

**Title:** Min-IOP USE CASES  
**Version:** 1.1  
**Date:** 24 January 2006  
**Contributed:** TC-USECASE – USECASE Technical Committee  
**Editor:** Jeff McCullouch, UC Berkeley  
**Status:** Published

This document was created by the Use Case Technical Committee of the Calendaring and Scheduling Consortium. The document defines the use cases for minimum interoperability of calendaring and scheduling. Minimum interoperability is the basic level of functionality our collective experience tells us is necessary to have a useful system. We realize that in some cases it may be more than is currently offered by “basic” calendaring and scheduling applications.

## STATEMENT OF INTELLECTUAL PROPERTY RIGHTS

This document and the information it contains is the work product of The Calendaring and Scheduling Consortium (“Consortium”), and as such, the Consortium claims all rights to any intellectual property contained herein.

## STATEMENT OF APPROPRIATE USAGE

Standards Setting Organizations and others who find that this document is of use in their work are hereby granted the right to copy, redistribute, incorporate into their own documents, make derivative works from, and otherwise make further use of the document and the material it contains at no cost and without seeking prior permission from the Consortium, subject to properly attributing the source if unmodified to the Consortium and notifying the Consortium of its use according to the guidelines below:

1. If the document is excerpted or used in its entirety in another document, the text must remain unchanged and a complete citation must be supplied referencing the full title, version, date, and appropriate section/subsection/paragraph identification from the original document.
2. A normative or informative reference to this document may be used in place of excerpting or incorporating the entire original document. Such references should include the full title, version, date and appropriate section/subsection/paragraph identification from the Consortium document being referenced.
3. In either case, the user referencing or excerpting a Consortium document is requested to notify the Consortium of the referencing specification and to provide the Consortium with an appropriate link or other way of reviewing the specification.

## DISCLAIMER OF WARRANTY

THIS DOCUMENT AND THE INFORMATION IT CONTAINS IS PROVIDED ON AN “AS IS” BASIS, WITHOUT ANY WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, FROM THE CONSORTIUM, ITS CONTRIBUTORS, AND THE ORGANIZATIONS ITS CONTRIBUTORS REPRESENT OR ARE SPONSORED BY (IF ANY), INCLUDING, WITHOUT LIMITATION, ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, AND NON-INFRINGEMENT.

## Table of Contents

Introduction .....	3
Definitions .....	4
Use Cases.....	6
1. General Calendaring .....	6
1.1. Basic Invitation .....	6
1.2. Events with no end time .....	6
1.3. Alarms / Reminders.....	6
2. Basic Recurrence (Intervals) .....	6
2.1. Every Nth interval.....	6
2.2. Day of week/month .....	7
2.3. Nth date of month.....	7
2.4. Custom list of dates.....	7
2.5. Basic combinations .....	7
2.6. Exceptions.....	7
3. Basic Time Zone .....	8
3.1. Meetings across time zones.....	8
3.1.1. Repeating meeting involving multiple time zones.....	8
3.1.2. Events with begin and end times in different time zones.....	8
3.2. Meetings involving daylight savings time .....	8
3.2.1. Monthly meetings .....	8
3.2.2. Shift work.....	8
3.2.3. Flight schedules.....	8
3.2.4. Changes in Daylight Saving Time definitions .....	9
4. Scheduling .....	9
4.1. Inviting attendees .....	9
4.1.1. Invitations for users on and external to your server.....	9
4.1.2. Track responses .....	9
4.1.3. Modify a meeting .....	9
4.1.4. Modify a meeting with an alert.....	9
4.1.5. Cancel a meeting.....	9
4.2. Responding.....	9
4.2.1. Accept and invitation .....	9
4.2.2. Counter a non-repeating meeting.....	9
4.2.3. View attendance list (acceptance).....	10
4.3. Free/Busy time .....	10
4.3.1. View free/busy time of another user .....	10
4.4. Recurrence.....	10
4.4.1. Change all instances .....	10
4.4.2. Change one instance.....	11
4.4.3. Extending a series .....	11
4.4.4. Add an extra date that is an exception to the series.....	12
4.4.5. Change the body of all instances .....	13
4.4.6. Change the body of one instance.....	13
4.4.7. Add/Remove attendee to/from all instances.....	13
4.4.8. Add/Remove attendee to/from one instance .....	13
4.4.9. This and future.....	13
4.5. Time zone .....	14
4.5.1. Meeting across time zone with reschedule.....	14

## **Introduction**

This document was created by the Use Case Technical Committee of the Calendaring and Scheduling Consortium. The document defines the use cases for minimum interoperability of calendaring and scheduling. Minimum interoperability is the basic level of functionality our collective experience tells us is necessary to have a useful system. We realize that in some cases it may be more than is currently offered by “basic” calendaring and scheduling applications.

Areas covered are:

1. Setting up regularly scheduled events
2. Scheduling with people in other time zones.
3. Scheduling while traveling to other time zones.
4. Scheduling and Negotiating meetings with others
5. Announcing events

Please send any changes or corrections to the document editor.

## Definitions

The definitions below are taken from the “Calendaring and Scheduling Glossary of Terms” from CalConnect.

**Alarm** – A reminder for an event or a to-do. Alarms may be used to define a reminder for a pending event or an overdue to-do.

**Calendar** - A collection of events, to-dos, journal entries, etc. A calendar could be the content of a person or resource's agenda; it could also be a collection of data serving a more specialized need. Calendars are the basic storage containers for calendaring information. [Reference: RFC 3283]

**Calendar User (CU)** - An entity (often a human) that accesses calendar information. [Reference: RFC 3283]

**Calendaring** – An application domain that covers systems that allow the interchange, access and management of calendar data.

