEN</td>
<td>Failed to open the configuration file passed to CSDK_SetConfigFile.</td>
</tr>
<tr>
<td>CAPI_STAT_CONFIG_CANNOT_OPEN_</td>
<td>Failed to open the tmpDirectoyPath specified in the configuration.</td>
</tr>
<tr>
<td>TMPDIRECTORYPATH</td>
<td></td>
</tr>
<tr>
<td>CAPI_STAT_DATA</td>
<td>Data class status.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_COOKIE</td>
<td>Information about the supplied cookie.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_DATE</td>
<td>Information about a date.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_DATE_FORMAT</td>
<td>The format of the date data is incorrect.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_DATE_INVALID</td>
<td>A specified date is invalid (for example, February 30th)</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_DATE_NOT_LOCAL</td>
<td>A UTC DTSTART (and/or DTEND) was specified for a recurring event. Must be floating or local.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_DATE_OUTOFRANGE</td>
<td>A specified date is out of the range supported by this implementation.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_DATE_RANGE</td>
<td>The date range is incorrect.</td>
</tr>
</tbody>
</table>
Table 6–1  (Cont.) Oracle Calendar SDK Status Codes

<table>
<thead>
<tr>
<th>Status Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPI_STAT_DATA_EMAIL</td>
<td>Information about email.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_EMAIL_NOTSET</td>
<td>No email address is set on the server for one or more users/resources.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_ENCODING</td>
<td>Information about the encoding of supplied data.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_EVENTTYPE</td>
<td>Information about data for the event type is incorrect.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_HOSTNAME</td>
<td>Information about a hostname.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_HOSTNAME_FORMAT</td>
<td>The format of the hostname string was wrong.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_HOSTNAME_HOST</td>
<td>The hostname string could not be resolved to a host.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_HOSTNAME_SERVER</td>
<td>No server could be found on the specified host and port.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_ICAL</td>
<td>Information about iCalendar data.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_ICAL_ATTACH</td>
<td>The operation encountered an error only with the attachment.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_ICAL_ATTACH_INVALID_FILE_URI</td>
<td>The attachment file URI was invalid.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_ICAL_CANTMODIFYRRULE</td>
<td>An attempt was made to modify the recurrence rule for a calendar entry.</td>
</tr>
<tr>
<td></td>
<td>This is not supported.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_ICAL_COMPEXTRA</td>
<td>An extra component was encountered.</td>
</tr>
<tr>
<td></td>
<td>Either multiple specifications of a component that should only appear once,</td>
</tr>
<tr>
<td></td>
<td>or a component that should not appear</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_ICAL_COMPMISSING</td>
<td>An expected or required component was missing.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_ICAL_COMPNAME</td>
<td>There was a problem with a component name.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_ICAL_COMPVALUE</td>
<td>There was a problem with what a component contained.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_ICAL_FOLDING</td>
<td>There was a problem in the line folding.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_ICAL_IMPLEMENT</td>
<td>A problem with this particular iCalendar implementation.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_ICAL_INVALIDEXTENSIONDATA</td>
<td>An Oracle iCalendar extension was used incorrectly.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_ICAL_LINEOVERFLOW</td>
<td>One of the iCal data lines was too long, breaching the iCalendar specification (RFC 2445).</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_ICAL_MISSING_DTSTART</td>
<td>The iCalendar data given did not contain a DTSTART property required to perform the requested operation.</td>
</tr>
</tbody>
</table>
### Oracle Calendar SDK Status Codes

<table>
<thead>
<tr>
<th>Status Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>CAPI_STAT_DATA_ICAL_MISSING_UID</code></td>
<td>One or more VEVENTs were missing UID properties and an attempt was made to do something other than a CREATE.</td>
</tr>
<tr>
<td><code>CAPI_STAT_DATA_ICAL_MISSINGRECURID</code></td>
<td>Multiple VEVENTs were supplied with the same UID, and at least two of them did not have a RECURRENCE-ID property.</td>
</tr>
<tr>
<td><code>CAPI_STAT_DATA_ICAL_NOATTENDEES</code></td>
<td>An attempt was made to store a calendar event without any ATTENDEE properties. This is only supported with the flag <code>CSDK_FLAG_STORE_INVITE_SELF</code></td>
</tr>
<tr>
<td><code>CAPI_STAT_DATA_ICAL_NONE</code></td>
<td>The provided data was not iCalendar data.</td>
</tr>
<tr>
<td><code>CAPI_STAT_DATA_ICAL_NOTANATTENDEE</code></td>
<td>An attempt was made to reply to a calendar event which the user is not attending.</td>
</tr>
<tr>
<td><code>CAPI_STAT_DATA_ICAL_OVERFLOW</code></td>
<td>There was an overflow when parsing the iCalendar data. This is caused by an internal limitation of the iCalendar library, and not by a breach of the spec</td>
</tr>
<tr>
<td><code>CAPI_STAT_DATA_ICAL_PARAMEXTRA</code></td>
<td>An extra parameter was encountered. Either multiple specifications of a parameter which should only appear once, or a parameter which should not appear</td>
</tr>
<tr>
<td><code>CAPI_STAT_DATA_ICAL_PARAMMISSING</code></td>
<td>An expected or required parameter was missing.</td>
</tr>
<tr>
<td><code>CAPI_STAT_DATA_ICAL_PARAMNAME</code></td>
<td>There was a problem with a parameter name.</td>
</tr>
<tr>
<td><code>CAPI_STAT_DATA_ICAL_PARAMVALUE</code></td>
<td>There was a problem with a parameter value.</td>
</tr>
<tr>
<td><code>CAPI_STAT_DATA_ICAL_PROPEXTRA</code></td>
<td>An extra property was encountered. Either multiple specifications of a property which should only appear once, or a property which should not appear</td>
</tr>
<tr>
<td><code>CAPI_STAT_DATA_ICAL_PROPMISSING</code></td>
<td>An expected or required property was missing.</td>
</tr>
<tr>
<td><code>CAPI_STAT_DATA_ICAL_PROPNAME</code></td>
<td>There was a problem with a property name.</td>
</tr>
<tr>
<td><code>CAPI_STAT_DATA_ICAL_PROPVALUE</code></td>
<td>There was a problem with a property value.</td>
</tr>
<tr>
<td><code>CAPI_STAT_DATA_ICAL_RECURMODE</code></td>
<td>There was a problem with the recurrence specification. The rules laid out in the description of <code>CAPI_StoreEvent</code> were breached</td>
</tr>
<tr>
<td><code>CAPI_STAT_DATA_ICAL_UNKNOWNWDATA</code></td>
<td>The iCalendar data contained unrecognized iCalendar tokens.</td>
</tr>
<tr>
<td><code>CAPI_STAT_DATA_MIME</code></td>
<td>Information about MIME data.</td>
</tr>
<tr>
<td><code>CAPI_STAT_DATA_MIME_CHARSET</code></td>
<td>An unsupported character set was specified in a MIME header.</td>
</tr>
<tr>
<td><code>CAPI_STAT_DATA_MIME_COMMENT</code></td>
<td>A comment could not be parsed.</td>
</tr>
<tr>
<td>Status Code</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_MIME_ENCODING</td>
<td>The encoding specified in the MIME object is not supported.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_MIME_HEADER</td>
<td>A header could not be parsed.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_MIME_IMPLEMENT</td>
<td>A restriction specific to this MIME implementation was breached.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_MIME_IMPLEMENT_NESTING</td>
<td>The MIME object was nested too deeply.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_MIME_LENGTH</td>
<td>One of the header lines was too long.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_MIME_NOICAL</td>
<td>No MIME parts were found whose headers indicated that they contain iCalendar data.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_MIME_NONE</td>
<td>No MIME data was found.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_MIME_OVERFLOW</td>
<td>An overflow occurred while reading MIME data.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_QUERY</td>
<td>Information about queries.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_QUERY_CONDITION_ILLEGAL_OPERATOR</td>
<td>A CSDKCondition contained an operator which was not legal for the query being performed.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_QUERY_CONDITION_NULL</td>
<td>A NULL CSDKCondition object was passed into a API function.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_QUERY_CONDITION_PROPERTY_NULL</td>
<td>A CSDKCondition contained a NULL property.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_QUERY_CONDITION_PROPERTY_TOO_LONG</td>
<td>A CSDKCondition contained a property name which was longer than expected.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_QUERY_CONDITION_UNKNOW_OPERATOR</td>
<td>A CSDKCondition contained an unknown operator.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_QUERY_CONDITION_VALUE_NULL</td>
<td>A CSDKCondition contained a NULL value.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_QUERY_CONDITION_VALUE_TOO_LONG</td>
<td>A CSDKCondition contained a property name which was longer than expected.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_QUERY_ILLEGAL_OPERATOR</td>
<td>An illegal operator was passed to CSDK_AddConditionToQuery. (Only CSDK_LOP_OR and CSDK_LOP_AND are supported.)</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_QUERY_NULL</td>
<td>A NULL CSDKQuery object was passed into a API function.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_RRESULT</td>
<td>Information about a request result.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_RRESULT_EOR</td>
<td>No more results were found in the CSDKRequestResult.</td>
</tr>
</tbody>
</table>
### Table 6–1 (Cont.) Oracle Calendar SDK Status Codes

<table>
<thead>
<tr>
<th>Status Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPI_STAT_DATA_SERVER</td>
<td>Information about data on the server.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_SERVER_TOOMANYATTENDEES</td>
<td>The event has too many attendees for the server to handle.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_SERVER_TOOMANYINSTANCES</td>
<td>The event has too many recurrences for the server to handle.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_UID</td>
<td>Information about a UID.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_UID_ALREADYEXISTS</td>
<td>An object with the specified UID already exists.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_UID_FORMAT</td>
<td>The format of the UID string was wrong.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_UID_MULTIPLEMATCHES</td>
<td>Multiple objects with the specified UID exist.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_UID_NOTFOUND</td>
<td>Data with the supplied UID could not be found.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_UID_RECURRENCE</td>
<td>The specified object could not be found.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_USERID</td>
<td>Information about a userid.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_USERID_EXT</td>
<td>There was a problem with the Extended part of the UserId string.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_USERID_EXT_CONFLICT</td>
<td>Either userid AND X.400 were specified, or both a node and a calendar domain were specified.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_USERID_EXT_FORMAT</td>
<td>The format of the extended string was bad.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_USERID_EXT_INIFILE</td>
<td>There was a problem with the inifile.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_USERID_EXT_MANY</td>
<td>Multiple users were identified by the string.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_USERID_EXT_NODE</td>
<td>The specified node could not be found.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_USERID_EXT_NONE</td>
<td>No users were identified by the string.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_USERID_FORMAT</td>
<td>The format of the UserId string was wrong.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_USERID_ID</td>
<td>There was a problem with the Id part of the UserId string.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_VCARD</td>
<td>Information about vCard data.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_VCARD_COMPNAME</td>
<td>There was a problem with a component name.</td>
</tr>
<tr>
<td>Status Code</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_VCARD_DUPERROR</td>
<td>An attempt was made to store a vCard using the mode CSDK_FLAG_STORE_CREATE but a contact with the same UID already existed on the server.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_VCARD_PARAMEXTRA</td>
<td>An extra parameter was encountered. Either multiple specifications of a parameter which should only appear once, or a parameter which should not appear.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_VCARD_PARAMMISSING</td>
<td>An expected or required parameter was missing.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_VCARD_PARAMVALUE</td>
<td>There was a problem with a parameter value.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_VCARD_PROPEXTRA</td>
<td>An extra property was encountered. Either multiple specifications of a property which should only appear once, or a property which should not appear.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_VCARD_PROPMISSING</td>
<td>An expected or required property was missing.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_VCARD_PROPNAME</td>
<td>There was a problem with a property name.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_VCARD_PROPVALUE</td>
<td>There was a problem with a property value.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_VCARD_PROPVALUE_VIOLATED_SERVERRULE</td>
<td>There was a problem with a property which does not respect a server rule. Example: Suppose dayStart = 9 a.m. and we try to store dayEnd = 8 a.m. This is an error since dayEnd &lt; dayStart.</td>
</tr>
<tr>
<td>CAPI_STAT_DATA_VCARD_VERSION_UNSUPPORTED</td>
<td>A vCard with an unrecognized VERSION was encountered.</td>
</tr>
<tr>
<td>CAPI_STAT_LIBRARY</td>
<td>Library class status.</td>
</tr>
<tr>
<td>CAPI_STAT_LIBRARY_IMPLEMENTATION</td>
<td>The feature is not fully implemented.</td>
</tr>
<tr>
<td>CAPI_STAT_LIBRARY_INTERNAL</td>
<td>An internal error occurred in the library.</td>
</tr>
<tr>
<td>CAPI_STAT_LIBRARY_INTERNAL_CONTEXT</td>
<td>Invalid context for a dependant library.</td>
</tr>
<tr>
<td>CAPI_STAT_LIBRARY_INTERNAL_COSMICRAY</td>
<td>Something completely unexpected happened internally.</td>
</tr>
<tr>
<td>CAPI_STAT_LIBRARY_INTERNAL_DATA</td>
<td>There was a corruption of data in the library.</td>
</tr>
<tr>
<td>CAPI_STAT_LIBRARY_INTERNAL_EXPIRY</td>
<td>The function has expired in this library.</td>
</tr>
<tr>
<td>CAPI_STAT_LIBRARY_INTERNAL_FUNCTION</td>
<td>The library miscalled a function.</td>
</tr>
<tr>
<td>CAPI_STAT_LIBRARY_INTERNAL_OVERFLOW</td>
<td>Some internal maximum was exceeded.</td>
</tr>
</tbody>
</table>
**Table 6–1 (Cont.) Oracle Calendar SDK Status Codes**

<table>
<thead>
<tr>
<th>Status Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPI_STAT_LIBRARY_INTERNAL_PROTOCOL</td>
<td>The library abused a protocol.</td>
</tr>
<tr>
<td>CAPI_STAT_LIBRARY_INTERNAL_UNKNOWN_EXCEPTION</td>
<td>CAPI received an unknown C++ exception.</td>
</tr>
<tr>
<td>CAPI_STAT_LIBRARY_INTERNAL_UNKNOWN_LIBRARY_ERRCODE</td>
<td>Failed to map an error code from a dependant library.</td>
</tr>
<tr>
<td>CAPI_STAT_LIBRARY_SERVER</td>
<td>A limitation of or occurrence on the server.</td>
</tr>
<tr>
<td>CAPI_STAT_LIBRARY_SERVER_BUSY</td>
<td>The server cannot service the request right now because it is busy.</td>
</tr>
<tr>
<td>CAPI_STAT_LIBRARY_SERVER_SUPPORT</td>
<td>The server does not provide support.</td>
</tr>
<tr>
<td>CAPI_STAT_LIBRARY_SERVER_SUPPORT_CHARSET</td>
<td>There is no support for the required character set.</td>
</tr>
<tr>
<td>CAPI_STAT_LIBRARY_SERVER_SUPPORT_STANDARDS</td>
<td>There is no support for CAPI on this server.</td>
</tr>
<tr>
<td>CAPI_STAT_LIBRARY_SERVER_SUPPORT_UID</td>
<td>There is no support for storing UIDs.</td>
</tr>
<tr>
<td>CAPI_STAT_LIBRARY_SERVER_TIMEZONE</td>
<td>There was an error dealing with timezones from the Oracle Calendar server.</td>
</tr>
<tr>
<td>CAPI_STAT_LIBRARY_SERVER_UNAVAILABLE</td>
<td>The server is running, but unavailable for some reason, e.g. the desired node is down for maintenance</td>
</tr>
<tr>
<td>CAPI_STAT_LIBRARY_SERVER_USERDATA</td>
<td>There is some problem with user data on the server.</td>
</tr>
<tr>
<td>CAPI_STAT_OK</td>
<td>Operation completed successfully. Value 0</td>
</tr>
<tr>
<td>CAPI_STAT_SECUR</td>
<td>Security class status.</td>
</tr>
<tr>
<td>CAPI_STAT_SECUR_CANTBOOKATTENDEE</td>
<td>One or more attendees could not be booked. This could be due to lack of access rights, or because the attendee is already booked.</td>
</tr>
<tr>
<td>CAPI_STAT_SECUR_INSUFFICIENTRIGHTS</td>
<td>User doesn't have sufficient rights to perform the operation.</td>
</tr>
<tr>
<td>CAPI_STAT_SECUR_LOGON</td>
<td>There was a security error on logon.</td>
</tr>
<tr>
<td>CAPI_STAT_SECUR_LOGON_AUTH</td>
<td>Logon authentication failed.</td>
</tr>
<tr>
<td>CAPI_STAT_SECUR_LOGON_LOCKED</td>
<td>The specified account is locked.</td>
</tr>
<tr>
<td>CAPI_STAT_SECUR_LOGON_LOCKED_RESOURCE</td>
<td>Logon is locked for resources.</td>
</tr>
<tr>
<td>CAPI_STAT_SECUR_LOGON_LOCKED_SYSOP</td>
<td>Logon is locked for Sysops.</td>
</tr>
</tbody>
</table>
### Table 6–1  (Cont.) Oracle Calendar SDK Status Codes

<table>
<thead>
<tr>
<th>Status Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPI_STAT_SECUR_READ</td>
<td>There was a security error on read.</td>
</tr>
<tr>
<td>CAPI_STAT_SECUR_READ_ALARM</td>
<td>There was a security error reading alarm data.</td>
</tr>
<tr>
<td>CAPI_STAT_SECUR_READ_PROPS</td>
<td>There was a security error reading properties.</td>
</tr>
<tr>
<td>CAPI_STAT_SECUR_SERVER</td>
<td>There was a security error in the server.</td>
</tr>
<tr>
<td>CAPI_STAT_SECUR_SERVER_LICENSE</td>
<td>There was a licensing error on the server.</td>
</tr>
<tr>
<td>CAPI_STAT_SECUR_SERVER_SET_IDENTITY_SYSOP</td>
<td>The server requires a SetIdentity call on the sysop logon to perform the operation.</td>
</tr>
<tr>
<td>CAPI_STAT_SECUR_SERVER_SET_IDENTITY_SYSOP_REMOTE</td>
<td>Cannot set identity as a remote user while logged in as node sysop.</td>
</tr>
<tr>
<td>CAPI_STAT_SECUR_WRITE</td>
<td>There was a security error on write.</td>
</tr>
<tr>
<td>CAPI_STAT_SECUR_WRITE_AGENDA</td>
<td>There was a security error writing to an agenda.</td>
</tr>
<tr>
<td>CAPI_STAT_SECUR_WRITE_EVENT</td>
<td>There was a security error writing to an event.</td>
</tr>
<tr>
<td>CAPI_STAT_SERVICE</td>
<td>Service class status.</td>
</tr>
<tr>
<td>CAPI_STAT_SERVICE_ACE</td>
<td>There was a problem caused by one of the ACE plug-ins.</td>
</tr>
<tr>
<td>CAPI_STAT_SERVICE_ACE_LOAD</td>
<td>Required ACE plug-in could not be loaded.</td>
</tr>
<tr>
<td>CAPI_STAT_SERVICE_ACE_SUPPORT</td>
<td>Requested ACE option not supported.</td>
</tr>
<tr>
<td>CAPI_STAT_SERVICE_FILE</td>
<td>There was a problem with system file services.</td>
</tr>
<tr>
<td>CAPI_STAT_SERVICE_FILE_CLOSE</td>
<td>There was a problem closing a file.</td>
</tr>
<tr>
<td>CAPI_STAT_SERVICE_FILE_DELETE</td>
<td>There was a problem deleting a file.</td>
</tr>
<tr>
<td>CAPI_STAT_SERVICE_FILE_MODE</td>
<td>There was a problem with the read or write mode for a file.</td>
</tr>
<tr>
<td>CAPI_STAT_SERVICE_FILE_OPEN</td>
<td>There was a problem opening a file.</td>
</tr>
<tr>
<td>CAPI_STAT_SERVICE_FILE_READ</td>
<td>There was a problem reading from a file.</td>
</tr>
<tr>
<td>CAPI_STAT_SERVICE_FILE_TEMP</td>
<td>There was a problem allocating a temporary file.</td>
</tr>
<tr>
<td>CAPI_STAT_SERVICE_FILE_WRITE</td>
<td>There was a problem writing to a file.</td>
</tr>
</tbody>
</table>
Table 6–1 (Cont.) Oracle Calendar SDK Status Codes

<table>
<thead>
<tr>
<th>Status Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPI_STAT_SERVICE_LIBRARY</td>
<td>There was a problem with the standard library services.</td>
</tr>
<tr>
<td>CAPI_STAT_SERVICE_MEM</td>
<td>There was a problem with system memory services.</td>
</tr>
<tr>
<td>CAPI_STAT_SERVICE_MEM_ALLOC</td>
<td>Could not allocate memory.</td>
</tr>
<tr>
<td>CAPI_STAT_SERVICE_NET</td>
<td>There was a problem with network services.</td>
</tr>
<tr>
<td>CAPI_STAT_SERVICE_NET_TIMEOUT</td>
<td>Timeout while waiting for network services.</td>
</tr>
<tr>
<td>CAPI_STAT_SERVICE_THREAD</td>
<td>There was a problem with system thread services.</td>
</tr>
<tr>
<td>CAPI_STAT_SERVICE_TIME</td>
<td>There was a problem with the standard time services.</td>
</tr>
<tr>
<td>CAPI_STAT_SERVICE_TIME_GMTIME</td>
<td>GMTTime could not be obtained.</td>
</tr>
</tbody>
</table>
This chapter contains detailed information on Oracle Calendar SDK configuration settings and Oracle Calendar server parameters that affect applications that use the Oracle Calendar SDK.

**Calendar SDK Configuration Settings**

These settings may be placed in a text file, the name of which must be passed to the function `CSDK_SetConfigFile`. The structure of the file is:

```
[<section>]
<keyword>=<value>
...
```

The following is a sample configuration file suitable for debugging:

**Example 7–1 calendar_config.ini**

```
[SDK]
client_name = My Sample Client
client_version = 10.1.1

[LOG]
log_trace = true
log_debug = true
log_activity = true
log_state = false
log_modulesinclude = {CAPI, VATTR, SAPPI, ICAL}
```

This configuration file configures the Calendar SDK to do the following:

- Activate the logging mechanism
- Log the activity of the Calendar C API module

The following tables describe the valid configuration settings for each section.

**Table 7–1  SDK Section**

<table>
<thead>
<tr>
<th>Setting</th>
<th>Values</th>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>client_name</td>
<td>Any string</td>
<td>***</td>
<td>Sets the application name that be visible in the server stats.</td>
</tr>
<tr>
<td>client_version</td>
<td>Any string</td>
<td>***</td>
<td>Sets the application version that be visible in the server stats.</td>
</tr>
</tbody>
</table>
Calendar SDK Configuration Settings

Table 7–1 (Cont.) SDK Section

<table>
<thead>
<tr>
<th>Setting</th>
<th>Values</th>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>tmpDirectoryPath</td>
<td>String (a valid path to a directory on the local filesystem)</td>
<td>&quot;&quot;</td>
<td>Specifies a path to a directory on the local filesystem that will be used by the SDK to store temporary files. It is the user’s responsibility to empty that directory. Currently, that directory is only used for attachments. Attachment files from meetings will be stored in subdirectories of the form ./&lt;UID&gt;-&lt;RECURRENCE-ID&gt;/&lt;filename&gt; of that temporary directory. The value of this setting should not be in quotation marks. For example, the following is valid in the configuration file: tmpDirectoryPath = /tmp However, the following might not be valid on certain platforms: tmpDirectoryPath = &quot;/tmp&quot;</td>
</tr>
</tbody>
</table>

Table 7–2 CACHE Section

<table>
<thead>
<tr>
<th>Setting</th>
<th>Values</th>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>cncachesize</td>
<td>[0..U32MAX]</td>
<td>512</td>
<td>Sets the maximum number of entries to hold in common name cache.</td>
</tr>
<tr>
<td>direntrycachesize</td>
<td>[0..U32MAX]</td>
<td>512</td>
<td>Sets the maximum number of entries to hold in the directory entry cache.</td>
</tr>
<tr>
<td>emailcachesize</td>
<td>[0..U32MAX]</td>
<td>512</td>
<td>Sets the maximum number of entries to hold in the email address cache.</td>
</tr>
<tr>
<td>itemcachesize</td>
<td>[0..U32MAX]</td>
<td>512</td>
<td>Sets the maximum number of entries to hold in the item cache.</td>
</tr>
<tr>
<td>securitycachesize</td>
<td>[0..U32MAX]</td>
<td>512</td>
<td>Sets the maximum number of entries to hold in the security record cache.</td>
</tr>
<tr>
<td>tzcachesize</td>
<td>[0..U32MAX]</td>
<td>256</td>
<td>Sets the maximum number of entries to hold in the timezone record cache.</td>
</tr>
</tbody>
</table>

Table 7–3 STATS Section

<table>
<thead>
<tr>
<th>Setting</th>
<th>Values</th>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>apitime</td>
<td>true/false</td>
<td>false</td>
<td>When enabled, logs transaction times for each API function call.</td>
</tr>
</tbody>
</table>
The following settings may be placed in the following sections:

- [CONNPOOL]
- [CONNPOOL:alias]

If a setting is specified in [CONNPOOL], it sets the value to be used with any host not specifically configured in the connection pool. If a setting is specified in [CONNPOOL:alias], it will only apply to the host specified by alias.

### Table 7–5 CONNPOOL Section

<table>
<thead>
<tr>
<th>Setting</th>
<th>Values</th>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>blocking</td>
<td>true/false</td>
<td>true</td>
<td>Indicates whether a connection request will block or return an error if there are no available connections.</td>
</tr>
</tbody>
</table>

---

**Table 7–3 (Cont.) STATS Section**

<table>
<thead>
<tr>
<th>Setting</th>
<th>Values</th>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>server</td>
<td>true/false</td>
<td>false</td>
<td>When enabled, logs server stats for each API function call.</td>
</tr>
</tbody>
</table>

---

**Table 7–4 LOG Section**

<table>
<thead>
<tr>
<th>Setting</th>
<th>Values</th>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>log_activity</td>
<td>true/false</td>
<td>false</td>
<td>Enables &quot;activity&quot; (high-level) logging.</td>
</tr>
<tr>
<td>log_debug</td>
<td>true/false</td>
<td>false</td>
<td>Enables &quot;debug&quot; logging.</td>
</tr>
<tr>
<td>log_filename</td>
<td>filename</td>
<td>No default value</td>
<td>Specifies the file to which logging information will be written.</td>
</tr>
<tr>
<td>log_modulenames</td>
<td>true/false</td>
<td>false</td>
<td>Controls whether module names are printed with each message.</td>
</tr>
<tr>
<td>log_modulesinclude</td>
<td>&quot;&quot; or &quot;[CAPI, VATTR, SAPPI, ICAL],&quot; each of the values in the braces are optional.</td>
<td>&quot;&quot;</td>
<td>Controls which modules have logging enabled. This should be set, at minimum, to &quot;[CAPI]&quot;, otherwise no logging will be performed even if it is enabled (by setting log_activity = true).</td>
</tr>
<tr>
<td>log_state</td>
<td>true/false</td>
<td>false</td>
<td>Enables &quot;state&quot; logging.</td>
</tr>
<tr>
<td>log_trace</td>
<td>true/false</td>
<td>false</td>
<td>Enables &quot;trace&quot; logging.</td>
</tr>
</tbody>
</table>

**Warning:** This setting can result in a large amount of logging, as well as a significant performance hit, depending on the modules included.
### Calendar Server Parameters

The following table describes Oracle Calendar server parameters that affect applications that use the Oracle Calendar SDK:

<table>
<thead>
<tr>
<th>Setting</th>
<th>Values</th>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>connect_on_startup</td>
<td>true/false</td>
<td>true</td>
<td>Indicates whether the pool will open the minimum number of connections immediately on startup, or instead wait for connections to be requested before opening them.</td>
</tr>
<tr>
<td>host</td>
<td>host,node</td>
<td></td>
<td>Sets the host and node for a connection pool entry. This keyword may only be placed inside the section for a specific host and node (a section named [CONNPOOL:alias]).</td>
</tr>
<tr>
<td>max_caldomain</td>
<td>[0..S32MAX]</td>
<td>0</td>
<td>Sets the maximum number of caldomain connections for the given server name/node ID in the connection pool.</td>
</tr>
<tr>
<td>max_masternode</td>
<td>[0..S32MAX]</td>
<td>0</td>
<td>Sets the maximum number of masternode connections for the given server name/node ID in the connection pool.</td>
</tr>
<tr>
<td>max_sysop</td>
<td>[0..S32MAX]</td>
<td>0</td>
<td>Sets the maximum number of SYSOP connections for the given server name/node ID in the connection pool.</td>
</tr>
<tr>
<td>max_user</td>
<td>[0..S32MAX]</td>
<td>none, value required to use connection pooling</td>
<td>Sets the maximum number of user connections for the given server name/node ID in the connection pool.</td>
</tr>
<tr>
<td>min_caldomain</td>
<td>[0..?]</td>
<td>0</td>
<td>Sets the minimum number of caldomain connections for the given server name/node ID in the connection pool.</td>
</tr>
<tr>
<td>min_masternode</td>
<td>[0..?]</td>
<td>0</td>
<td>Sets the minimum number of masternode connections for the given server name/node ID in the connection pool.</td>
</tr>
<tr>
<td>min_sysop</td>
<td>[0..?]</td>
<td>0</td>
<td>Sets the minimum number of SYSOP connections for the given server name/node ID in the connection pool.</td>
</tr>
<tr>
<td>min_user</td>
<td>[0..?]</td>
<td>0</td>
<td>Sets the minimum number of user connections for the given server name/node ID in the connection pool.</td>
</tr>
</tbody>
</table>
**Calendar Server Parameters**

**Oracle Calendar SDK Configuration Settings**

### Table 7–6  ENG Section

<table>
<thead>
<tr>
<th>Setting</th>
<th>Values</th>
<th>Default Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>allowsysoplogon_capi</td>
<td>true/false</td>
<td>false</td>
<td>If Oracle Calendar SDK users want to log in as Sysop, they need to set this setting to “true” for each host or installation they wish to log in.</td>
</tr>
<tr>
<td>sessionexpiry_csdk</td>
<td>Any positive integer or 0</td>
<td>0</td>
<td>Specifies the amount of time, in minutes, before the connection between the Oracle Calendar SDK and the Oracle Calendar server is terminated. The actual expiry is set within plus or minus 30% of this value. This implies that with a setting of 2160 minutes (36 hours), the actual expiry will be within one or two days of the connection being established. A value of 0 indicates that no limit should be enforced by the server.</td>
</tr>
</tbody>
</table>
This chapter contains frequently asked questions and troubleshooting information for the Oracle Calendar SDK.

**Frequently Asked Questions**

**Will my applications written with the CAPI functions from older Oracle Calendar SDK work with Oracle Calendar server Release 2 (9.0.4) and up?**

Yes, your older applications will continue to work and you can continue to write applications using the CAPI functions of Release 2 (9.0.4) of the Oracle Calendar SDK.

However, these older CAPI functions store and retrieve some iCalendar properties on the Oracle Calendar server in a format only understood by these CAPI functions. So clients like Oracle Connector for Outlook or applications written with CSDK functions of the Oracle Calendar SDK will not see these properties. Since Release 2 (9.0.4) of Oracle Collaboration Suite, the Oracle Calendar SDK has introduced the CSDK functions that completely respect the Oracle Calendar data representation to eliminate this incompatibility. Oracle encourages you to migrate your Oracle Calendar SDK applications to use the CSDK functions.

The following iCalendar properties are the ones that are incompatible:

- COMMENT
- CONTACT
- RELATED-TO
- SEQUENCE
- UID
- URL
- Any X-ORACLE properties

Likewise, applications using the older CAPI functions will not obtain the values set for those properties by applications using CSDK functions of the Oracle Calendar SDK or clients like Oracle Connector for Outlook.

**Can I write an Oracle Calendar SDK program using Visual Basic or other programming languages?**

The Oracle Calendar SDK is a package of C/C++ function calls, so any language that can natively support C can be used to create a wrapper and access these functions.
Options include using Visual Basic, Perl, Java, and Python. There may be other independent efforts in existence; the Oracle Calendar SDK forum on Oracle OTN is a good place to look for such information.

**What is the minimal information required to create a new event?**
You need the following properties to create an event:

- ATTENDEE
- DTSTART
- DTEND or DURATION

However, if you use the CSDK_StoreEvents function with the CSDK_FLAG_STORE_INVITE_SELF flag, you do not have to include an ATTENDEE property.

**How do I uninvite someone from an event?**
Replace the event by calling CSDK_StoreEvents and supplying an iCalendar without an ATTENDEE property for the user.

**How do I invite someone to an event?**
Provide an ATTENDEE property for the user when calling CSDK_StoreEvents.

**Can I log in as the Oracle Calendar server administrator (Oracle Calendar SYSOP) using the Oracle Calendar SDK?**
Yes. Oracle Calendar SYSOP login is supported as of release 9.0.4 of the Oracle Calendar SDK.

**How do I delete an event completely?**
Use the function CSDK_DeleteEvents, supplying the event UID.

**What is the default access level of an event or task?**
If you do not specify the CLASS property in an event or task, that event or task will have an access level of PUBLIC. This is the behavior as defined in RFC 2445.

**Can I fetch ATTENDEE properties for all attendees (resources and users) of an event, even if some of those attendees do not have an email address?**
Yes. Use one of the following flags with the functions CSDK_FetchEventsByRange, CSDK_FetchEventsByAlarmRange, or CSDK_FetchEventsByUID:

- CSDK_FLAG_FETCH_RESOURCES_WITHOUT_ADDRESSES: The Oracle Calendar SDK will generate an ATTENDEE property for any resource without an email address. It will create a mailto URI of the form "mailto:<guid>@email.invalid" (see RTC 2606 for more information about reserved invalid domain names).
- CSDK_FLAG_FETCH_USERS_WITHOUT_ADDRESSES: The Oracle Calendar SDK will generate an ATTENDEE property for any normal user without an email address. It will create a mailto URI of the form "mailto:<guid>@email.invalid".

**How do I modify the start time (DTSTART) of an event?**
To modify the start time of an event instance (it is irrelevant whether the event is the only instance or has multiple instances), set the RECURRENCE-ID property to the current start time of the instance as it exists on the Oracle Calendar server, and set DTSTART to the new start time. In this way, the Oracle Calendar SDK can determine precisely which instance to reschedule. If you set only the DTSTART to a time different
than the current start time, the Oracle Calendar SDK will attempt to add a new instance to your event at the new start time.

For example, suppose the following event is stored on the Oracle Calendar server:

```
BEGIN:VCALENDAR
VERSION:2.0
PRODID://Oracle//CSDK//EN
BEGIN:VEVENT
UID:event_we_want_to_modify-oracle
DTSTART:20050101T120000Z
DTEND: 20050101T130000Z
END:VEVENT
END:VCALENDAR
```

To modify this event’s DTSTART from January 1 to February 1, store the following event with the CSDK_StoreEvent function and the flag CSDK_FLAGSTORE_MODIFY:

```
BEGIN:VCALENDAR
VERSION:2.0
PRODID://Oracle//CSDK//EN
BEGIN:VEVENT
RECURRANCE-ID:20050101T120000Z
UID:event_we_want_to_modify-oracle
DTSTART:20050201T120000Z
DTEND:20050201T130000Z
END:VEVENT
END:VCALENDAR
```

**How do I accept a meeting?**

In order to accept a meeting, or set the reply status of an event not owned by the logged-in user, use the CSDK_FLAG_STORE_REPLY with the CSDK_StoreEvent function.

Do not use the CSDK_FLAG_STORE_MODIFY flag. For example, Abe (as the logged in user) creates an event with UID:abe@example.com. Abe invites Bea through the ATTENDEE property. If Bea (as the logged in user) tries to update her status on that event (with UID:abe@example.com) with the CSDK_FLAG_STORE_MODIFY flag, she will receive a CAPI_STAT_SECUR_WRITE error.

**My calendar users are spread across different time zones. How can I accurately retrieve one day’s events for a particular user?**

Day events and daily notes have start times which are dependent on the time zone in which they were created. Because of this, to correctly retrieve all of them for a particular day, the time range needs to be extended up to twelve hours at both ends of the time range. This can be done separately from fetching regular meetings (using the exclusion flags), or you can fetch them all at once and manually filter out regular meetings that fall outside the desired time range.

**How can I add an attendee to all instances of an event?**

To add an attendee to all instances of an event, use the MODIFY flag to store an iCalendar object containing a VEVENT with only the UID of the event and the ATTENDEE property you wish to add.

If the event has any exceptions (as represented by separate VEVENTs that contain the RECURRENCE-ID property when fetched from the Oracle Calendar server), these need to be handled individually by also providing a VEVENT with the UID and
corresponding RECURRENCE-ID of the instance, along with the ATTENDEE property to be added. Modifications to the series and the exceptions can be done in the same event store operation by including all the relevant VEVENTs in the same VCALENDAR object.

Troubleshooting

When I run the Oracle Calendar SDK demos, I get the error "libcapi.so not found, no such file or directory", or "Cannot load library libcapi". How do I fix this?
See the latest Oracle Calendar SDK Readme file for this information.

I'm getting error 2148073984 from calling an Oracle Calendar SDK function. What does that mean? Where can I find more information on Oracle Calendar SDK errors?
Chapter 6, "Oracle Calendar SDK Status Codes" contains a list of Oracle Calendar SDK status codes. Each code can be divided into five fields, each describing a different level of the problem.
The two helper functions, CSDK_GetStatusLevels() and CSDK_GetStatusString(), can help decode the error easily. You can also look at the demo applications that ship with the Oracle Calendar SDK for an example of how to decode error codes.

Why do my accented "é" characters appear as =C3=A9 in events I retrieve using the Oracle Calendar SDK?
The Oracle Calendar SDK encodes its output in UTF-8, in which the character is represented as 2 bytes: 0xC3 and 0xA9. When returning MIME-encapsulated data, the Oracle Calendar SDK further encodes those bytes in quoted-printable strings, which results in =C3=A9.

There seem to be a lot of extra =3D characters in the ATTENDEE property. Did I just discover a bug?
No, this is not a bug. =3D is really an equal sign (=) encoded in quoted-printable. So, where you might expect to see partstat=confirmed, you would actually see partstat=3Dconfirmed.

Why do I get a LNK1106 error when compiling the Oracle Calendar SDK with Microsoft Visual C++?
The Oracle Calendar SDK was compiled with Visual C++ 6; older versions need a patch to work. Search the Microsoft Web site for available patches.
Ensuring that you are using Visual C++ will mitigate linking errors you may encounter with other C compilers. Refer to the demo applications project for recommended compiler and linker settings.

Why is my program aborting whenever I use CSDK_CreateFileStream()? I tried the other type of streams and they worked fine.
You need to link your application using Microsoft's C runtime library (the /MD switch if you're using the command line) as opposed to the static C libraries. This is required because the FILE pointer used by the file stream has different definitions depending on which version of the C library is being used.
CSDK_CreateFileStreamFromFilenames can be used, in which case the FILE pointer will not need to be passed between the SDK and your application.
**Why does CSDK_GetHandle() tell me it can’t find my resource?**

There are a couple of possible answers:

- Your resource name may contain accented or special characters such as “‡”. The Oracle Calendar SDK expects user and resource identification strings to be in UTF-8. Be sure to use the proper UTF-8 values to describe accented or special characters.

- Your resource name contains a forward-slash (/) character, such as "Training / Meeting Room". The use of this character inside resource names conflicts with the forward-slash used by default as the field delimiter. To fix this, simply use another character as your delimiter. For example, RS=Work/.

**When I create a meeting, the STATUS says "CONFIRMED". Why does it say "Will confirm later" when I look at the meeting with the native client?**

"Will confirm later" is the participation status of the attendee, while "CONFIRMED" is the STATUS property of the VEVENT. The Oracle Calendar SDK sets the STATUS property to "CONFIRMED" by default. You may set the STATUS property to other values including "TENTATIVE" and "CANCELLED".

The user’s attendance status is stored in the PARTSTAT parameter of the ATTENDEE property corresponding to that user.

**Why am I getting CAPI_STAT_DATA_MIME_HEADER errors?**

By default, iCalendar objects passed to the Oracle Calendar SDK must have a MIME header. Otherwise, the Oracle Calendar SDK would return the error CAPI_STAT_DATA_MIME_HEADER otherwise.

Alternately, you can specify the CSDK_FLAG_STREAM_NOMIME flag, which is much simpler.

For example, the Oracle Calendar SDK considers the following MIME encapsulated iCalendar as valid:

```
String my_ical = "MIME-Version: 1.0\n" +
"Content-Type: text/calendar\n" +
"Content-Transfer-Encoding: quoted-printable\n\n" +
"BEGIN:VCALENDAR\n" +
"VERSION:2.0\n" +
"PRODID:-//ORACLE//NONSGML CSDK 9.0.4.1 - Java SDK Demo 9.0.4.1//EN\n" +
"BEGIN:VEVENT\n" +
"DTSTART:20040210T183000Z\n" +
"DTEND: 20040210T193000Z\n" +
"SUMMARY:Asker Demo\n" +
"LOCATION:office\n" +
"ATTENDEE:MAILTO:john@example.com\n" +
"ATTENDEE:MAILTO:jane@example.com\n" +
"END:VEVENT\n" +
"END:VCALENDAR\n";
```

**Why am I getting CAPI_STAT_DATA_ICAL_NOATTENDEES errors?**

In order to add an event to a user’s agenda, that event must have an ATTENDEE property. Otherwise, the Oracle Calendar SDK would return the error CAPI_STAT_DATA_ICAL_NOATTENDEES.

Alternatively, the caller of the function (such as CSDK_StoreEvents) can specify the CSDK_FLAG_STORE_INVITE_SELF flag, which implicitly adds the caller as an attendee.
Part II
Oracle Calendar Web Services Toolkit

This part of the Oracle Calendar Application Developer’s Guide describes the Oracle Calendar Web services toolkit.

This part contains the following chapters:

- Chapter 9, "Oracle Calendar Web Services Toolkit Overview"
- Chapter 10, "Oracle Calendar Web Services SOAP Commands"
- Chapter 11, "Oracle Calendar Web Services Client-Side Java Implementation"
- Chapter 12, "Oracle Calendar Web Services Supported Data Components and Properties"
- Chapter 13, "Oracle Calendar Web Services Status Codes"
Oracle Calendar Web Services Toolkit Overview

This chapter provides an overview of Oracle Calendar Web services and the Web services toolkit.

Related documents:
- Internet Calendaring and Scheduling Core Object Specification (iCalendar)  
  http://www.ietf.org/rfc/rfc2445.txt
- Web Services Activity  http://www.w3.org/2002/ws/
- Web Services Description Language (WSDL)  http://www.w3.org/TR/wsd1
- Simple Object Access Protocol (SOAP) 1.1  http://www.w3.org/TR/SOAP/

About Web Services
Oracle Calendar Web services is a component of the Oracle Calendar application system, which handles application-level services. Web services allows applications to retrieve, through common XML queries, calendar data for display in any portal, client application, or backend server. iCal data is coded in XML, wherein iCal becomes xCal. SOAP is used to encapsulate the messages for delivery. The calendar data Web services SOAP is stored directly on the Oracle Calendar server store. This is in effect the CWSL, or Calendar Web services Language.

This current implementation does not provide any WSDL or UDDI support. However, future versions may provide the ability to publish WSDL to a UDDI registry.

The Web Services Toolkit
Developers can use the Oracle Calendar Web services toolkit to build Web services applications and create SOAP 1.1 queries. The toolkit contains the functionality to search, create, modify, and delete calendar events, as well as search tasks. It gives SOAP access to the Oracle Calendar server database through a series of Java classes, known as the Calendarlet. This allows developers to use a Java IDE, abstracting the XML structure required to build applications.

Use the Calendarlet to create your own clients and integrate calendar data into your own applications. To integrate calendar data within any portal, client application, or backend server, you need to be able to make an HTTP connection to the Web server hosting Web services, generate SOAP messages and parse the SOAP responses (using any technology that can send and receive HTTP strings), and make use of an existing XML toolkit to generate outgoing and parse incoming HTTP strings with a SOAP client toolkit. The toolkit supports the use of HTTP proxies.
Toolkit Contents

The Oracle Calendar Web services toolkit includes:

- Calendarlet.tar: The Calendarlet JAR file.
- Javadoc.tar: The Javadoc HTML documentation for the calendarlet.
- Ws_testtool.tar: The Java source for the Calendar Web services toolkit testing tool, including sample source code.
This chapter describes how the Oracle Calendar Web services toolkit uses Extended Markup Language (XML) and Simple Object Access Protocol (SOAP) to retrieve and store iCalendar objects.

**SOAP Request and Reply Syntax**

The following is the structure of a SOAP request:

```
HTTP header

<?xml version='1.0' encoding='UTF-8'?>
<!-- SOAP envelope -->
<SOAP-ENV:Envelope
    xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:xsd="http://www.w3.org/2001/XMLSchema">
    <!-- If Basic Authentication is used, it is placed here in the SOAP header -->
    <SOAP-ENV:Header>
        <!-- The SOAP body contains the methods used to perform actions on the Calendar Server -->
        <SOAP-ENV:Body>
    </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

The following is the structure of a SOAP reply:

```
HTTP header

<?xml version='1.0' encoding="utf-8" ?>
<!-- SOAP envelope -->
<soap:Envelope
    xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
    soap:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
    <!-- The SOAP body contains the result of the SOAP command or a SOAP fault if the command was not successful -->
    <soap:Body>
    </soap:Body>
</soap:Envelope>
```
HTTP Headers

The HTTP header for a proper SOAP v1.1 transaction must contain the following elements:

```
POST <uri> HTTP/1.1
Content-Type: text/xml; charset="UTF-8"
Content-Length: <char length>
SOAPAction: <urn>

...soap envelope...
```

The `<uri>` is typically the URI for the Oracle Calendar application system (typically, /ocas-bin/ocas.fcgi). This is used mainly by the Web Server (Oracle HTTP Server or Apache) to identify the application system, invoke its internal fcgi protocol module, and pass the request to Web services.

Within Oracle Collaboration Suite, to bypass Oracle Single Sign-On mechanism (SSO), a separate URL may be required (typically, /ocws-bin/ocas.fcgi).

The Content-Type charset identifier is optional. If it is not provided, UTF-8 is assumed. However, UTF-8 is the only charset encoding supported. All other charsets will result in an error.

The HTTP response for an error is a 500 status code (for Internal Server Error). This is returned if the actual SOAP envelope is corrupt (in other words, we cannot determine what the data coming in is) or if a SOAP level error occurs. Keep in mind that all application level errors are returned within a SOAP Fault, along with the 500 HTTP status code.

```
HTTP/1.1 500 Internal Server Error
Content-Type: text/xml
Content-Length: <char length>

...Optional soap envelope...
```

If the SOAP envelope can be properly executed, the SOAP information is correct, and the application level function succeeds, the 200 status code (success) will be returned.

```
HTTP/1.1 200 OK
Content-Type: text/xml
Content-Length: <char length>

... Soap envelope...
```

Security and Authentication

This section describes:

- Security and Authentication Design
- Basic Authentication
- Proxy Authentication

Although data encryption is a very important security element, at the present time there are no plans to encrypt data within SOAP requests.
Security and Authentication

Design

Within the SOAP domain, there are many efforts underway to define and standardize the authentication, security, and encryption of SOAP messages. Groups such as W3C, IETF, OASIS, and WS-I are all working toward the same end. Unfortunately, at the time of development of Oracle Calendar Web services, no definitive specification had been approved. However, some general trends were respected when defining the features that Web services supports, including:

- HTTP SSL and Web-based certificates
- Simple authentication
- An application-specific authentication mechanism (for Oracle Collaboration Suite).

The adopted practice with all these mechanisms is to include the required information within a series of SOAP headers, with the exception of HTTP level functionality (that is, SSL and certificates).

```xml
<SOAP-ENV:Envelope>
  <SOAP-ENV:Header>
    ... some encryption, signature, and authentication info goes here ...
  </SOAP-ENV:Header>
  <SOAP-ENV:Body>
    ... a soap method goes here ...
  </SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

At the application layer, only plain text authentication is supported. The user’s password must be provided in plaintext only (NOT a base-64 encoded string) at the beginning of each transaction.

Security is provided at the transport, protocol and application levels. At the HTTP layer, there are two options: Normal or SSL. This layer is handled completely at the Web server level (that is, Apache and Oracle HTTP Server), providing encrypted data between the HTTP client and HTTP server. The Calendar Application Server has no dependencies on this layer.

The SOAP client must support SSL; not all toolkits do.

Basic Authentication

The Web services Basic Authentication is implemented using the SOAP header.

The initial version requires a BasicAuth element in the header for each request. If the element is not present, a SOAP Fault is generated.

HTTP/1.1 200 OK
Content-Type: text/xml; charset="UTF-8"
Content-Length: <char length>

```xml
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"><soap:Header><auth:BasicChallenge
```
<Realm> is used to provide a hint to the client. This is a configurable parameter in the ocws.conf file.

[basicauth]
Realm=Oracle Web Services # default

A typical SOAP session with Basic Authentication contains the user's credentials within the soap header of the first message.

POST <uri> HTTP/1.1
Content-Type: text/xml; charset="UTF-8"
Content-Length: <char length>
SOAPAction: <urn>

<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
    soap:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
    <soap:Header>
        <auth:BasicAuth
            <Name>myname</Name>
            <Password>mypassword</Password>
        </auth:BasicAuth>
    </soap:Header>
    <soap:Body>
        ...
    </soap:Body>
</soap:Envelope>

The user name must be the Calendar Server's User ID. X.400 login is not permitted. Also, the User ID and Password must be properly XML encoded.

If the Basic Authentication fails, a SOAP fault is returned, indicating the source of the problem.

HTTP/1.1 500 Internal Server Error
Content-Type: text/xml
Content-Length: <char length>

<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
    soap:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
    <soap:Body>
        <soap:Fault>
            <faultcode>soap:Server::Data::CalConnection</faultcode>
            <faultstring>A security error occurred</faultstring>
            <detail>
                <cwsl:Error xmlns:cwsl="http://www.oracle.com/WebServices/Calendaring/1.0/">
                    <Code>0020-00-00-00000017</Code>
                    ...
                </cwsl:Error>
            </detail>
        </soap:Fault>
    </soap:Body>
</soap:Envelope>
The BasicAuth mechanism is to be used mainly for development and testing purposes. Alone, the mechanism provides little security, due to the use of plain text passwords. If this mechanism is to be used in a production environment, an SLL Web configuration is highly recommended.

Proxy Authentication

Proxy authentication, or application-to-application authentication, allows any application developed with Calendar Web Services Toolkit to establish a trusted authenticated link to the Calendar Server. This application does not require the authentication of the end-user using it.

Requirements

The following components are required to enable proxy authentication:

- Calendar Web Services Toolkit (Calendarlet.jar)
- Calendar Web Services (OCAS)
- Calendar Server (Calserv)
- Oracle Internet Directory (OID)

You must configure your Collaboration Suite deployment so that the Calendar Server is connected to OID. This should have been done by default. Proxy authentication is designed to use OID security schemes.

You must have access to the following:

- OID administrator account
- LDAP tools (located in $ORACLE_HOME/ldap/bin)
- Oracle Calendar server administrator password

Configuring System for Proxy Authentication

The following steps describe how to configure OID and grant proxy privileges to your application.

Step 1 Create an entry for your application product in OID

Create the following entry in OID, where MyApplicationProduct is the name of your application product:

- cn=OracleContext
- cn=Products
- cn=MyApplicationProduct

To create this entry, create the following LDIF file named MyApplicationProduct.ldif:

dn: cn=MyApplicationProduct, cn=Products, cn=OracleContext
objectClass: orclContainer
objectClass: top
Enter the following command to add the entry defined in MyApplicationProduct.ldif to OID:

```
./ldapadd -h HOSTNAME.COM -p OIDPORT -D "cn=orcladmin" -w PASSWROD -f ./MyApplicationProduct.ldif
```

- HOSTNAME.COM is the OID server hostname
- PASSWORD is the password for the OID directory
- OIDPORT is the OID port

**Step 2  Create an application entity for your application in OID**

Create the following entry in OID, where *MyAppName* is the name of your application:

- cn=OracleContext
- cn=Products
- cn=MyApplicationProduct
- orclApplicationCommonName=MyAppName

To create this entry, create the following LDIF file named MyAppName.ldif:

```
dn: orclApplicationCommonName= MyAppName,
cn= MyApplicationProduct, cn=Products,
cn=OracleContext
objectClass: orclApplicationEntity
objectClass: top
orclApplicationCommonName: MyAppName
userpassword: test1
```

Enter the following command to add the entry defined in MyAppName.ldif to OID:

```
./ldapadd -h HOSTNAME.COM -p OIDPORT -D "cn=orcladmin" -w PASSWORD -f ./MyAppName.ldif
```

**Step 3  Ensure the application entity entry is properly configured**

Perform an LDAP search to search for the entry’s distinguished name, which is as follows:

```
"orclApplicationCommonName= MyAppName,
cn= MyApplicationProduct, cn=Products,
cn=OracleContext"
```

To do this enter the following command:

```
./ldapsearch -h HOSTNAME.COM -p OIDPORT -D "cn=orcladmin" -w PASSWORD -b "cn=MyApplicationProduct,cn=Products,cn=OracleContext"
"objectclass=orclApplicationEntity" 'c'
```

**Step 4  Grant proxy privileges to the new application entity**

Enter the following command from the directory $ORACLE_HOME/ocal/bin. You will need the Oracle Calendar server admin password:

```
./unioidconf -grantproxyprivilege \  "orclApplicationCommonName= MyAppName,  cn=MyApplicationProduct, cn=Products, cn=OracleContext"
```

This command will create the following entry in OID:
Identifying Calendar Objects

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Using Proxy Authentication
Once you have successfully configured OID and Oracle Calendar server, you enable proxy authentication following these steps in your Java application:

1. Replace the BasicAuth class with the ProxyAuth class.
2. Set the end user identity, proxy application name, and proxy application password that you have registered in OID.

Your Java code will look similar to the following:

```java
ProxyAuth auth = new ProxyAuth();
auth.setApplicationName("orclApplicationCommonName=MyAppName, cn=MyApplicationProduct, cn=Products, cn=OracleContext");
auth.setApplicationPassword("test1");
auth.setName(myUserId);
```

Your application will no longer need to pass the end-user’s password to Calendar Web Services. From now on, it is your application’s responsibility to authenticate the end-user.

Identifying Calendar Objects

SOAP queries make use of Universal Identifiers (UIDs) and Global Unique Identifiers (GUIDS). The Web services API is based around the ability to uniquely identify a Calendar store object, retrieve it, and store a reference for last use. In Web services, the data-independent property to use is:

`x-oracle-data-guid`

This Data GUID maps to various data type specific properties stored on the Oracle Calendar server. For events, the following properties are available:

- `uid` # a UID settable upon creation
- `x-oracle-event-guid` # identifier of the main event
- `x-oracle-eventinstance-guid` # identifier of the instance within
  # the event
- `x-oracle-data-guid` # mapped to `x-oracle-eventinstance-guid`

For tasks, the following properties are available:

- `uid` # a UID settable upon creation
- `x-oracle-data-guid` # generated internally by the Application
  # Server (OCAS) and cannot be used against
  # any other product. This will be changed
SOAP Envelope

The SOAP Envelope is a predefined XML packet used to identify the SOAP message:

```xml
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
    soap:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/
    xmlns:xsi="http://www.w3.org/1999/XMLSchema-instance"
    xmlns:xsd="http://www.w3.org/1999/XMLSchema">
    ...soap header...
    ...soap body...
</soap:Envelope>
```

Xsi and xsd are options defining a namespace used within the message; these will appear if required (i.e. if there is an element in the soap header or soap body requiring it).

Xsd is used to provide basic predefined type definitions, such as string, integer, etc. Xsi is used to define the "type" attribute for an entry.

```xml
<location xsi:type="xsd:string">Soleil</location>
```

There are 3 main ways of providing type information within SOAP:

- The data content types are agreed to by both parties ahead of time. This is not useful for general SOAP interaction, only one-to-one site integrations.
- Using XML Schemas, where the schema and namespace is used to relate all typing information.
- Using XML Schemas and explicit type attributes, where each element in the SOAP XML tree requires an xsi:type attribute.

Since xCal and CWSL have their own XML Schemas, they do not use explicit type attributes.

There are important issues to be outlined at this point: most current SOAP implementations add an XML document header line before the SOAP envelope. However this is not part of the current SOAP v1.1 specification, but an improvement included in SOAP v1.2.

```xml
<?xml version="1.0" encoding="UTF-8" ?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"
    soap:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/
    xmlns:xsi="http://www.w3.org/1999/XMLSchema-instance"
    xmlns:xsd="http://www.w3.org/1999/XMLSchema">
    ...soap header...
    ...soap body...
</soap:Envelope>
```

In order to maintain consistency between SOAP implementations, the default behavior is to provide the XML document header if the original request has one.

POST <uri> HTTP/1.1
Content-Type: text/xml; charset="UTF-8"
Content-Length: <char length>
User-Agent: <user agent>
SOAPAction: <urn>
The SOAP body contains the actual methods used to perform actions on Calendar Server and Web services errors.

**SOAP Faults**

When any kind of error is returned, a SOAP Fault element appears in the Body of the SOAP response. Within a SOAP fault, there are specific elements to be provided:

- A faultcode, which can be one of the following values:
  - VersionMismatch indicating the SOAP namespace is incorrect.
  - Client indicating a problem originating from the incoming message.
  - Server indicating a problem occurred during the processing of the request.

- A faultstring, which is the textual message of the error that has occurred. This is the application system error string. The default string language is English.

- A detail element, used as the container to provide extended information. In our case, the complete application system error log entry is returned to the SOAP client. If server side event logging is set to debug in ocas.conf, then Line, FileName, Version, LastMod, and Author are returned.

```xml
<soap:Body>
  <soap:Fault>
    <faultcode>soap:Server</faultcode>
    <faultstring>Unable to locate the entry in the preferences</faultstring>
    <detail>
      <cwsl:Error xmlns:cwsl="http://www.oracle.com/WebServices/Calendaring/1.0/"/>
        <Class>Error::Data::CalConnection</Class>
        <Code>000C-01-00-00000029</Code>
        <Line>1450</Line>
        <FileName>UniapiConnection.cpp,v</FileName>
        <Version>1.43</Version>
        <LastMod>2002/05/23 20:54:48</LastMod>
        <Author>frederic</Author>
        <Date>Web May 29 14:05:42 2002</Date>
        <PID>19458</PID>
        <TID>5</TID>
      </cwsl:Error>
    </detail>
  </soap:Fault>
</soap:Body>
```

As an example, the preceding Code tag indicates the type of error as follows:

Generally you need only concern yourself with the first and last segments, which in this case are:

- Module 000C = SYS_MODULE_DATAACCESS
- Error 00000029 = e_soapSOAPRequestCode_MissingModifyCmd
For a list of Module and Error values, see Chapter 13, "Oracle Calendar Web Services Status Codes".

A fault can occur at any point in the access of interaction with various components within the application system and the Calendar Server.

**Calendar Web Service Language (CWSL)**

CWSL defines the grammar to be used to exchange data between a calendar SOAP client and calendar SOAP server. The following methods, taken directly from the CAP draft dated March 2002, provide the main functionality for the Calendar Web service language. It should be noted that some of the CAP method names are reused here in the CWSL, but the semantics and meaning are changed to reflect a Web-based protocol environment.

The Calendar language uses "http://www.oracle.com/WebServices/Calendaring/1.0/" as the namespace.

The following session command is supported:
- NoOp performs no operation on the data store, but is used to preauthenticate.

The following calendar commands are supported:
- Ping performs a simple check to ensure that Web services is active.
- Create performs a create of a new meeting.
- Delete performs a delete of an event or instance.
- Modify performs an update of an event or instance for specific properties.
- Search performs a request to retrieve data through the service.
- Summary counts the number of unconfirmed events, open active tasks, and overdue active tasks in a given time range.

It is important to note that some of these methods are greatly restricted in this release.
NoOp

Verifies the validity of an authentication SOAP header, without executing anything on the server. The NoOp command can only fail if there is a SOAP header problem.

Sample Request

```xml
<SOAP-ENV:Body>
  <cwsl:NoOp xmlns:cwsl="http://www.oracle.com/WebServices/Calendaring/1.0/"/>
</SOAP-ENV:Body>
```

Sample Successful Reply

```xml
<soap:Body>
  <NoOpReply/>
</soap:Body>
```
Ping

Tests to see if the Oracle Calendar Web service application server is active. The command has no other effect on Web services.

Sample Request

```xml
<SOAP-ENV:Body>
  <cwsl:Ping xmlns:cwsl="http://www.oracle.com/WebServices/Calendaring/1.0/">
  </cwsl:Ping>
</SOAP-ENV:Body>
```

Sample Successful Reply

```xml
<soap:Body>
  <PingReply>
  </PingReply>
</soap:Body>
```
Create

Creates <vevent> components on the Oracle Calendar server. In this release, the Create method has the following issues and limitations:

- The method does not support the creation of <vtodo> components.
- There is no current mechanism for creating a recurring meeting.
- There is no current mechanism for creating a meeting with additional attendees.

The response will be either a SOAP fault or a CreateReply containing the GUID of the event just created.

Sample Request

Certain properties must be specified in the Create command. Chapter 12, "Oracle Calendar Web Services Supported Data Components and Properties" indicates these properties.

```
<soap:Body>
  <cwsl:Create xmlns:cwsl="http://www.oracle.com/WebServices/Calendaring/1.0/">
    <CmdId>Testoraptor Command 31</CmdId>
    <iCalendar>
      <vcalendar prodid="-//Oracle//Calendaring//Calendarlet//EN" version="2.0">
        <vevent>
          <class>PRIVATE</class>
          <description>Sample Event Create</description>
          <dtstart value="DATE">20050113</dtstart>
          <duration>PT00H00M</duration>
          <location>Vision Corporation</location>
          <summary>EventCreate Alarm Display Type Day Event Test</summary>
          <uid>TESTORAPTOR-UID-2</uid>
          <x-oracle-eventtype>DAY EVENT</x-oracle-eventtype>
          <x-oracle-isrtcenabled>false</x-oracle-isrtcenabled>
          <valarm>
            <action>DISPLAY</action>
            <trigger>-PT1H05M</trigger>
          </valarm>
        </vevent>
      </vcalendar>
    </iCalendar>
  </cwsl:Create>
</soap:Body>
```

Sample Successful Reply

```
<soap:Body>
  <cwsl:CreateReply xmlns:cwsl="http://www.oracle.com/WebServices/Calendaring/1.0/">
    <CmdId>Testoraptor Command 31</CmdId>
    <x-oracle-data-guid>E1+352322565+14503+442957968</x-oracle-data-guid>
  </cwsl:CreateReply>
</soap:Body>
```
Delete

The Delete SOAP method provides the ability to delete a meeting, daily note or day event. This includes the ability to delete an instance of a repeating/recurring meeting.

Request Syntax

The vQuery uniquely identifies a previously returned data GUID. The GUID contains all the information to uniquely identify the instance of a repeating meeting or the recurrence of a recurrence rule.

```xml
<SOAP-ENV:Body>
  <cwsl:Delete xmlns:cwsl="http://www.oracle.com/WebServices/Calendaring/1.0/"
    <CmdId>Testoraptor Command 768</CmdId>
  </vQuery>
  <From>VEVENT</From>
  <Where>
    x-oracle-data-guid = 'Data GUID of an event or an instance of a repeating event'</Where>
  </vQuery>
</cwsl:Delete>
</SOAP-ENV:Body>
```

The vQuery is used to identify the item to be deleted; only one item can be deleted at a time.

Sample Request

```xml
<SOAP-ENV:Body>
  <cwsl:Delete xmlns:cwsl="http://www.oracle.com/WebServices/Calendaring/1.0/"
    <CmdId>Testoraptor Command 768</CmdId>
  </vQuery>
  <From>VEVENT</From>
  <Where>x-oracle-data-guid = 'E1+469763101+14503+442958019'</Where>
  </vQuery>
</cwsl:Delete>
</SOAP-ENV:Body>
```

Sample Successful Reply

DeleteReply will contain the GUID of the deleted item.

```xml
<soap:Body>
  <DeleteReply>
    <CmdId>Testoraptor Command 768</CmdId>
    <x-oracle-data-guid>E1+469763101+14503+442958019</x-oracle-data-guid>
  </DeleteReply>
</soap:Body>
```
Modify

Modifies, adds, or deletes an event’s properties. Only a few properties may be modified, added, or deleted.

Request Syntax

The Modify method is made up of three sections: the query, the iCalendar object properties, and the new iCalendar object properties:

```xml
<SOAP-ENV:Body>
  <cwsl:Modify xmlns:cwsl="http://www.oracle.com/WebServices/Calendaring/1.0/">
    <vQuery>
      <From><!-- VEVENT --></From>
      <Where><!-- The event query --></Where>
    </vQuery>
    <iCalendar><!-- The event properties (and values) to be changed --></iCalendar>
    <iCalendar><!-- The new event properties and values --></iCalendar>
  </cwsl:Modify>
</SOAP-ENV:Body>
```

Only certain properties may be modified with the Modify command. Chapter 12, "Oracle Calendar Web Services Supported Data Components and Properties" indicates these properties.

If there are other properties within the modify SOAP method, a SOAP fault will be generated (for example, class, uid, x-oracle-eventtype, Web Conferencing attributes).

vQuery Section

The vQuery section is used to identify the calendar component to be modified. Only one calendar component can be modified at a time.

The vQuery uniquely identifies a previously returned data GUID. The GUID contains all the information to uniquely identify the instance of a repeating meeting or the recurrence of a recurrence rule. The vQuery is used to identify the item to be modified; only one item can be modified at a time, including one simple event (meeting, daily note, or day event) or one instance of a repeating meeting. In a modify operation, properties can be changed, added, or removed (see the following table).

Modifying Properties

The first iCalendar object contains the properties to be modified, along with the original values. If there are attributes associated with them, those must be present as well. The second iCalendar object contains the new properties values to be applied.

```xml
<!-- The original event property/values -->
<iCalendar>
  <vcalendar>
    <vevent>
      <summary>My old title</summary>
    </vevent>
  </vcalendar>
</iCalendar>
<!-- The new event properties and values -->
<iCalendar>
  <vcalendar>
    <vevent>
      <!-- New event property/values -->
    </vevent>
  </vcalendar>
</iCalendar>
```

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Adding Properties
The first iCalendar object does not contain any reference to the property to be added. The second iCalendar object contains the new property and value.

<!-- The original event property/values -->
<iCalendar>
 <vcalendar>
  <vevent>
   <summary>My old title</summary>
   <location>My old location</location>
  </vevent>
 </vcalendar>
</iCalendar>

<!-- The modified event property/values -->
<iCalendar>
 <vcalendar>
  <vevent>
   <summary>My new title</summary>
   <location>My new location</location>
  </vevent>
 </vcalendar>
</iCalendar>

Deleting Properties
The first iCalendar object contains the original property and value. The second iCalendar object does not contain the property.

<!-- The original event property/values -->
<iCalendar>
 <vcalendar>
  <vevent>
   <summary>My old title</summary>
  </vevent>
 </vcalendar>
</iCalendar>

<!-- The modified event property/values -->
<iCalendar>
 <vcalendar>
  <vevent>
   <summary>My old title</summary>
  </vevent>
 </vcalendar>
</iCalendar>
Reply Syntax

The Modify reply returns the GUID of the modified event. It is very important to note that the GUID can change depending on the type of change applied to the Oracle Calendar server. Some updates require a delete/recreate type of interaction.

<!--Received from Web Services -->
<!-- failure will result in a SOAP fault -->
<Body>
  <ModifyReply>
    <CmdId>a command id</CmdId>
    <x-oracle-data-guid>cccc</x-oracle-data-guid>
  </ModifyReply>
</Body>

Sample Request

<SOAP-ENV:Body>
  <cwsl:Modify xmlns:cwsl="http://www.oracle.com/WebServices/Calendaring/1.0/*">
    <CmdId>Testoraptor Command 468</CmdId>
    <vQuery>
      <From>VEVENT</From>
      <Where>x-oracle-data-guid = 'E1+335545478+14503+442957967'</Where>
    </vQuery>
    <iCalendar>
      <vcalendar prodid="-//Oracle//Calendaring//Calendarlet//EN" version="2.0">
        <vevent>
          <class>PUBLIC</class>
          <x-oracle-isrtcenabled>false</x-oracle-isrtcenabled>
        </vevent>
      </vcalendar>
    </iCalendar>
  </cwsl:Modify>
</SOAP-ENV:Body>

Sample Successful Reply

The Modify method reply returns the GUID of the modified calendar component. It is very important to note that the GUID can change depending on the type of change applied to the Oracle Calendar server. Some updates require a delete/recreate type of interaction.

<soap:Body>
  <ModifyReply>
    <CmdId>Testoraptor Command 468</CmdId>
    <x-oracle-data-guid>E1+335545478+14503+442957967</x-oracle-data-guid>
  </ModifyReply>
</soap:Body>
Search

Retrieve Events, Tasks, Contacts, and User information from the Calendar Server.

Request Syntax

<CmdId> is a SOAP client-provided string and appears in the response to identify the originating Search entry.

<vQuery> is the search query criteria and can only appear once. (See the following section, "vQuery".)

<soap:Body>
  <cwsl:Search xmlns:cwsl="http://www.oracle.com/WebServices/Calendaring/1.0/">
    <CmdId>
      <!-- ID string provided by the client -->
    </CmdId>
    <vQuery>
      <!-- The search query criteria -->
    </vQuery>
    <x-oracle-limitattendees>
      <!-- Integer value -->
    </x-oracle-limitattendees>
    <x-oracle-overlap>
      <!-- Either the string "on" or "off" -->
    </x-oracle-overlap>
    <x-oracle-searchhandle></x-oracle-searchhandle>
    <x-oracle-timestamp>
      <!-- Timestamp string in UTC format -->
    </x-oracle-timestamp>
    <x-oracle-basicsearch>
      <!-- Search string -->
    </x-oracle-basicsearch>
  </cwsl:Search>
</soap:Body>

The following properties are optional:

<x-oracle-limitattendees>
Integer value that limits the number of attendees from the Calendar store. If no attendee information is required, set this value to "0". Retrieving attendee information is typically a very expensive operation on the Calendar store.

If this property is not set, all attendee information will be returned, limited by Web Services configuration and Calendar store settings.

<x-oracle-overlap>
If this property is set to "on", the Search method will retrieve events that overlap the specified date range. For example, if the date range is today, and this property is set to "on", the Search method would retrieve an event that starts yesterday and finishes tomorrow. If this property is set to "off", the Search method would not retrieve this event.

By default, this property is set to "off".

The following properties are required if you want to use the capabilities of Ultra Search:
<x-oracle-searchhandle>
If this element exists in the SOAP request, the internal Calendar store search API will
be used. Set the value of this property to the empty string, "".
</x-oracle-searchhandle>

<x-oracle-timestamp>
An xCal UTC string that represents the timestamp of the SOAP request. Ultra Search
uses this timestamp if no dstart information is provided.
The following property is only available if you are using the capabilities of Ultra
Search:
</x-oracle-timestamp>

<x-oracle-basicsearch>
The Search method will retrieve events that contain the specified string in any of the
<title>, <location>, or <description> properties.
</x-oracle-basicsearch>

Reply Syntax
The data returned is contained within a <cwsl:Reply>. There is one <cwsl:Reply>
element for each <cwsl:Search> element.

<soap:Body>
  <cwsl:Reply xmlns:cwsl="http://www.oracle.com/WebServices/Calendaring/1.0/">
    <CmdId>
      <!-- ID string from the originating Search SOAP request -->
    </CmdId>
    <!-- Data returned from the Search command -->
  </cwsl:Reply>
</soap:Body>

vQuery
The vQuery forms the basis for requesting data from the Calendar store.
Events can be queried by a single unique identifier or by a series of identifiers:

  <!-- Ability to fetch a single event -->
  <!-- Remove the Where clause to return all events -->
  <vQuery>
    <From>VEVENT</From>
    <Where>x-oracle-data-guid='event guid'</Where>
  </vQuery>

  <!-- Ability to fetch a multiple events -->
  <vQuery>
    <From>VEVENT</From>
    <Where>
      x-oracle-data-guid = 'event id 1' OR
      x-oracle-data-guid = 'event id 2' OR
      x-oracle-data-guid = 'event id 3'
    </Where>
  </vQuery>

Events can be queried by date range:

  <!-- Ability to fetch events within a time range -->
  <vQuery>
    <From>VEVENT</From>
    <Where>dtstart &gt;= 'starttime' AND dtend &lt;= 'endtime'</Where>
  </vQuery>
In this example, starttime and endtime provide the time range, in UTC, to be returned. Note the proper XML encoding of the string within the <Where> clause.

**Note:** All other event query forms will generate an error. In particular, date range queries must be in the following form:

```
DTEND >= start_date && DTSTART <= end_date
```

Other date range queries are possible only with the Calendarlet or the public static String getDateRangeQuery(Calendar in_startDate, Calendar in_endDate) method in the CalendarUtils class.

The event query result set is returned using the xCal draft specification, embedded within the <cwsl:Reply> tag.

```
<soap:Body>
  <cwsl:Reply xmlns:cwsl="http://www.oracle.com/WebServices/Calendaring/1.0/*">
    <CmdId>a client id</CmdId>
    <xCal:iCalendar xmlns:xCal="http://www.oracle.com/WebServices/Calendaring/1.0/*">
      <vcalendar version="2.0" prodid=...>
        <vevent>
          <x-oracle-data-guid>fjldjfdslkjfdksj</x-oracle-data-guid>
          <dtstamp>19980309T231000Z</dtstamp>
          <uid>ffdtasfdtasfdta</uid>
          <summary>My event</summary>
          <location>Soleil</location>
          <x-oracle-eventtype>PUBLIC</x-oracle-eventtype>
        </vevent>
      </vcalendar>
    </xCal:iCalendar>
  </cwsl:Reply>
</soap:Body>
```

There will be no sorting of returned data.

Tasks can be queried by a single unique identifier or by a series of identifiers:

```
<!-- Ability to fetch a single task -->
<!-- Remove the Where clause to return all tasks -->
<vQuery>
  <Select>*</Select>
  <From>VTODO</From>
  <Where>x-oracle-data-guid = 'task guid'</Where>
</vQuery>

<!-- Ability to fetch multiple tasks -->
<vQuery>
  <Select>*</Select>
  <From>VTODO</From>
  <Where>
    x-oracle-data-guid = 'task id 1' OR
    x-oracle-data-guid = 'task id 2' OR
    x-oracle-data-guid = 'task id 3'
  </Where>
</vQuery>
```
The <Where> clause contains the x-oracle-data-guid = string where the right-hand side is an iCal task GUID.

Active tasks can be queried by date range:

```xml
<!-- Ability to fetch active tasks by time range -->
<vQuery>
  <From>VTODO</From>
  <vCall>
    <ActiveTasks>
      <StartTime>20020701T000000Z</StartTime>
      <EndTime>20020801T000000Z</EndTime>
    </ActiveTasks>
  </vCall>
</vQuery>
```

<Select> may be provided, however it is not supported in the current version of Web services. All attributes are returned in the reply.

There is no sort order for the returned data.

The <vCall> element indicates the use of an internal procedure (like a database stored procedure). The child element provides the name of the stored procedure to be invoked, as well as the arguments required by the call.

The task query result set is returned using the xCal draft specification, embedded within the <cwsl:Reply> tag.

```xml
<soap:Body>
  <cwsl:Reply xmlns:cwsl="http://www.oracle.com/WebServices/Calendaring/1.0/">
    <CmdId>a client id</CmdId>
    <xCal:iCalendar xmlns:xCal="http://www.oracle.com/WebServices/Calendaring/1.0/">
      <vcalendar version="2.0" prodid=...>
        <vtodo>
          <x-oracle-data-guid>JKLFJLJK</x-oracle-data-guid>
          <uid>ffdtasfdtasfdta</uid>
          <dtstamp>19980309T231000Z</dtstamp>
          <summary>My task</summary>
          <priority>2</priority>
        </vtodo>
      </vcalendar>
    </xCal:iCalendar>
  </cwsl:Reply>
</soap:Body>
```

Ultra Search Capabilities

In addition to retrieving events in a given date range, you may use the capabilities of Ultra Search to search for text strings in <summary>, <description>, and <location> properties.

The following example searches for events that take place between February 25, 2005, 5:00am and February 26, 2006, 4:59am and contain the string "Montreal" in the <location> property:

```xml
<vQuery>
  <From>VEVENT</From>
  <Where>DTSTART &gt;= '20050225T050000Z'
    AND DTEND &lt;= '20050226T045900Z'
    AND LOCATION='Montreal'
  </Where>
</vQuery>
```
You may also use the <x-oracle-basicsearch> property to search for events that contain a specified string in any of the <title>, <location>, or <description> properties.

You may use Ultra Search capabilities only for searching events.

**Performance Issues**

To limit the potential impact on the Oracle Calendar server, the ocws.conf file has a few settings to override any query that is received.

```
[webservices]
maxattendee=200          # limit the total number of attendees that can
                         # be returned per instance. The default is 200.
maxresults=200           # limit the total number of meetings or tasks
                         # that can be returned in one query
```

If you use Ultra Search to retrieve events by searching for a string (as opposed to searching by <x-oracle-data-guid>), the attendees of those retrieved events will not be listed, other than the one specified in the property <x-oracle-loginuser>. However, if you search by <x-oracle-data-guid>, the attendees of the retrieved events will be listed.

Attendees are listed only for searches by <x-oracle-data-guid> because retrieving attendee lists may have a negative impact on performance.

**Sample Request**

```
<SOAP-ENV:Body>
  <cwsl:Search xmlns:cwsl="http://www.oracle.com/WebServices/Calendaring/1.0/"
  <CmdId>Testoraptor Command 458</CmdId>
  <vQuery>
    <From>VEVENT</From>
    <Where>LOCATION=OracleUltraSearchLocationText
      AND DTSTART &gt;=20040913T040000Z AND DTEND &lt;=20050113T050000Z
    </Where>
    <x-oracle-searchhandle>
    </x-oracle-searchhandle>
    <x-oracle-timestamp>20050113T050000Z</x-oracle-timestamp>
  </vQuery>
</cwsl:Search>
</SOAP-ENV:Body>
```

**Sample Successful Reply**

```
<soap:Body>
  <cwsl:Reply xmlns:cwsl="http://www.oracle.com/WebServices/Calendaring/1.0/"
  <CmdId>Testoraptor Command 458</CmdId>
  <x-oracle-searchhandle>
  </x-oracle-searchhandle>
  <iCalendar
    xmlns:xcal="http://www.oracle.com/WebServices/Calendaring/1.0/"
    <calendar version="2.0" prodid='-://Oracle//Calendaring//OCAS//EN'>
    <vevent>
      <uid>TESTORAPTOR-UID-76</uid>
      <transp>OPAQUE</transp>
      <summary>OracleUltraSearchText</summary>
      <status>CONFIRMED</status>
    </vevent>
  </iCalendar>
</soap:Body>
```
E1+469763101+14503+442958019
</x-oracle-event-guid>
<x-oracle-eventtype>APPOINTMENT</x-oracle-eventtype>
<x-oracle-search-relevance>100</x-oracle-search-relevance>
</event>
</vcalendar>
</iCalendar>
</cwsl:Reply>
</soap:Body>
Summary

Counts the number of unconfirmed events, open active tasks, and overdue active tasks in a given time range.

Request Syntax

The Summary command consists of one or two <vCall> elements. To count the number of unconfirmed events in a given time range, use the <EventsCount> element in a <vCall> element. To count the number of open or overdue active tasks in a given time range, use the <ActiveTasksCount> element.

Either an <EventCount> or an <ActiveTasksCount> element may appear in a <vCall> element. However, you may count the number of both unconfirmed events and open and overdue tasks. In this case, use two <vCall> elements.

Specify the start and end times of the time ranges in UTC time.

The following is the structure of the SOAP body of the Summary command:

```xml
<SOAP-ENV:Body>
  <cwsl:Summary xmlns:cwsl="http://www.oracle.com/WebServices/Calendaring/1.0/">
    <CmdId>
      <!-- The command ID. This string is defined by the developer. -->
    </CmdId>
    <vCall>
      <EventsCount>
        <StartTime>
          <!-- UTC date-time value. The date and time of the start of the time range. -->
        </StartTime>
        <EndTime>
          <!-- UTC date-time value. The date and time of the end of the time range. -->
        </EndTime>
        <Unconfirmed>
          <!-- Boolean. If set to TRUE, the SOAP reply will indicate the number of unconfirmed tasks within the given time range. -->
        </Unconfirmed>
      </EventsCount>
      <vCall>
        <ActiveTasksCount>
          <StartTime>
            <!-- UTC date-time value. The date and time of the start of the time range. -->
          </StartTime>
          <EndTime>
            <!-- UTC date-time value. The date and time of the end of the time range. -->
          </EndTime>
          <Open>
            <!-- Boolean. If set to TRUE, the SOAP reply will indicate the number of open active tasks within the given time range. -->
          </Open>
          <Overdue>
            <!-- Boolean. If set to TRUE, the SOAP reply will indicate -->
        </Overdue>
      </vCall>
    </vCall>
  </cwsl:Summary>
</SOAP-ENV:Body>
```
the number of overdue active tasks within the given time range. -->
</Overdue>
</ActiveTasksCount>
</vCall>
</cwsl:Summary>
</SOAP-ENV:Body>

Reply Syntax

Depending on the value of <Unconfirmed>, <Open>, and <Overdue>, a successful Summary command reply will contain <Unconfirmed>, <Open>, and <Overdue> elements that indicate the number of unconfirmed events, open active tasks, and overdue active tasks, respectively.

The following is the structure of the SOAP reply of the Summary command:

<soap:Body>
  <cwsl:SummaryReply
    xmlns:cwsl="http://www.oracle.com/WebServices/Calendaring/1.0/">
    <CmdId>Testoraptor Command 801</CmdId>
    <EventsCount>
      <Unconfirmed>
        <!-- Integer. Number of unconfirmed events. -->
      </Unconfirmed>
    </EventsCount>
    <ActiveTasksCount>
      <Open>
        <!-- Integer. Number of open active tasks. -->
      </Open>
      <Overdue>
        <!-- Integer. Number of overdue active tasks. -->
      </Overdue>
    </ActiveTasksCount>
  </cwsl:SummaryReply>
</soap:Body>
This chapter describes the design of the set of Java classes used to provide contextual collaboration through the access of calendar data through Oracle Calendar Web services. These "Calendarlet" classes attempt to hide the many details of using Web services technology in a Java environment.

The class implementation does not attempt to provide all the iCalendar properties and attributes.

---

**Note:** You can find JavaDoc information and TestTool samples in the Oracle Calendar Web services toolkit.

---

**Java Classes**

There are a few general steps to follow when using the Calendarlet classes:

- Initialize your authentication mechanism.
- Initialize your Query, including data type.
- Bind the authentication and query object to a Calendarlet instance.
- Set the target URL in the Calendarlet instance.
- Make the SOAP call.
- Parse the results.

The Calendarlet class implementation relies heavily on Apache SOAP classes to perform most of the protocol level handling. For incoming and outgoing messages, these same Apache SOAP classes are used, along with W3C DOM classes. To generate outgoing messages, Calendarlet and iCalendar classes are instantiated and set on parent classes. To generate the final XML stream, all classes implement a `getElement()` method. This is intended to build an XML DOM representation of the SOAP message to be transmitted. The lower level Apache SOAP calls require this DOM structure to obtain the final stream.

For incoming messages, the Calendarlet and iCalendar classes are reconstructed through the `unmarshall()` static method on each class, again using the XML DOM received from the lower level Apache SOAP classes. This unmarshalling of the DOM consists of the parent class recognizing a child tag and invoking that child’s class `unmarshall()` method.

If for any reason there is an XML parsing error, a low level Apache SOAP exception is thrown; the Calendarlet classes will never get a chance to parse the data. If there is a
contextual error, meaning the XML is valid but elements are in the wrong place or not recognized, a Calendarlet exception will be thrown.

Ideally, all incoming xCal (the XML binding of iCalendar) can have extended elements within the data. However, for this implementation, extended elements will only be handled at the vEvent level.

The Calendarlet class provides some debugging support. There are two main features:

- The ability to capture the input and output buffers; the method setWantIOPBuffers() must be called before invoking a SOAP method (not recommended for a final deployment). Both the input and output buffers are captured and stored in the CalendaringResponse class.
- The ability to get the total processing time (in milliseconds) of the SOAP request, also stored within the CalendarletResponse.

Creating Events and Web Conferences

The following code uses basic authentication to create one event or Web conference. This code consists of the following classes:

- Initialization: Connects to the Oracle Calendar server with basic authentication
- MyEventCreateTest: Creates one event or Web conference depending on the value of the parameter isWebConference in the MyEventCreateTest constructor.

Example 11–1  Initialization.java

```java
public class Initialization {
    public Initialization() {} 

    public void initBasicAuth( 
        oracle.calendar.soap.client.Calendarlet cws, 
        String name, 
        String password, 
        String endPointURL) 
    { 
        cws.setEndPointURL(endPointURL); 
        cws.setWantIOPBuffers(true);

        // Initialize the authentication information 
        oracle.calendar.soap.client.authentication.BasicAuth auth = 
            new oracle.calendar.soap.client.authentication.BasicAuth(); 
        auth.setName(name); 
        auth.setPassword(password);

        // Set the basic authentication header 
        cws.setAuthenticationHeader(auth.getElement());
    }
}
```

Example 11–2  MyEventCreateTest.java

```java
public class MyEventCreateTest {
    private oracle.calendar.soap.iCal.vEvent vevent;
    private String curentEventGUID;
    private String k_startTime;
    private String k_baseDuration = "PT01H00M";
```
private String k_baseLocation = "Tecumseh, Ontario";
private String m_testName = "Event Create Test";
private String m_uid = "UID-TEST-1";
private String m_eventClass;
private String m_xEventType;
private String m_cmdid = "CMDID-TEST-CREATE-1";
private String m_cmdid_delete = "CMDID-TEST-DELETE-1";
private boolean m_isWebConference;

public oracle.calendar.soap.iCal.vEvent getvEvent() { return vevent; }

public String getEventGUID() { return currentEventGUID; }

public MyEventCreateTest() { }

public MyEventCreateTest(
    String startTime,
    String duration,
    String location,
    String summary,
    String UID,
    String eventClass,
    String xEventType,
    String commandID,
    boolean isWebConference)
{
    k_startTime = startTime;
    k_baseDuration = duration;
    k_baseLocation = location;
    m_testName = summary;
    m_uid = UID;
    m_eventClass = eventClass;
    m_xEventType = xEventType;
    m_cmdid = commandID;
    m_isWebConference = isWebConference;
}

public void run()
{
    try
    {
        // Create the iCalendar that is to be
        // created on the Oracle Calendar server

        oracle.calendar.soap.iCal.iCalendar ical =
            new oracle.calendar.soap.iCal.iCalendar();
        oracle.calendar.soap.iCal.vCalendar vcal =
            new oracle.calendar.soap.iCal.vCalendar();
        vevent = new oracle.calendar.soap.iCal.vEvent();

        ical.addvCalendar(vcal);
        vcal.addvComponent(vevent);

        // set the vEvent attributes
        vevent.setEventClass(m_eventClass);

        // Start time
        vevent.setDtStart(k_startTime);

        // Duration
vevent.setDuration(k_baseDuration);

// Location
vevent.setLocation(k_baseLocation);

// Summary
vevent.setSummary(m_testName);

// UID
vevent.setUid(m_uid);

// Event type
vevent.setXEventType(m_xEventType);

// Description
vevent.setDescription(ical.toString());

// Make this event enabled for Web conference
if (m_isWebConference) {
    vevent.setWebConferenceEnabled(true);
    vevent.setWebConferenceType(vevent.k_webConferenceTypePublic);
}

// Initialize the event create command
oracle.calendar.soap.client.CreateCommand create =
    new oracle.calendar.soap.client.CreateCommand();
create.setCmdId(m_cmdid);
create.setIcalendar(ical);

// Create the Oracle Calendar client SOAP stub
// and set the basic authentication header
System.out.println("Creating the Oracle Calendar client SOAP stub");
oracle.calendar.soap.client.Calendarlet cws =
    new oracle.calendar.soap.client.Calendarlet();

// Login
if (cws == null) {
    return;
}

Initialization myInit = new Initialization();
myInit.initBasicAuth( cws,
    "username",
    "password",
    "http://www.example.com/ocws-bin/ocas.fcgi");

// Next, make the SOAP call
System.out.println("Making the SOAP call");
oracle.calendar.soap.client.CalendaringResponse response =
    cws.Create(create.getElement());

// Now display the results
System.out.println("SOAP send buffer:");
System.out.println(response.getSendBuffer());
System.out.println("SOAP receive buffer:");
System.out.println(response.getReceiveBuffer());
// Get the created event's GUID
oracle.calendar.soap.client.CreateReply myCreateReply = null;

try {
    System.out.println("Creating CreateReply");
    myCreateReply =
        (oracle.calendar.soap.client.CreateReply)
        response.getCalendarReply();
} catch (Exception e) {
    myCreateReply = null;
} if (myCreateReply == null) {
    System.out.println("Unable to create CreateReply");
    // There is nothing to do
    return;
}

currentEventGUID = myCreateReply.getDataGuid();

} catch (Exception e) {
    System.out.println("Exception encountered: ");
    System.out.println(e.getMessage());
    e.printStackTrace();
}

/**
 * Main method
 *
 */
public static void main(String[] args) {
    MyEventCreateTest myEventCreateTest =
        new MyEventCreateTest(
            "20050714T040000Z",
            "PT01H00M",
            "Somewhere exotic",
            "MyEventCreateTest8",
            "MyEventCreateTest-UID-8",
            oracle.calendar.soap.iCal.vEvent.k_eventClassPublic,
            oracle.calendar.soap.iCal.vEvent.k_eventTypeAppointment,
            "CommandID-MyEventCreateTest",
            true);

    myEventCreateTest.run();
}

Creating Web Conferences

To create a Web conference, create an event with the following properties
- `<x-oracle-isrtenabled>` set to true
- `<x-oracle-rtc-securitytype>` set to the security type of the Web conference. This can be either "REGULAR", "PUBLIC", or "RESTRICTED".
- `<dtstart>` set to a time in the future
- `<summary>` set to a short description of the Web conference

You may also configure the following Web conference properties:

- `<x-oracle-rtc-attendee-url>`
- `<x-oracle-rtc-dialininfo>`
- `<x-oracle-rtc-host-url>`
- `<x-oracle-rtc-meetingid>`
- `<x-oracle-rtc-password>`

See Chapter 11, "Oracle Calendar Web Services Client-Side Java Implementation" for more information about these properties.

### Fetching Data

The following sample code performs the following:

- Creates a query that searches for all events within a date range of one week starting on today’s date
- Uses basic authentication services to connect to the Oracle Calendar server
- Traverses through all iCalendar objects. Traverses through all vCalendar objects in each iCalendar object. Traverses through all vEvent objects in each vCalendar object, and outputs information about each vEvent object.

This code consists of the classes Initialization (which is listed previously) and MyFetchTest.

**Example 11–3  MyFetchTest.java**

```java
public class MyFetchTest {
    public MyFetchTest() {
    }

    public void run() {
        try {

            // Initialize the event search command and query
            oracle.calendar.soap.client.SearchCommand search =
                new oracle.calendar.soap.client.SearchCommand();
            search.setCmdId("MySearchCommandID-1");

            // Create a query to retrieve unconfirmed events
            oracle.calendar.soap.client.query.vQuery query =
                new oracle.calendar.soap.client.query.vQuery();
            query.setFrom
                (oracle.calendar.soap.client.query.vQuery.k_queryFromEvent);

            // Determine the datestamps for a weeks worth of events.
            // Use the CalendarUtil to get a proper timestamp with
            // time zone information set properly
```

Fetching Data
java.util.Calendar today =
        oracle.calendar.soap.client.CalendarUtils.getToday();
int dayOfWeek = today.get(java.util.Calendar.DAY_OF_WEEK);
java.util.Calendar beginWeek = (java.util.Calendar)today.clone();
java.util.Calendar endWeek = (java.util.Calendar)today.clone();
beginWeek.add(java.util.Calendar.DATE, 1 - dayOfWeek);
endWeek.add(java.util.Calendar.DATE, 8 - dayOfWeek);
endWeek.add(java.util.Calendar.MINUTE, -1);

    // Use the CalendarUtils to help generate a date range query
    query.setWhere
        (oracle.calendar.soap.client.CalendarUtils.getDateRangeQuery
         (beginWeek, endWeek));
    search.setQuery(query);

    // Create the Oracle Calendar client SOAP stub
    // and set the basic authentication header
    oracle.calendar.soap.client.Calendarlet cws =
        new oracle.calendar.soap.client.Calendarlet();
    Initialization myInit = new Initialization();
    myInit.initBasicAuth(
        cws,
        'username',
        'password',
        'http://www.example.com/ocws-bin/ocas.fcgi');

    // Make the SOAP call
    oracle.calendar.soap.client.CalendaringResponse response =
        cws.Search(search.getElement());

    // Get the SOAP reply
    oracle.calendar.soap.client.Reply reply =
        (oracle.calendar.soap.client.Reply)
        response.getCalendarReply();

    // Traverse all the iCalendar objects
    java.util.Vector someiCalendars =
        oracle.calendar.soap.iCal.iCalendar.unmarshallVector(
            reply.getEntries());
    int numiCalendars = someiCalendars.size();
    for (int i = 0; i < numiCalendars; i++)
    {
        oracle.calendar.soap.iCal.iCalendar iCalObj =
            (oracle.calendar.soap.iCal.iCalendar)
            someiCalendars.get(i);

        // Traverse all the vCalendar objects
        java.util.Vector somevCalendars = iCalObj.getvCalendars();
        int numvCalendars = somevCalendars.size();
        for (int j = 0; j < numvCalendars; j++)
        {
            oracle.calendar.soap.iCal.vCalendar vCalObj =
                (oracle.calendar.soap.iCal.vCalendar)
                somevCalendars.get(j);
// Traverse all the vEvent objects
java.util.Vector somevEvents = vCalObj.getComponents();
int numvEvents = somevEvents.size();
for (int k = 0; k < numvEvents; k++)
{
    oracle.calendar.soap.iCal.vEvent vEventObj =
        (oracle.calendar.soap.iCal.vEvent)somevEvents.get(i);

    // Get the specific properties
    String title = vEventObj.getSummary();
    String dtstart = vEventObj.getDtStart();
    String dtend = vEventObj.getDtEnd();
    String eventType = vEventObj.getXEventType();

    System.out.println
        ("iCalendar " + i + ", vCalendar " + j + ", vEvent " + k + ":");
    System.out.println("Title: " + title);
    System.out.println("Start time: " + dtstart);
    System.out.println("End type: " + dtend);
    System.out.println("Event type: " + eventType);

    // Do something interesting with the meeting info
}
}
} catch (Exception e)
{
    System.out.println("Exception encountered: ");
    System.out.println(e.getMessage());
    e.printStackTrace();
}

/**
* Main method
*
*/
public static void main(String[] args)
{
    MyFetchTest myFetchTest = new MyFetchTest();
    myFetchTest.run();
}

SOAP Faults and Exceptions

There are two types of errors that can occur with the Web services toolkit: A Java exception or a SOAP fault.

The Java Exception originates from the Calendarlet class, the underlying Apache SOAP or W3C DOM classes, or the Java Runtime. For each SOAP method that is invoked on the Calendarlet class, an exception may be thrown as a result of some internal processing error or an XML parsing problem. These are typically client-side unexpected errors that must be properly handled.

The SOAP Fault is the result of an error from the Oracle Calendar Web service (that is, a remote server-side error). Whenever a server-side error occurs, the Web service returns a SOAP Fault as the response to the HTTP transaction. There is no Java-based exception thrown. Within a SOAP Fault, the details field may contain an Oracle
Calendar Web services Error object, with an important error code. For a list of error codes, see Chapter 13, "Oracle Calendar Web Services Status Codes".

A CalendarUtils method can help determine whether a SOAP fault has occurred and retrieve the Web services error.

```java
// Calendar response
CalendaringResponse response = cws.Search(...);

// get the vector of entries embedded
// in the SOAP body
Vector bodyEntries = response.getBodyEntries();

// determine if there was a SOAP Fault
if (!CalendarUtils.isSOAPFault(bodyEntries))
{
    // do regular processing
}
else
{
    // get the SOAP fault object
    org.apache.soap.Fault soapFault = CalendarUtils.getSOAPFault(bodyEntries);

    // get the Oracle Calendar Web services error
    Error calendaringError = Error.unmarshall(soapFault);

    // get the Web services error code
    String errorCode = calendaringError.getCode();
}
```

Local Time

There are two important date formats to be aware of: Date and DateTime. The DateTime format contains both date and time information within the string, while Date contains only date information. DateTime is generally used for regular meetings, while Date is used for Day Events, Daily Notes, and Holidays.

To help generate UTC datetime strings for a vQuery, the CalendarUtils will have a class to take a standard Java Calendar class object and generate a proper string of the form "yyyyMMddThhmmssZ". Java's Calendar class can have a Java time zone associated with it. It is up to the user of the Calendarlet classes to determine the proper time zone and set it in the Java Calendar class.

```java
// Set the date through some mechanism
// Ensure the proper time zone is set
TimeZone localTimezone = TimeZone.getDefault();
Calendar theDate       = Calendar.getInstance(localTimezone);

String utcString = CalendarUtils.getUTCDateTime(theDate);
```

To help generate UTC date strings for a vQuery, the CalendarUtils will have a class to take a standard Java Calendar class object and generate a proper string of the form "yyyyMMdd". Java's Calendar class can have a Java time zone associated with it. It is up to the user of the Calendarlet classes to determine the proper time zone and set it in the Java Calendar class.

```java
// Set the date through some mechanism
// Ensure the proper time zone is set
TimeZone localTimezone = TimeZone.getDefault();
```
Calendar theDate = Calendar.getInstance(localTimezone);

String utcString = CalendarUtils.getUTCDate(theDate);

Since many calendar query operations are relative to today's date, an additional
CalendarUtils method is provided to help base vQuery datetime stamps. The method
will return a datetime stamp of midnight today, local time and will be of the form
"yyyyMMddTxxxx00Z", where xxxx is the hour and minute offset from UTC (note
some time zones are half-hour offsets).

String utcToday = CalendarUtils.getToday();

Typical Oracle Calendar server query time ranges are from local midnight of a specific
date to one minute before midnight of the day before the last date. For example, if
today is June 01, 2003 in EST time, the getToday() method will return
20030602T040000Z. For a day date range, the end date would be 20030603T035900Z.
The data format of Oracle Calendar events and tasks are based on *iCalendar DTD Document (xCal)*. This document provides an alternative, XML representation for the standard iCalendar syntax defined in RFC 2445 - *Internet Calendaring and Scheduling Core Object Specification (iCalendar)*.

Note that only vEvents and vTodos are supported in the xCal specification; vJournal and vFreebusy are not.

The following tables and sections describe the iCalendar components and properties that Oracle Calendar Web services supports. They also describe which properties may be modified, added, or deleted with the Modify SOAP command or required, optional, or not allowed with the Create SOAP command. Oracle Calendar Web services also supports Oracle-specific components and properties whose names begin with “x-oracle”.

The current implementation of Web services does not support the retrieval of repeating and recurring meetings as a whole. When a Search is performed, any meeting with instances or recurrence rules stored on the server is expanded to separate each instance into an individual meeting. This helps processing and UI generation.

It is important to note that not all xCal elements and properties nor all Oracle Calendar server attributes are supported in this release.

For more information regarding data types, syntax, and other characteristics of iCalendar components and properties, refer to the following documents:

- RFC 2445 - *Internet Calendaring and Scheduling Core Object Specification (iCalendar)*
- *iCalendar DTD Document (xCal)*

**Components**

Calendar Web services supports the `<vevent>` and `<vtodo>` iCalendar components.

The following tables describe the component properties of `<vevent>` and `<vtodo>`. The following are clarifications of some of these table’s headings and abbreviations:

- **Columns labeled "Min."** indicate the minimum number of each component property (or property parameter) that the client must create or generate in order to add the specified component to the Calendar store.
- **Columns labeled "Max."** indicate the maximum number of each component property (or property parameter) the specified component may contain.
Components

- Columns labeled "Mod." indicate whether the component property can be modified or deleted (with the Modify SOAP method).
- Columns labeled "Add" indicate whether the component property can be added (with the Modify SOAP method).
- Columns labeled "Create" indicate whether the component property is required, supported (optional), not supported, or ignored by the Create SOAP method.

**vevent**

Describes appointments, daily notes, day events, and holidays.

**Table 12–1 Component Properties of VEVENT**

<table>
<thead>
<tr>
<th>Component Property</th>
<th>Min</th>
<th>Max.</th>
<th>Mod.</th>
<th>Add</th>
<th>Create</th>
<th>Data Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>attendee</td>
<td>0</td>
<td>n</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>mailto URI of the attendee</td>
</tr>
<tr>
<td>class</td>
<td>0</td>
<td>1</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
<td>required</td>
</tr>
<tr>
<td>description</td>
<td>0</td>
<td>1</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>supported</td>
</tr>
<tr>
<td>dtend (must not appear with duration)</td>
<td>1</td>
<td>1</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td>not supported</td>
</tr>
<tr>
<td>dtstart</td>
<td>1</td>
<td>1</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
<td>required</td>
</tr>
<tr>
<td>duration (must not appear with dtend)</td>
<td>1</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>yes</td>
<td>required</td>
</tr>
<tr>
<td>location</td>
<td>0</td>
<td>1</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>supported</td>
</tr>
<tr>
<td>organizer</td>
<td>0</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>not supported</td>
</tr>
<tr>
<td>priority</td>
<td>0</td>
<td>1</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td>supported</td>
</tr>
<tr>
<td>summary</td>
<td>0</td>
<td>1</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>supported</td>
</tr>
<tr>
<td>uid</td>
<td>0</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>supported</td>
</tr>
<tr>
<td>valarm</td>
<td>0</td>
<td>n</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>supported</td>
</tr>
<tr>
<td>x-oracle-data-guid</td>
<td>0</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>not supported</td>
</tr>
<tr>
<td>x-oracle-event-guid</td>
<td>0</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>ignored</td>
</tr>
<tr>
<td>x-oracle-eventinstance-guid</td>
<td>0</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>ignored</td>
</tr>
<tr>
<td>x-oracle-eventtype</td>
<td>0</td>
<td>1</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
<td>required</td>
</tr>
<tr>
<td>x-oracle-isrtcenabled</td>
<td>0</td>
<td>1</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>supported</td>
</tr>
<tr>
<td>x-oracle-loginuser</td>
<td>0</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>supported</td>
</tr>
<tr>
<td>x-oracle-rtc-attendee-url</td>
<td>0</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>supported</td>
</tr>
<tr>
<td>x-oracle-rtc-dialininfo</td>
<td>0</td>
<td>1</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>supported</td>
</tr>
<tr>
<td>x-oracle-rtc-host-url</td>
<td>0</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>supported</td>
</tr>
<tr>
<td>x-oracle-rtc-meetingid</td>
<td>0</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>supported</td>
</tr>
<tr>
<td>x-oracle-rtc-password</td>
<td>0</td>
<td>1</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>supported</td>
</tr>
<tr>
<td>x-oracle-rtc-securitytype</td>
<td>0</td>
<td>1</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>supported</td>
</tr>
<tr>
<td>x-oracle-search-relevance</td>
<td>0</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>no</td>
<td>not supported</td>
</tr>
</tbody>
</table>

**vtodo**

Describes tasks stored in the Oracle Calendar server.
vevent and vtodo Component Properties

The following describes the iCalendar and Oracle-specific component properties of the <vevent> and <vtodo> calendar components.

attendee

 Defines an attendee within a Calendar component. This component has the same structure as <x-oracle-loginuser> except it may have an additional property parameter named partstat.

Table 12-2  Component Properties of VTODO

<table>
<thead>
<tr>
<th>Component Property</th>
<th>Min.</th>
<th>Max.</th>
<th>Mod.</th>
<th>Add</th>
<th>Data Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>class</td>
<td>0</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>TEXT</td>
</tr>
<tr>
<td>completed</td>
<td>0</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>DATE-TYPE</td>
</tr>
<tr>
<td>created</td>
<td>0</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>DATE-TIME</td>
</tr>
<tr>
<td>description</td>
<td>0</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>TEXT</td>
</tr>
<tr>
<td>dtstamp</td>
<td>0</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>DATE-TIME</td>
</tr>
<tr>
<td>dtstart</td>
<td>0</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>DATE-TIME (default), DATE</td>
</tr>
<tr>
<td>due</td>
<td>1</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>DATE-TIME (default), DATE</td>
</tr>
<tr>
<td>last-modified</td>
<td>0</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>DATE-TIME</td>
</tr>
<tr>
<td>percent</td>
<td>0</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>INTEGER</td>
</tr>
<tr>
<td>priority</td>
<td>0</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>INTEGER</td>
</tr>
<tr>
<td>summary</td>
<td>0</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>TEXT</td>
</tr>
<tr>
<td>uid</td>
<td>0</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>TEXT</td>
</tr>
<tr>
<td>x-oracle-data-guid</td>
<td>0</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>TEXT</td>
</tr>
<tr>
<td>x-oracle-taskid</td>
<td>0</td>
<td>1</td>
<td>no</td>
<td>no</td>
<td>TEXT</td>
</tr>
</tbody>
</table>

valarm

Describes reminders for Calendar entries. Properties of <valarm> include the type of reminder, such as a popup or an email, and the time before which the <valarm> should notify the user of the Calendar event.

Table 12-3  Component Properties of VALARM

<table>
<thead>
<tr>
<th>Component Property</th>
<th>Min.</th>
<th>Max.</th>
<th>Mod.</th>
<th>Add</th>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
</table>
| action             | 1    | 1    | yes  | no  | TEXT      | Describes the type of action to be performed by the alarm. This can be one of the following:  
  ■ AUDIO  
  ■ DISPLAY (displays a popup)  
  ■ EMAIL (emails a reminder)  
  ■ PROCEDURE  
  ■ X-ORACLE-ALARM-DEFAULT (uses the user's server's default action)  
  ■ X-ORACLE-ALARM-NONE (does not trigger an alarm)  
  ■ X-ORACLE-SMS (triggers an SMS) |
| trigger            | 1    | 1    | yes  | no  | TRIGGER   | Time and duration of the alarm |
The partstat property parameter represents the attendee’s participation status. It may have a value of ACCEPTED, DECLINED, or NEEDS-ACTION. Note that DELEGATED and TENTATIVE are not supported.

The following is an example of an <attendee> component property:

```xml
<attendee cn="Germaine Lauzon" partstat="ACCEPTED">
  GERMAINE.LAUZON@LES-BELLES-SOEURS.QC.CA
</attendee>
```

class

Defines the access classification for a Calendar component. It may have one of the following values:

- CONFIDENTIAL
- PRIVATE
- PUBLIC

completed

Has a value of "true" if the value of percent is "100".

created

Specifies the date and time that the Calendar component was created. The date and time is a UTC value.

description

Provides a more complete description of the Calendar component than that provided by the <summary> property.

dtend

Specifies the date and time that a Calendar component ends.

The data type of this property may be DATE-TIME or DATE. Specify the data type with the value attribute. The following is an example of this property:

```xml
<dtend value="DATE">20050119</dtstart>
```

dtstamp

Indicates the date/time that the instance of the Calendar object was created or last modified. The value must be specified in the UTC time format. This property is different than the <created> and <last-modified> properties. These two properties are used to specify when the particular Calendar data in the Calendar store was created and last modified. This is different than when the Calendar object representation of the Calendar data was created or modified by the client.

dtstart

Specifies when the Calendar component begins. Non-standard, value data type, time zone identifier property parameters can be specified on this property.
If `dtend` is present, it will be used to calculate the event duration; the actual end time is not stored. As event times are measured in minutes, the start time and duration will have their 'seconds' component set to zero.

The data type of this property may be DATE-TIME or DATE. Specify the data type with the value attribute. The following is an example of this property:

<dtstart value='DATE'>20050119</dtstart>

due

Represents the task due date and time. The date and time is a UTC string of type DATE-TIME or DATE.

duration

Specifies a positive duration of time.

For example, a duration of 15 days, 5 hours and 20 seconds would be represented as P15DT5H0M20S. A duration of 7 weeks would be represented as P7W

last-modified

Specifies the date and time that the information associated with the Calendar component was last revised in the Calendar store. This is analogous to the modification date and time for a file in the file system. The property value must be specified in the UTC time format.

location

Defines the intended venue for the activity defined by a Calendar component.

organizer

Defines the organizer for a Calendar component. Uses the same structure as `<x-oracle-loginuser>`.

percent

An integer between 0 and 100 that represents the percent completed of a task.

priority

Defines the relative priority for a Calendar component.

The following table describes the possible values of this property:

<table>
<thead>
<tr>
<th>Table 12–4 Possible Value of &lt;priority&gt;</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Highest</td>
</tr>
<tr>
<td>2</td>
<td>High</td>
</tr>
<tr>
<td>5</td>
<td>Normal</td>
</tr>
<tr>
<td>7</td>
<td>Low</td>
</tr>
<tr>
<td>9</td>
<td>Lowest</td>
</tr>
</tbody>
</table>
**summary**

Defines the title of the event or instance.

**uid**

Defines the persistent, globally unique identifier for the Calendar component. If `<uid>` is not specified when storing data, the Oracle Calendar server will assign a value.

**url**

Defines a Uniform Resource Locator (URL) associated with the Calendar object.

**x-oracle-data-guid**

Defines the event’s or task’s unique identifier so that an entry can be identified when referencing it through OCAS.

**x-oracle-event-guid**

Uniquely identifies `<vevent>` components.

**x-oracle-eventinstance-guid**

Uniquely identifies `<vevent>` instances.

**x-oracle-eventtype**

Identifies the type of event that the `<vevent>` represents. The property can be specified once in the `<vevent>` component. It can have one of the following values:

- **APPOINTMENT**: Identifies a regular blocking meeting.
- **DAILY NOTE**: Identifies a non-blocking note associated with a calendar day.
- **DAY EVENT**: Identifies a non-blocking all day Calendar event.
- **HOLIDAY**: Identifies a non-blocking holiday specialization of a day event.

**x-oracle-isrtcenabled**

Indicates that an instance is Web conference-enabled. This property is generated by the Oracle Calendar server and used by Calendar clients. This property can be specified in the `<vevent>` Calendar component.

**x-oracle-loginuser**

Defines the login user.

The value of the `<x-oracle-loginuser>` the mailto URI of the Calendar user. The property parameters of this property appear as element attributes.

The following is an example of an `<x-oracle-loginuser>` element:

```xml
<x-oracle-loginuser cn="GERMAINE LAUZON">
    mailto:GERMAINE.LAISON@LES-BELLES-SOEURS.QC.CA
</x-oracle-loginuser>
```
The cn property parameter is the common or displayable name associated with the login user.

**x-oracle-rtc-attendee-url**

This property may be specified once in the vevent Calendar component.

**x-oracle-rtc-dialininfo**

Specifies dial-in information required by attendees to join a teleconference, such as the phone number and conference ID. This property may be specified once in the vevent Calendar component.

**x-oracle-rtc-host-url**

Specifies the URL of the Web page hosting the Web conference associated with this Calendar component instance. This value is set by Web conference. This property may be specified once in the vevent Calendar component.

**x-oracle-rtc-meetingid**

Specifies the Web conference ID associated with the vevent Calendar component instance. The value is strictly generated by the Web conference server. This property may be specified once in the vevent Calendar component.

**x-oracle-rtc-password**

The optional key (the password) of a Web conference. The property can be specified in the vevent Calendar component.

**x-oracle-rtc-securitytype**

Indicates the security type of a Web conference enabled instance. Possible types are "restricted", "regular", and "public". The property may be specified once in the vevent Calendar component. This property may be specified once in the vevent Calendar component.

**x-oracle-search-relevance**

Represents the relative weight of this instance in the Ultra Search result set. This property contains a value between 0 and 100. Instances with higher values are considered more likely to be relevant to the end user. This is only to be used for Ultra Search.

**x-oracle-taskid**

Represents the task ID of a <vtodo> generated by the Oracle Calendar server.

**Example XML Calendar Data**

The following are examples of <event> and <vtodo> iCalendar components.

**Simple Events**

<vcalendar>
<vevent>
  <class>CONFIDENTIAL</class>
  <description>a description</description>
  <dtend>20021101T120000Z</dtend>
  <dtstart>20021101T110000Z</dtstart>
  <location></location>
  <organizer cn="James Baldwin">
    mailto: james.baldwin@oracle.com
  </organizer>
  <priority>1</priority>
  <status>CONFIRMED</status>
  <summary>a meeting</summary>
  <uid>ORACLE:CALSERV:EVENT:48390483290843290</uid>
  <attendee cn="James Baldwin" partstat="ACCEPTED">
    mailto: james.baldwin@oracle.com
  </attendee>
  <x-oracle-eventtype>APPOINTMENT</x-oracle-eventtype>
  <x-oracle-event-guid>fdjskljfdlkj</x-oracle-event-guid>
  <x-oracle-eventinstance-guid>fdjskljfdlkj</x-oracle-eventinstance-guid>
  <x-oracle-data-guid>fdjskljfdlkj</x-oracle-data-guid>
</vevent>

Repeating and Recurring Events

If a repeating (or recurring) meeting were pulled directly from the Oracle
Calendar server, it would have one vCalendar element with multiple, related vEvents. The main
vEvent would contain an rule element outlining the rule for the meeting followed by
instance, exception, and time zone information. All event-guids would be the same
through the vCalendar, but the instance-guids would be different.

When a Search is performed, any meeting with instances or recurrence rules stored on
the server is expanded to separate each instance into an individual meeting. A meeting
and its instances have the same <x-oracle-event-guid>.

The following is an example of a repeating event that repeats daily for two days, from
January 21 to January 22:

<vcalendar version="2.0" prodid="-//Oracle//Calendaring//OCAS//EN">
  <vevent>
    <uid>E1+12345678+1+1234567890I1+00000000+1+4+111111111</uid>
    <transp>OPAQUE</transp>
    <summary>Repeating meeting</summary>
    <status>CONFIRMED</status>
    <priority>5</priority>
    <organizer cn="Germaine Lauzon">
      mailto: GERMAINE.LAUZON@LES-BELLES-SOEURS.QC.CA
    </organizer>
    <location>Somewhere</location>
    <description></description>
    <dtstart>20050122T150000Z</dtstart>
    <dtend>20050122T160000Z</dtend>
    <class>PUBLIC</class>
    <attendee cn="Germaine Lauzon" partstat="ACCEPTED">
      GERMAINE.LAUZON@LES-BELLES-SOEURS.QC.CA
    </attendee>
    <x-oracle-data-guid>
      E1+12345678+1+1234567890I1+00000000+1+4+111111111
    </x-oracle-data-guid>
  </vevent>
</vcalendar>
<x-oracle-areothersinvited>FALSE</x-oracle-areothersinvited>
<x-oracle-isextrainstance>FALSE</x-oracle-isextrainstance>
<x-oracle-isexception>FALSE</x-oracle-isexception>
<x-oracle-loginuser cn="Germaine Lauzon">
  mailto:GERMAINE.LAUZON@LES-BELLES-SOEURS.QC.CA
</x-oracle-loginuser>
<x-oracle-eventinstance-guid>
  I1+00000000+1+4+111111111
</x-oracle-eventinstance-guid>
<x-oracle-event-guid>
  E1+12345678+1+123456789
</x-oracle-event-guid>
<x-oracle-eventtype>APPOINTMENT</x-oracle-eventtype>
<valarm>
  <trigger>-P0DT0H10M0S</trigger>
  <action>DISPLAY</action>
  <description></description>
</valarm>
<valarm>
  <trigger>-P0DT0H10M0S</trigger>
  <action>AUDIO</action>
</valarm>
</vevent>
</vcalendar>
<vcalendar version="2.0" prodid="-//Oracle//Calendaring//OCAS//EN">
<vevent>
  <uid>E1+12345678+1+123456789@I1+00000000+1+5+000000000</uid>
  <transp>OPAQUE</transp>
  <summary>Repeating meeting</summary>
  <status>CONFIRMED</status>
  <priority>5</priority>
  <organizer cn="Germaine Lauzon">
    GERMAINE.LAUZON@LES-BELLES-SOEURS.QC.CA
  </organizer>
  <location>Somewhere</location>
  <description></description>
  <dtstart>20050121T150000Z</dtstart>
  <dtend>20050121T160000Z</dtend>
  <class>PUBLIC</class>
  <attendee cn="Germaine Lauzon" partstat="ACCEPTED">
    GERMAINE.LAUZON@LES-BELLES-SOEURS.QC.CA
  </attendee>
  <x-oracle-data-guid>
    E1+12345678+1+123456789@I1+00000000+1+5+000000000
  </x-oracle-data-guid>
  <x-oracle-areothersinvited>FALSE</x-oracle-areothersinvited>
  <x-oracle-isextrainstance>FALSE</x-oracle-isextrainstance>
  <x-oracle-isexception>FALSE</x-oracle-isexception>
  <x-oracle-loginuser cn="Germaine Lauzon">
    GERMAINE.LAUZON@LES-BELLES-SOEURS.QC.CA
  </x-oracle-loginuser>
  <x-oracle-eventinstance-guid>
    I1+00000000+1+5+000000000
  </x-oracle-eventinstance-guid>
  <x-oracle-event-guid>
    E1+12345678+1+123456789
  </x-oracle-event-guid>
  <x-oracle-eventtype>APPOINTMENT</x-oracle-eventtype>
  <valarm>
    <trigger>-P0DT0H10M0S</trigger>
    <action>DISPLAY</action>
    <description></description>
  </valarm>
</vevent>
</vcalendar>
Example XML Calendar Data

Daily Notes

```xml
<vcalendar>
  <vevent>
    <class>CONFIDENTIAL</class>
    <description>a description</description>
    <dtend value="DATE">20021101</dtend>
    <dtstart value="DATE">20021101</dtstart>
    <organizer cn="Par Lagerkvist">
      mailto:par.lagerkvist@oracle.com
    </organizer>
    <priority>3</priority>
    <status>CONFIRMED</status>
    <summary>a daily note</summary>
    <uid>ORACLE:CALSERV:EVENT:49304932-04932-09</uid>
    <attendee cn="Par Lagerkvist" partstat="ACCEPTED">
      mailto:par.lagerkvist@oracle.com
    </attendee>
    <x-oracle-event-guid>fdjskljfdlkj</x-oracle-event-guid>
    <x-oracle-eventtype>DAILY NOTE</x-oracle-eventtype>
    <x-oracle-eventinstance-guid>fdjskljfdlkj</x-oracle-eventinstance-guid>
    <x-oracle-data-guid>fdjskljfdlkj</x-oracle-data-guid>
  </vevent>
</vcalendar>
```

Day Events

```xml
<vcalendar>
  <vevent>
    <class>CONFIDENTIAL</class>
    <description>a description</description>
    <dtend value="DATE">20021101</dtend>
    <dtstart value="DATE">20021101</dtstart>
    <organizer cn="Par Lagerkvist">
      mailto:par.lagerkvist@oracle.com
    </organizer>
    <priority>3</priority>
    <status>CONFIRMED</status>
    <summary>a day event</summary>
    <uid>ORACLE:CALSERV:EVENT:49304932-04932-09</uid>
    <attendee cn="Par Lagerkvist" partstat="ACCEPTED">
      mailto:par.lagerkvist@oracle.com
    </attendee>
    <x-oracle-event-guid>fdjskljfdlkj</x-oracle-event-guid>
    <x-oracle-eventtype>DAY EVENT</x-oracle-eventtype>
    <x-oracle-eventinstance-guid>fdjskljfdlkj</x-oracle-eventinstance-guid>
    <x-oracle-data-guid>fdjskljfdlkj</x-oracle-data-guid>
  </vevent>
</vcalendar>
```
Holidays

<vcalendar>
  <vevent>
    <categories>
      <item>Holiday</item>
    </categories>
    <class>PUBLIC</class>
    <description>a description</description>
    <dtend value="DATE">20021031</dtend>
    <dtstart value="DATE">20021031</dtstart>
    <organizer cn="Par Lagerkvist">
      mailto:par.lagerkvist@oracle.com
    </organizer>
    <priority>3</priority>
    <status>CONFIRMED</status>
    <summary>a holiday</summary>
    <uid>ORACLE:CALSERV:EVENT:49304932-04932-09</uid>
    <attendee cn="Par Lagerkvist" partstat="ACCEPTED">
      mailto:par.lagerkvist@oracle.com
    </attendee>
    <x-oracle-event-guid>fdjskljfdlkj</x-oracle-event-guid>
    <x-oracle-eventtype>HOLIDAY</x-oracle-eventtype>
    <x-oracle-eventinstance-guid>fdjskljfdlkj</x-oracle-eventinstance-guid>
    <x-oracle-data-guid>fdjskljfdlkj</x-oracle-data-guid>
  </vevent>
</vcalendar>

Tasks

<vcalendar>
  <vtodo>
    <class>PRIVATE</class>
    <completed>20021002T210000Z</completed>
    <created>20021002T210000Z</created>
    <description>the task description</description>
    <percent>0</percent>
    <priority>9</priority>
    <summary>The task title</summary>
    <uid>fdjskljfdlkj</uid>
    <due>20021102T210000Z</due>
    <x-oracle-data-guid>
      ORACLE:CALSERV:TASK:328321890328/489043209
    </x-oracle-data-guid>
  </vtodo>
</vcalendar>
Each status code in a SOAP fault is made up of four segments; the first describes the source module, the last describes the error type. (The second and third segments are not generally used at this time.) This chapter lists the Module and Error codes that can be displayed in a SOAP fault.

A sample Code tag might look as follows:

000C-01-00-00000029

Generally you need only concern yourself with the first and last segments, which, in the preceding example, we can determine from the tables in this chapter to be:

Module 000C = SYS_MODULE_DATAACCESS
Error 00000029 = e_soapSOAPRequestCode_MissingModifyCmd

For more details on working with SOAP faults, see the "Oracle Calendar Web Services Status Codes" chapter.

# Module Codes

Each of these 64-bit codes corresponds to the source Module of an error in Oracle Calendar. Each Module name is preceded by "SYS_MODULE_".

<table>
<thead>
<tr>
<th>Code</th>
<th>Module</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x0000</td>
<td>NONE</td>
<td>not applicable</td>
</tr>
<tr>
<td>0x0001</td>
<td>UNIAPI</td>
<td>Calendar Server</td>
</tr>
<tr>
<td>0x0002</td>
<td>APPLICATION</td>
<td>Calendar Applications</td>
</tr>
<tr>
<td>0x0003</td>
<td>MEMORYMGR</td>
<td>Memory Manager</td>
</tr>
<tr>
<td>0x0004</td>
<td>CONNECTION</td>
<td>Connection Service</td>
</tr>
<tr>
<td>0x0005</td>
<td>DISPATCH</td>
<td>Dispatch Service</td>
</tr>
<tr>
<td>0x0006</td>
<td>LINKDB</td>
<td>Link Database Service</td>
</tr>
<tr>
<td>0x0007</td>
<td>MESSAGECAT</td>
<td>Message Catalogue Service</td>
</tr>
<tr>
<td>0x0008</td>
<td>PREFERENCE</td>
<td>Preference Service</td>
</tr>
<tr>
<td>0x0009</td>
<td>REGISTRY</td>
<td>Registry Services</td>
</tr>
<tr>
<td>0x000A</td>
<td>SESSIONDB</td>
<td>Session Database Service</td>
</tr>
<tr>
<td>0x000B</td>
<td>SYSTEM</td>
<td>System Service</td>
</tr>
<tr>
<td>0x000C</td>
<td>DATAACCESS</td>
<td>Data Access Service</td>
</tr>
<tr>
<td>0x000D</td>
<td>DATAMANGER</td>
<td>Data Manager Service</td>
</tr>
<tr>
<td>0x000E</td>
<td>SYNC</td>
<td>Synchronization Service</td>
</tr>
</tbody>
</table>
Error Codes

The following table lists the error codes that can be generated within the 0015 SOAP module.

### Table 13–2 Error Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>00000000</td>
<td>Invalid = 0</td>
<td>Error encountered with an invalid error code set</td>
</tr>
<tr>
<td>00000001</td>
<td>Ok = 1</td>
<td>Displayed in the rare case that the object was created with no error code set</td>
</tr>
<tr>
<td>00000002</td>
<td>NoInputData</td>
<td>The SOAP request was received but the content was empty</td>
</tr>
<tr>
<td>00000003</td>
<td>NoSoapAction</td>
<td>The SOAP request was received but there was no SOAPAction line in the HTTP header</td>
</tr>
<tr>
<td>00000004</td>
<td>NoPost</td>
<td>The SOAP request was received in another mechanism other than an HTTP POST</td>
</tr>
<tr>
<td>00000005</td>
<td>NoUTF8</td>
<td>The SOAP request was not sent in UTF-8</td>
</tr>
<tr>
<td>00000006</td>
<td>MethodNotSupported</td>
<td>The requested SOAP method is currently not supported</td>
</tr>
<tr>
<td>00000007</td>
<td>NoSoapContent</td>
<td>The requested SOAP package does not have any HTTP content</td>
</tr>
<tr>
<td>00000008</td>
<td>UnexpectedBasicAuthFailure</td>
<td>The requested SOAP package failed during the processing of the BasicAuth element</td>
</tr>
<tr>
<td>00000009</td>
<td>WrongSoapMethod</td>
<td>The requested SOAPAction is not recognized by the server</td>
</tr>
<tr>
<td>00000010</td>
<td>SOAPActionMismatch</td>
<td>The requested SOAPAction did not match the actual method being invoked in the SOAP envelope body</td>
</tr>
<tr>
<td>00000011</td>
<td>SoapActionNamespace</td>
<td>The requested SOAPAction did not contain the proper namespace URI (the CWSL namespace)</td>
</tr>
<tr>
<td>00000012</td>
<td>VersionMismatch</td>
<td>The SOAP envelope namespace was not the SOAP 1.1 namespace</td>
</tr>
<tr>
<td>00000013</td>
<td>BasicAuthNamespace</td>
<td>The BasicAuth SOAP header does not have the proper namespace</td>
</tr>
<tr>
<td>00000014</td>
<td>Unused001</td>
<td>No longer used</td>
</tr>
</tbody>
</table>

### Table 13–1 (Cont.) Source Module Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Module</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x000F</td>
<td>SYNCML</td>
<td>SyncML Module</td>
</tr>
<tr>
<td>0x010</td>
<td>MALCLIENT</td>
<td>MAL Module</td>
</tr>
<tr>
<td>0x011</td>
<td>NLSSERVICE</td>
<td>NLS Service</td>
</tr>
<tr>
<td>0x012</td>
<td>MALSYSTEM</td>
<td>MAL System Service</td>
</tr>
<tr>
<td>0x013</td>
<td>PLUGINCONFIG</td>
<td>Plug-in (component) Service</td>
</tr>
<tr>
<td>0x014</td>
<td>MOBILE</td>
<td>Mobile Module</td>
</tr>
<tr>
<td>0x015</td>
<td>XMLSERVICE</td>
<td>SOAP Module</td>
</tr>
<tr>
<td>0x016</td>
<td>WINDOWS</td>
<td>Windows Error</td>
</tr>
<tr>
<td>0x017</td>
<td>FCGI</td>
<td>FCGI Toolkit Error</td>
</tr>
<tr>
<td>0x018</td>
<td>XMLTOOLKIT</td>
<td>TBD</td>
</tr>
<tr>
<td>0x019</td>
<td>THREADMGR</td>
<td>TBD</td>
</tr>
<tr>
<td>0x020</td>
<td>SOAP</td>
<td>TBD</td>
</tr>
<tr>
<td>0x021</td>
<td>HTML</td>
<td>TBD</td>
</tr>
<tr>
<td>0x022</td>
<td>SECURITYSERVICE</td>
<td>TBD</td>
</tr>
</tbody>
</table>

13-2 Oracle Calendar Application Developer's Guide
<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000000F</td>
<td>SearchGenerationError</td>
<td>An unexpected error occurred while generating the response to Search</td>
</tr>
<tr>
<td>0000010</td>
<td>UnexpectedParserError</td>
<td>An unexpected error occurred while parsing the SOAP message</td>
</tr>
<tr>
<td>0000011</td>
<td>SAX2FatalError</td>
<td>Apache Xerces SAX2 parser fatal error message</td>
</tr>
<tr>
<td>0000012</td>
<td>SAX2Error</td>
<td>Apache Xerces SAX2 parser error message</td>
</tr>
<tr>
<td>0000013</td>
<td>SAX2Warning</td>
<td>Apache Xerces SAX2 parser warning message</td>
</tr>
<tr>
<td>0000014</td>
<td>SAXException</td>
<td>Apache Xerces SAX2 parser exception message</td>
</tr>
<tr>
<td>0000015</td>
<td>XMLException</td>
<td>Apache Xerces XML exception message</td>
</tr>
<tr>
<td>0000016</td>
<td>PingGenerationError</td>
<td>An unexpected error occurred while generating the response to Ping</td>
</tr>
<tr>
<td>0000017</td>
<td>SecurityError</td>
<td>An authentication problem (such as a bad user, bad password, or bad security token). The message is explicitly generic; it does not provide any clue as to why the authentication failed.</td>
</tr>
<tr>
<td>0000018</td>
<td>Unused002</td>
<td>No longer used</td>
</tr>
<tr>
<td>0000019</td>
<td>Unused003</td>
<td>No longer used</td>
</tr>
<tr>
<td>000001A</td>
<td>Unused004</td>
<td>No longer used</td>
</tr>
<tr>
<td>000001B</td>
<td>Unused005</td>
<td>No longer used</td>
</tr>
<tr>
<td>000001C</td>
<td>Unused006</td>
<td>No longer used</td>
</tr>
<tr>
<td>000001D</td>
<td>SearchNamespace</td>
<td>The SOAP Message EncodeQuietLoginInfo (the Search XML element) did not have the proper Calendaring namespace</td>
</tr>
<tr>
<td>000001E</td>
<td>MissingSearchCmd</td>
<td>A CmdId was not specified or was blank in the Search method</td>
</tr>
<tr>
<td>000001F</td>
<td>BadSearchForm</td>
<td>The data store specified in the Search Query's From element is not recognized or supported</td>
</tr>
<tr>
<td>0000020</td>
<td>BasicAuthMissingName</td>
<td>The SOAP header BasicAuth is missing the Name entry</td>
</tr>
<tr>
<td>0000021</td>
<td>BasicAuthMissingPassword</td>
<td>The SOAP header BasicAuth is missing the Password entry</td>
</tr>
<tr>
<td>0000022</td>
<td>MissingQuery</td>
<td>The Query element was not found in the Search element of the SOAP request</td>
</tr>
<tr>
<td>0000023</td>
<td>Unexpected</td>
<td>An unexpected error occurred while generating a SOAP response</td>
</tr>
<tr>
<td>0000024</td>
<td>CreateGenerationError</td>
<td>An unexpected error occurred during the generation of the Create response</td>
</tr>
<tr>
<td>0000025</td>
<td>CreateNamespace</td>
<td>The Create SOAP method has a namespace that doesn't match the predefined one</td>
</tr>
<tr>
<td>0000026</td>
<td>MissingCreateCmd</td>
<td>The Create SOAP method did not have a Cmd element in the request</td>
</tr>
<tr>
<td>0000027</td>
<td>ModifyGenerationError</td>
<td>An unexpected error occurred during the generation of the Modify response</td>
</tr>
<tr>
<td>0000028</td>
<td>InvalidModifyNamespace</td>
<td>The Modify SOAP method has a namespace that doesn't match the predefined one</td>
</tr>
<tr>
<td>0000029</td>
<td>MissingModifyCmd</td>
<td>The Modify SOAP method did not have a Cmd element in the request</td>
</tr>
<tr>
<td>000002A</td>
<td>MissingModifyQuery</td>
<td>The Query element was not found in the Modify element of the SOAP request</td>
</tr>
<tr>
<td>000002B</td>
<td>InvalidModifyQueryForm</td>
<td>The data store specified in the Modify Query's From element is not recognized or supported</td>
</tr>
<tr>
<td>000002C</td>
<td>MissingModifyOriginalElement</td>
<td>The Modify SOAP method did not have the element containing the original values in the request</td>
</tr>
</tbody>
</table>
### Table 13–2 (Cont.) Error Codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000002D</td>
<td>MissingModifyModifiedElement</td>
<td>The Modify SOAP method did not have the element containing the modified values in the request</td>
</tr>
<tr>
<td>0000002E</td>
<td>DeleteGenerationError</td>
<td>An unexpected error occurred during the generation of the Delete response</td>
</tr>
<tr>
<td>0000002F</td>
<td>DeleteNamespace</td>
<td>The Delete SOAP method has a namespace that doesn’t match the predefined one</td>
</tr>
<tr>
<td>00000030</td>
<td>MissingDeleteCmd</td>
<td>The Delete SOAP method did not have a Cmd element in the request</td>
</tr>
<tr>
<td>00000031</td>
<td>MissingDeleteQuery</td>
<td>The Query element was not found in the Delete element of the SOAP request</td>
</tr>
<tr>
<td>00000032</td>
<td>InvalidDeleteQueryForm</td>
<td>The data store specified in the Delete Query’s From element is not recognized or supported</td>
</tr>
<tr>
<td>00000033</td>
<td>MissingCreateElement</td>
<td>The Create method did not have a child element to be created</td>
</tr>
<tr>
<td>00000034</td>
<td>InvalidCreateElement</td>
<td>The Create method did not have a proper XML child element</td>
</tr>
<tr>
<td>00000035</td>
<td>NoopGenerationError</td>
<td>An unexpected error occurred during the generation of the Noop response</td>
</tr>
<tr>
<td>00000036</td>
<td>InvalidAuthentication</td>
<td>The SOAP header is not supported</td>
</tr>
<tr>
<td>00000037</td>
<td>InvalidTrustedAuthNamespace</td>
<td>The TrustedAuth namespace did not match the internal value</td>
</tr>
<tr>
<td>00000038</td>
<td>TrustedAuthMissingName</td>
<td>The TrustedAuth name element is missing</td>
</tr>
<tr>
<td>00000039</td>
<td>TrustedAuthMissingToken</td>
<td>The TrustedAuth token element is missing</td>
</tr>
<tr>
<td>0000003A</td>
<td>UnexpectedTrustedAuthFailure</td>
<td>An unexpected error occurred during Trusted Authentication</td>
</tr>
<tr>
<td>0000003B</td>
<td>InvalidProxyAuthNamespace</td>
<td>The ProxyAuth namespace did not match the internal value</td>
</tr>
<tr>
<td>0000003C</td>
<td>ProxyAuthMissingName</td>
<td>The ProxyAuth name element is missing</td>
</tr>
<tr>
<td>0000003D</td>
<td>ProxyAuthMissingAppName</td>
<td>The ProxyAuth application name element is missing</td>
</tr>
<tr>
<td>0000003E</td>
<td>ProxyAuthMissingAppPassword</td>
<td>The ProxyAuth application password element is missing</td>
</tr>
<tr>
<td>0000003F</td>
<td>UnexpectedProxyAuthFailure</td>
<td>An unexpected error occurred during Proxy Authentication</td>
</tr>
<tr>
<td>00000040</td>
<td>UnableToLocateEvent</td>
<td>Unable to locate an Event in the message body</td>
</tr>
<tr>
<td>00000041</td>
<td>MoreThanOneEvent</td>
<td>More than one Event was found in the message body</td>
</tr>
<tr>
<td>00000042</td>
<td>MissingEventType</td>
<td>An Event create was requested without an x-oracle-eventtype element</td>
</tr>
<tr>
<td>00000043</td>
<td>MissingClass</td>
<td>An Event create was requested without a class element</td>
</tr>
<tr>
<td>00000044</td>
<td>MissingDtStart</td>
<td>An Event create was requested without a dtstart element</td>
</tr>
<tr>
<td>00000045</td>
<td>MissingDuration</td>
<td>An Event create was requested without a duration element</td>
</tr>
<tr>
<td>00000046</td>
<td>UnableToConvertxCal</td>
<td>Unable to convert the xCal event to an internal component. This will cause the SOAP method to fail immediately</td>
</tr>
<tr>
<td>00000047</td>
<td>InvalidClass</td>
<td>The Event class element did not have a recognized or supported value for the operation being performed</td>
</tr>
<tr>
<td>00000048</td>
<td>MissingUID</td>
<td>The Event class element did not have a recognized or supported value for the operation being performed</td>
</tr>
<tr>
<td>00000049</td>
<td>UnsupportedCreateEventType</td>
<td>An unsupported event type property is included in the xCal event</td>
</tr>
<tr>
<td>0000004A</td>
<td>InvalidModifyComponent</td>
<td>The Modify command found an invalid component</td>
</tr>
<tr>
<td>0000004B</td>
<td>ModifyFoundDataGuidProperty</td>
<td>A Data GUID property was found in the data</td>
</tr>
<tr>
<td>0000004C</td>
<td>BadPriority</td>
<td>An invalid property was found</td>
</tr>
<tr>
<td>0000004D</td>
<td>Unused007</td>
<td>No longer used</td>
</tr>
<tr>
<td>Code</td>
<td>Name</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>0000004E</td>
<td>Unused008</td>
<td>No longer used</td>
</tr>
<tr>
<td>0000004F</td>
<td>ModifyClassNotSupported</td>
<td>The class property cannot be modified</td>
</tr>
<tr>
<td>00000050</td>
<td>ModifyDtStartNotSupported</td>
<td>The dtstart property cannot be modified</td>
</tr>
<tr>
<td>00000051</td>
<td>ModifyDtEndNotSupported</td>
<td>The dtend property cannot be modified</td>
</tr>
<tr>
<td>00000052</td>
<td>ModifyDurationNotSupported</td>
<td>The duration property cannot be modified</td>
</tr>
<tr>
<td>00000053</td>
<td>ModifyEventTypeNotSupported</td>
<td>The eventtype property cannot be modified</td>
</tr>
<tr>
<td>00000054</td>
<td>ModifyPriorityNotSupported</td>
<td>The priority property cannot be modified</td>
</tr>
<tr>
<td>00000055</td>
<td>ModifyDataGuidNotSupported</td>
<td>The dataguid property cannot be modified</td>
</tr>
<tr>
<td>00000056</td>
<td>ModifyUidNotSupported</td>
<td>The uid property cannot be modified</td>
</tr>
<tr>
<td>00000057</td>
<td>UnsupportedDtEnd</td>
<td>The dtend property is not supported</td>
</tr>
<tr>
<td>00000058</td>
<td>UnsupportedDataGuid</td>
<td>The data-guid property is not supported</td>
</tr>
<tr>
<td>00000059</td>
<td>UnsupportedOrganizer</td>
<td>The organizer property is not supported</td>
</tr>
<tr>
<td>0000005A</td>
<td>UnsupportedAttendee</td>
<td>The attendee property is not supported</td>
</tr>
<tr>
<td>0000005B</td>
<td>ModifyOrganizerNotSupported</td>
<td>The organizer property cannot be modified</td>
</tr>
<tr>
<td>0000005C</td>
<td>ModifyAttendeeNotSupported</td>
<td>The attendee property cannot be modified</td>
</tr>
<tr>
<td>0000005D</td>
<td>UnsupportedSearchScore</td>
<td>The search score property is not supported</td>
</tr>
<tr>
<td>0000005E</td>
<td>ModifySearchScoreNotSupported</td>
<td>The search score property cannot be modified</td>
</tr>
<tr>
<td>0000005F</td>
<td>MissingTimestamp</td>
<td>The timestamp element was missing from the search query</td>
</tr>
<tr>
<td>00000060</td>
<td>BadSearchHandle</td>
<td>The search handle element is invalid in the search query</td>
</tr>
<tr>
<td>00000061</td>
<td>MissingElementCreator</td>
<td>An internal initialization error caused the SOAP element to not be properly registered. The result will be the inability to parse the incoming SOAP message.</td>
</tr>
<tr>
<td>00000062</td>
<td>ElementCreatorFailed</td>
<td>The SOAP element could not be created; the SOAP transaction will fail.</td>
</tr>
<tr>
<td>00000063</td>
<td>ParserError</td>
<td>Generic XML SAX parser error</td>
</tr>
<tr>
<td>00000064</td>
<td>SummaryGenerationError</td>
<td>An unexpected error occurred during the generation of the Summary response</td>
</tr>
<tr>
<td>00000065</td>
<td>SummaryNamespace</td>
<td>The Summary method did not have the proper namespace</td>
</tr>
<tr>
<td>00000066</td>
<td>MissingSummaryCmd</td>
<td>The Summary method did not have a CmdID element</td>
</tr>
<tr>
<td>00000067</td>
<td>MissingSummaryCall</td>
<td>The Summary method did not have a vCall element</td>
</tr>
<tr>
<td>00000068</td>
<td>SummaryMissingStartTime</td>
<td>The Summary method did not have a StartTime element</td>
</tr>
<tr>
<td>00000069</td>
<td>SummaryMissingEndTime</td>
<td>The Summary method did not have an EndTime element</td>
</tr>
<tr>
<td>0000006A</td>
<td>SummaryCallUnsupported</td>
<td>The Summary method contained an unrecognized vCall element</td>
</tr>
<tr>
<td>0000006B</td>
<td>UnableToLocateAttendee</td>
<td>The vAttendee could not be found within the event</td>
</tr>
<tr>
<td>0000006C</td>
<td>UnableToLocateTask</td>
<td>The vTodo could not be found within the event</td>
</tr>
<tr>
<td>0000006D</td>
<td>MissingSummaryTimeStamp</td>
<td>The Summary command did not have a Timestamp element</td>
</tr>
<tr>
<td>0000006E</td>
<td>InvalidDateTime</td>
<td>The DateTime string is invalid</td>
</tr>
<tr>
<td>0000006F</td>
<td>MinDateTime</td>
<td>The DateTime string represents a date before the supported minimum date (February 1, 1991)</td>
</tr>
<tr>
<td>00000070</td>
<td>MaxDateTime</td>
<td>The DateTime string represents a date after the supported maximum date (November 30, 2027)</td>
</tr>
<tr>
<td>00000071</td>
<td>RequiresDateTime</td>
<td>The DateTime string does not have a time component</td>
</tr>
<tr>
<td>00000072</td>
<td>RequiresUTCDatetime</td>
<td>The DateTime string is not in UTC</td>
</tr>
</tbody>
</table>
### Error Codes

**Table 13–2 (Cont.) Error Codes**

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>00000073</td>
<td>InvalidServiceAuthNamespace</td>
<td>The ServiceAuth namespace does not match the internal value</td>
</tr>
<tr>
<td>00000074</td>
<td>ServiceAuthMissingName</td>
<td>The ServiceAuth name element is missing</td>
</tr>
<tr>
<td>00000075</td>
<td>ServiceAuthMissingToken</td>
<td>The ServiceAuth token element is missing</td>
</tr>
<tr>
<td>00000076</td>
<td>UnexpectedServiceAuthFailure</td>
<td>An unexpected error occurred during Service Authentication</td>
</tr>
<tr>
<td>00000077</td>
<td>UnsupportedWebConferenceId</td>
<td>The Web Conference ID property is not supported for this operation</td>
</tr>
<tr>
<td>00000078</td>
<td>UnsupportedWebConferenceHostURL</td>
<td>The Web Conference host URL property is not supported for this operation</td>
</tr>
<tr>
<td>00000079</td>
<td>UnsupportedWebConferenceAttendeeURL</td>
<td>The Web Conference attendee URL property is not supported for this operation</td>
</tr>
<tr>
<td>0000007A</td>
<td>WebConferenceTitleMandatory</td>
<td>The Web Conference does not have a valid summary</td>
</tr>
<tr>
<td>0000007B</td>
<td>WebConferenceInvalidType</td>
<td>The Web Conference type property is invalid</td>
</tr>
<tr>
<td>0000007C</td>
<td>WebConferenceNotSupportedOnServer</td>
<td>The Oracle Calendar server is not configured to support Web Conference meetings</td>
</tr>
<tr>
<td>0000007D</td>
<td>ModifyUnsupportedWebConferenceSecType</td>
<td>The Web Conference type property cannot be modified</td>
</tr>
<tr>
<td>0000007E</td>
<td>ModifyUnsupportedWebConferenceAttendeeURL</td>
<td>The Web Conference Attendee URL cannot be modified</td>
</tr>
<tr>
<td>0000007F</td>
<td>ModifyUnsupportedWebConferenceHostURL</td>
<td>The Modify command does not support the Web conference host URL property</td>
</tr>
<tr>
<td>00000080</td>
<td>CreateEventError</td>
<td>The Create command was not successful, check your parameters and try again. Returned when the server call to create a meeting throws an error, for example, due to duplicate GUID.</td>
</tr>
<tr>
<td>00000081</td>
<td>CreateWebConferenceMissingSecType</td>
<td>Invalid Web conference security type. Returned when a Web conference is created without a specified security type.</td>
</tr>
<tr>
<td>00000082</td>
<td>InvalidAlarm</td>
<td>Invalid alarm. Returned when an invalid or inconsistent alarm is set.</td>
</tr>
</tbody>
</table>
The following appendix describes Oracle-specific components and properties supported by Oracle Connector for Outlook.

**Components of iCalendar**

The following tables describe Oracle-specific properties of the iCalendar components VEVENT, VTODO, and VJOURNAL that are supported by Oracle Connector for Outlook. The following tables also describe the Oracle-specific component X-ORACLE-STICKYNOTE.

The following are clarifications of some of these table's headings and abbreviations:

- Columns labeled "Minimum Occurrences" indicate the minimum number of each component property (or property parameter) that the client must create or generate in order to add the specified component to the Calendar store.
- Columns labeled "Maximum Occurrences" indicate the maximum number of each component property (or property parameter) the specified component may contain.
- n: No limit of the maximum number of the specified property or parameter

**VEVENT**

Describes appointments, daily notes, day events, and holidays.

*Table A-1  Component Properties of VEVENT*

<table>
<thead>
<tr>
<th>Component Property</th>
<th>Minimum Occurrences</th>
<th>Maximum Occurrences</th>
<th>Data Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-ORACLE-DESCRIPTION-COMPRESSEDRTF</td>
<td>0</td>
<td>1</td>
<td>compressed RTF format</td>
</tr>
<tr>
<td>X-ORACLE-OBJECTOWNER</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
</tbody>
</table>

**VTODO**

The VTODO component describes tasks stored in the Oracle Calendar server.
### Table A–2 Component Properties of VTODO

<table>
<thead>
<tr>
<th>Component Property</th>
<th>Minimum Occurrences</th>
<th>Maximum Occurrences</th>
<th>Data Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-ORACLE-BILLINGINFO</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-DESCRIPTION-COMPRESSEDRTF</td>
<td>0</td>
<td>1</td>
<td>compressed RTF format</td>
</tr>
<tr>
<td>X-ORACLE-ESTIMATEDTIME</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-MILELAGE</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-TIMESPENT</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
</tbody>
</table>

### X-ORACLE-STICKYNOTE

An Oracle-specific component that describes personal notes that are appended to a Calendar entry.

### Table A–3 Component Properties of X-ORACLE-STICKYNOTE

<table>
<thead>
<tr>
<th>Component Property</th>
<th>Minimum Occurrences</th>
<th>Maximum Occurrences</th>
<th>Data Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>CREATED</td>
<td>0</td>
<td>1</td>
<td>DATE-TIME</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>DTSTAMP</td>
<td>0</td>
<td>1</td>
<td>DATE-TIME</td>
</tr>
<tr>
<td>LAST-MODIFIED</td>
<td>0</td>
<td>1</td>
<td>DATE-TIME</td>
</tr>
<tr>
<td>UID</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-COLORID</td>
<td>1</td>
<td>1</td>
<td>INTEGER</td>
</tr>
<tr>
<td>X-ORACLE-DESCRIPTION-COMPRESSEDRTF</td>
<td>0</td>
<td>1</td>
<td>compressed RTF format</td>
</tr>
<tr>
<td>X-ORACLE-GEOMETRY</td>
<td>1</td>
<td>1</td>
<td>four INTEGER values separated by semicolons</td>
</tr>
<tr>
<td>X-ORACLE-STICKYNOTE-GUID</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
</tbody>
</table>

### VJOURNAL

Describes records and tracking information for important activities of all types.

### Table A–4 Component Properties of VJOURNAL

<table>
<thead>
<tr>
<th>Component Property</th>
<th>Minimum Occurrences</th>
<th>Maximum Occurrences</th>
<th>Data Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-ORACLE-DESCRIPTION-COMPRESSEDRTF</td>
<td>0</td>
<td>1</td>
<td>compressed RTF format</td>
</tr>
<tr>
<td>X-ORACLE-ENTRYTYPE</td>
<td>1</td>
<td>1</td>
<td>TEXT</td>
</tr>
</tbody>
</table>

### VEVENT, VTODO, VALARM, X-ORACLE-STICKYNOTE Component Properties

The following describes Oracle-specific component properties of the VEVENT, VTODO, VALARM, VJOURNAL, and X-ORACLE-STICKYNOTE calendar components.
**X-ORACLE-BILLINGINFO**

Describes information related to billing for the task described by the VTODO, such as account information. The property can be specified once in the VTODO calendar component. The following is a list of colors and their corresponding ID:

The following is an example of this property:

```
X-ORACLE-BILLINGINFO: J. Smith & Ass., $45.00/hour
```

**X-ORACLE-COLORID**

Represents the display color of a sticky note. The property can be specified once in the X-ORACLE-STICKYNOTE calendar component.

**Table A–5 Sticky Note Colors and Color IDs**

<table>
<thead>
<tr>
<th>Color</th>
<th>Color ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue</td>
<td>0</td>
</tr>
<tr>
<td>Green</td>
<td>1</td>
</tr>
<tr>
<td>Pink</td>
<td>2</td>
</tr>
<tr>
<td>Yellow</td>
<td>3</td>
</tr>
<tr>
<td>White</td>
<td>4</td>
</tr>
</tbody>
</table>

The following is an example of this property:

```
X-ORACLE-COLORID: 2
```

**X-ORACLE-DESCRIPTION-COMPRESSEDRTF**

Represents the description in compressed RTF format. If users modify this property, they should take care to ensure that the plain-text version in the DESCRIPTION property is also appropriately modified. The property can be specified in the "VEVENT", "VTTODO", "VJOURNAL", and "X-ORACLE-STICKYNOTE" calendar components.

The property is defined by the following notation:

```
x-oracle-description-compressedrtf =
  "X-ORACLE-DESCRIPTION-COMPRESSEDRTF"
  x-oracle-description-compressedrtfparam
    ":" binary CRLF
  x-oracle-description-compressedrtfparam = 2*(
    ; the following are REQUIRED,
    ; but MUST NOT occur more than once
    ":" valuetypeparam /
    ":" encodingparam ) /
    ; the following are optional,
    ; but MUST NOT occur more than once
    ":" languageparam /
    ":" x-oracle-internal-checksumparam ) /
    ; the following is optional,
```

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The following is an example of this property:

X-ORACLE-DESCRIPTION-COMPRESSEDRTF;VALUE=BINARY;ENCODING=BASE64:

**X-ORACLE-ENTRYTYPE**

Specifies the type of activity or item that the journal item is keeping record of.

**X-ORACLE-ESTIMATEDTIME**

Represents the number of minutes of work allocated to complete the task described by the VTODO.

The following is an example of this property:

X-ORACLE-ESTIMATEDTIME:+PT300M

**X-ORACLE-GEOMETRY**

Represents the size and position on screen of the displayed sticky note. The value is four semicolon separated integer values. Each of these integers represent (in sequence) horizontal coordinate of the top left pixel, vertical coordinate of the top left pixel, width of the note, and height of the note. The property may be specified once in the X-ORACLE-STICKYNOTE component.

The following is an example of this property:

X-ORACLE-GEOMETRY:556;121;90;83

**X-ORACLE-MILELAGE**

Specifies mileage accrued while working on the task described by the VTODO, for billing purposes.

The following is an example of this property:

X-ORACLE-MILELAGE:137km

**X-ORACLE-OBJECTOWNER**

Describes the organizer of a meeting. This is the user that created the meeting. The property can be specified once in the "VEVENT" calendar.

The following is the definition of this property:

x-oracle-objectowner = 'X-ORACLE-OBJECTOWNER' x-oracle-objectownerparam ":NS"

text CRLF

x-oracle-objectownerparam = *

; the following is optional,
; but MUST NOT occur more than once

{";" cnparam) /
Components of vCard

The following table describes the Oracle-specific components of vCard.

**X-ORACLE-STICKYNOTE-GUID**

Uniquely identifies X-ORACLE-STICKYNOTE components.

**X-ORACLE-TIMESPENT**

Specifies the number of hours spent on the task described by the VTODD. (See X-ORACLE-ESTIMATEDTIME).

**Parameters of iCalendar Component Properties**

The following describes Oracle-specific parameters (that are supported by Oracle Connector for Outlook) of iCalendar component properties.

**X-ORACLE-FI LENAME**

Specifies the file name of an attachment.

The following is an example of this parameter:

```
ATTACH;X-ORACLE-FI LENAME=test.txt;ENCODING=BASE64;VALUE=BINARY:
MIICajCCAdqAwIBAgICBEUwDQYJKoZIhvcNAQEEBQAwdzELMAkGA1UEBhMCV
<br>...remainder of "BASE64" encoded binary data...>
```

**X-ORACLE-INTERNAL-CHECKSUM**

Specifies the checksum of the DESCRIPTION property at the time the X-ORACLE-DESCRIPTION-COMPRESSEDRTF property was last modified.

The following is an example of this parameter:

```
X-ORACLE-DESCRIPTION-COMPRESSEDRTF;X-ORACLE-INTERNAL-CHECKSUM=17262384;
VALUE=BINARY;ENCODING=BASE64:aMIICajCCAdgAwIBAgICBEUxLDABgkasdjflwr84rdnBvcmA
```

**X-ORACLE-LABELID**

Integer representing the attendee's chosen display label of the event.

The following is an example of this parameter:

```
ATTENDEE;X-ORACLE-LABELID=3:mailto:john.smith@example.com
```

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VCARD

Describes business and personal contacts in a Calendar user’s address book.

<table>
<thead>
<tr>
<th>Component</th>
<th>Minimum Occurrences</th>
<th>Maximum Occurrences</th>
<th>Data Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-ORACLE-ACCOUNTID</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-ANNIVERSARY</td>
<td>0</td>
<td>1</td>
<td>Date value</td>
</tr>
<tr>
<td>X-ORACLE-ASSISTANTNAME</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-BILLINGINFO</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-CHILDREN</td>
<td>0</td>
<td>n*</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-COMPANYNAME-YOMI</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-COMPUTERNETWORK</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-CONTACT</td>
<td>0</td>
<td>n</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-CONTACT-EMAIL-SELECTORS</td>
<td>0</td>
<td>1</td>
<td>Single structured text value, separated by an escaped COMMA character (ASCII decimal 44).</td>
</tr>
<tr>
<td>X-ORACLE-CONTACT-EXTRA-SELECTORS</td>
<td>0</td>
<td>1</td>
<td>Single structured text value, separated by an escaped COMMA character (ASCII decimal 44).</td>
</tr>
<tr>
<td>X-ORACLE-CONTACT-FILESELECTOR</td>
<td>0</td>
<td>1</td>
<td>Integer value</td>
</tr>
<tr>
<td>X-ORACLE-CUSTOMERID</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-DISTRIBUTIONLIST-MEMBER</td>
<td>0</td>
<td>1</td>
<td>TEXT values separated by semicolons</td>
</tr>
<tr>
<td>X-ORACLE-FIRSTNAME-YOMI</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-FOLLOWUPINFO</td>
<td>0</td>
<td>1</td>
<td>TEXT values separated by semicolons</td>
</tr>
<tr>
<td>X-ORACLE-FTPURL</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-GENDER</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-GOVERNMENTID</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-HOBBIES</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-INSTANTMSGADDRESS</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-LANGUAGEINFO</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-LASTNAME-YOMI</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-MANAGERNAME</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-MILEAGE</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-NOTE-COMPRESSEDRTF</td>
<td>0</td>
<td>1</td>
<td>TEXT (Must have an X-ORACLE-INTERNAL-CHECKSUM parameter)</td>
</tr>
<tr>
<td>X-ORACLE-OBJECTTYPE</td>
<td>0 (Minimum one occurrence for a distribution list)</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-ORGANIZATIONID</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
</tbody>
</table>
vCard Component Properties

The following describes the iCalendar and Oracle-specific component properties of vCard.

**X-ORACLE-ACCOUNTID**

Specifies an account identifier for the object the vCard represents.

**X-ORACLE-ANNIVERSARY**

Specify the anniversary of the object the vCard represents.

**X-ORACLE-ASSISTANTNAME**

Specifies the name of the assistant of the object the vCard represents.

**X-ORACLE-BILLINGINFO**

Specifies information related to billing for the object the vCard represents.

**X-ORACLE-CHILDREN**

Specifies the children of the object the vCard represents. The free-form format of this type allows for descriptive elements in addition to a list of names.

The following are examples of this property:

- X-ORACLE-CHILDREN: Jane, John (step-son)
- X-ORACLE-CHILDREN: Smith\, Jane, Smith\, John

**X-ORACLE-COMPANYNAME-YOMI**

Specifies Yomi representation of the company name of the object the vCard represents.

The following is an example of this property:

X-ORACLE-COMPANYNAME-YOMI:=83J=83^=83J-83i

**X-ORACLE-COMPUTERNETWORK**

Specifies the computer network name of the object the vCard represents.

---

Table A–6 (Cont.) Component Properties of vCard

<table>
<thead>
<tr>
<th>Component</th>
<th>Minimum Occurrences</th>
<th>Maximum Occurrences</th>
<th>Data Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-ORACLE-REFERREDBY</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-SENSITIVITY</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-SPOUSE</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-USERFIELD1</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-USERFIELD2</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-USERFIELD3</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
<tr>
<td>X-ORACLE-USERFIELD4</td>
<td>0</td>
<td>1</td>
<td>TEXT</td>
</tr>
</tbody>
</table>
X-ORACLE-CONTACT
Specifies a contact of the object the vCard represents.

X-ORACLE-CONTACT-EMAIL-SELECTORS
Specifies additional information that Microsoft Outlook preserves for the object the vCard represents.
The following is an example of this property:
X-ORACLE-CONTACT-EMAIL-SELECTORS:32896\,329121\,32928

X-ORACLE-CONTACT-EXTRA-SELECTORS
Specifies additional information that Microsoft Outlook preserves for the object the vCard represents.

X-ORACLE-CONTACT-FILESELECTOR
 Specifies the format in which the "File As" should be displayed in Microsoft Outlook for this vCard.

X-ORACLE-CUSTOMERID
Specifies the assigned customer ID of the object the vCard represents.

X-ORACLE-DISTRIBUTIONLIST-MEMBER
Specifies a member of a distribution list. Not applicable to conventional vCards representing an individual. This structured value type value corresponds, in sequence, to the Address Type, the Address, and Display Name. The text components are separated by the SEMI-COLON character (ASCII decimal 59).
The following table describes the property parameters of X-ORACLE-DISTRIBUTION-MEMBER:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-ORACLE-ADDRESSTYPE</td>
<td>Text value, specifies the address type of a member of a distribution list</td>
</tr>
<tr>
<td>X-ORACLE-MEMBERNAME</td>
<td>Text value, specifies the name of a member of a distribution list</td>
</tr>
</tbody>
</table>

The following is an example of this type:
X-ORACLE-DISTRIBUTIONLIST-MEMBER;X-ORACLE-MEMBERNAME=John Smith;
X-ORACLE-ADDRESSTYPE=OCS:john.smith@example.com

X-ORACLE-FIRSTNAME-YOMI
Specifies the Yomi representation of the first name of the object the vCard represents.
The following is an example of this property:
X-ORACLE-FIRSTNAME-YOMI:=83J=83^=83J-83i
X-ORACLE-FOLLOWUPINFO

Specifies a followup note for the object the vCard represents. This structured type value corresponds, in sequence, to the Followup Date and Followup Note.

The following table describes the property parameters of X-ORACLE-DISTRIBUTION-MEMBER:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-ORACLE-COMPLETIONTIME</td>
<td>DATE-TIME value (iCalendar format, not vCard), specifies the completion time of a followup note</td>
</tr>
<tr>
<td>X-ORACLE-COMPLETED</td>
<td>X-ORACLE-COMPLETED=1;X-ORACLE-FOLLOWUPDATE=20050516T201900Z;</td>
</tr>
<tr>
<td>X-ORACLE-FOLLOWUPDATE</td>
<td>DATE-TIME value (iCalendar format, not vCard), specifies the date for the followup.</td>
</tr>
</tbody>
</table>

The following is an example of this property:

X-ORACLE-FOLLOWUPINFO;X-ORACLE-COMPLETIONTIME=20050516T201900Z;
X-ORACLE-COMPLETED=1;X-ORACLE-FOLLOWUPDATE=20050516T201900Z:
Follow up note.

X-ORACLE-FTPURL

Specifies the FTP URL of the object the vCard represents.

X-ORACLE-GENDER

Specifies the gender of the object the vCard represents.

X-ORACLE-GOVERNMENTID

Specifies the assigned government ID number of the object the vCard represents.

X-ORACLE-HOBBIES

Specifies a list or description of the hobbies of the object the vCard represents.

X-ORACLE-INNSTANTMSGADDRESS

Specifies the instant messaging address of the object the vCard represents.

X-ORACLE-LANGUAGEINFO

Specify language-related information about the object the vCard represents.

X-ORACLE-LASTNAME-YOMI

Specifies the Yomi representation of the last name of the object the vCard represents.

X-ORACLE-MANAGERNAME

Specify the name of the manager of the object the vCard represents.
**X-ORACLE-MILEAGE**

Specify mileage accrued in activities related to the object the vCard represents, for billing purposes.

**X-ORACLE-NOTE-COMPRESSEDRTF**

Specifies the NOTE type in compressed RTF format. This property must have an X-ORACLE-INTERNAL-CHECKSUM parameter. If users modify this type, they should ensure that the plain-text version in the NOTE type is also appropriately modified to remain in sync.

The following is an example of this type:

```
X-ORACLE-NOTE-COMPRESSEDRTF;X-ORACLE-INTERNAL-CHECKSUM=23452342;
ENCODING=BASE64:dGhpcyBpcyBub3QgcnRmCg==
```

**X-ORACLE-OBJECTTYPE**

Specifies the type of object that the vCard represents. Valid values for this type are "PERSON" and "DISTRIBUTION LIST".

**X-ORACLE-ORGANIZATIONID**

Specifies the assigned organization ID of the object the vCard represents.

**X-ORACLE-REFERREDBY**

Specifies the referrer of the object the vCard represents. The referrer could be a person or organization.

**X-ORACLE-SENSITIVITY**

Specifies the sensitivity of the information in the vCard. Valid values for this property are "NORMAL", "PERSONAL", "PRIVATE", and "CONFIDENTIAL".

**X-ORACLE-SPOUSE**

Specifies the spouse of the object the vCard represents.

**X-ORACLE-USERFIELD1**

Specifies the contents of the first user-defined field of the object the vCard represents. The semantics of this type are dependent on the user's field definition, and can vary from user to user.

**X-ORACLE-USERFIELD2**

Specifies the contents of the second user-defined field of the object the vCard represents. The semantics of this type are dependent on the user's field definition, and can vary from user to user.

**X-ORACLE-USERFIELD3**

Specifies the contents of the third user-defined field of the object the vCard represents. The semantics of this type are dependent on the user's field definition, and can vary from user to user.
**X-ORACLE-USERFIELD4**

Specifies the contents of the fourth user-defined field of the object the vCard represents. The semantics of this type are dependent on the user's field definition, and can vary from user to user.
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