**Calconnect** – The Calendaring and Scheduling Consortium consisting of vendors and user groups interested in promoting and improving calendaring and scheduling standards and interoperability.

**Coordinated Universal Time (UTC)** – An atomic realization of Universal Time (UT) or Greenwich Mean Time, the astronomical basis for civil time. Time zones around the world are expressed as positive and negative offsets from UT. UTC differs by an integral number of seconds from International Atomic Time (TAI), as measured by atomic clocks and a fractional number of seconds from UT. [Reference: Wikipedia]

**Counter** – A counter-proposal request a participant may send to an event or task organizer to suggest a change to the event or task such as the scheduled date/time, list of participants, etc.

**Daylight Savings Time (DST)** – The period of the year in which the local time of a particular time zone is adjusted forward, most commonly by one hour, to account for the additional hours of daylight during summer months.

**Event** – A calendar object that usually takes up time on an individual calendar. Events are commonly used to represent meetings, appointments, anniversaries, and day events.

**Free time search** – (bounded) common free time. This is typically a search generated by an application to show time on a calendar that is available or open.

**Freebusy** – a database and/or listing of times when a potential attendee or resource is free or busy. Used when scheduling calendar events.

**iCalendar** – The Internet Calendaring and Scheduling Core Object Specification. An IETF standard (RFC 2445) for a text representation of calendar data.

**Instance** – when used with recurrences, an instance refers to an item in the set of recurring items.

**Invite** – To request the attendance of someone to a calendar event.

**Negotiation** - resource conflict resolution. Negotiation is the process of resolving conflicts either programmatically or via direct communication with the participants and invitees of meetings and events.

**Notification** - 1) The action of making known, an intimation, a notice. 2) reminder or alarm sent when any resource or parties interested in the resource need an indicator that some attention is required. Possible notification methods include email, paging, audible signal at the computer, visual indicator at the computer, voice mail, telephone.

**Organizer** – the originator of a calendar event typically involving more than one attendee.

**Publish** – make known publicly calendar information such as freebusy times.

**Recurring** – happening more than once over a specified interval, such as weekly, monthly, daily, etc. See **Repeating**.

**Repeating** – an event that happens more than once. You might want an event to occur on a regular basis. To do this you schedule a repeating event. Any changes you make to the event can automatically be made to all occurrences of the event. If necessary, changes can be made to individual events without affecting the others. For example, if you need to attend a weekly meeting, you can schedule a repeating event on your calendar. Using another example, if you want to schedule a five day vacation, schedule an all-day event that repeats daily for a total of five times. If you have to cancel one of the days, delete the one day without deleting the whole event.

**Reminders** - see **Notification**.

**Time zone** - Areas of the Earth that have adopted the same local time. Time zones are generally centered on meridians of a longitude, that is a multiple of 15°, thus making neighboring time zones one hour apart. However, the one hour separation is not universal and the shapes of time zones can be quite irregular because they usually follow the boundaries of states, countries or other administrative areas. [Reference: Wikipedia]

## Use Cases

### 1. General Calendaring

#### 1.1. Basic invitation

An organizer wants to invite attendees to a meeting on a single date

Example #1: Let's play tennis next Wednesday.

#### 1.2. Events with no end time

An organizer wants to setup an event with only a start time where there is no end time or the end time is unknown.

Example #1: At 2 pm I need to take my pills.

Example #2: Party at my house starting at 6:30 pm.

Example #3: Rolling Stones, Red Rocks Ampitheatre, 12/14/05, 7:00 pm

Example #4: Leave at 3:30 pm to go pickup the kids.

Example #5: A reminder that I need to turn in a project report at 3pm

#### 1.3. Alarms/Reminders

A calendar user wants to set a personal alarm or reminder for an upcoming event with a specified lead time, and for the alarm or reminder to be triggered at the appropriate time.

Example #1: I want to be reminded 5 minutes before a meeting starts.

### 2. Basic Recurrence (Intervals)

For the basic recurrence intervals below, a calendar user/organizer may wish to create meetings/events that are unbounded, i.e. no clear end date. Some examples include birthdays, anniversaries, staff meetings. While different implementations may or may not allow creation of these types of meetings/events, the unboundedness should be retained when the meeting/event is transferred between systems.

#### 2.1. Every Nth Interval

An organizer wants to invite attendees to a meeting that repeats on a regular interval (hourly, daily, weekly, monthly, yearly).

Example #1: Class is on Tue/Thu of each week

Example #2: Every Wednesday we have a meeting

Example #3: Every year on July 4<sup>th</sup>

Example #4: Every 3 Sundays play poker

Example #5: Every 4 hours take a 15 min break

## 2.2. Day of week/month

An organizer wants to invite attendees to a meeting on a day of the Nth week/month.

Example #1: Every 3<sup>rd</sup> Tuesday of the month go to the beach

Example #2: The last Friday in November is black Friday

## 2.3. Nth date of month

An organizer wants to invite attendees to a meeting on the Nth date of a month or year.

Example #1: Pay bills on the 15<sup>th</sup> of the month.

Example #2: Pay day is the last day of the month.

Example #3: Annual report due by end of February every year.

## 2.4. Custom list of dates

An organizer wants to invite attendees to a meeting with a custom list of days/dates.

Example #1: The dates for a lecture series: Tuesday this week, Wednesday next week, & Friday the following week.

## 2.5. Basic combinations

An organizer wants to invite attendees to a meeting that includes dates from a combination of regular intervals.

Example #1: The 2<sup>nd</sup> Sunday every 3 months for a small church that only has communion every 3 months.

Example #2: The 1<sup>st</sup> day of every other month

## 2.6. Exceptions

An organizer wants to invite attendees to a meeting that includes dates from a regular interval with an exception.

Example #1: Last Friday every month except November

Example #2: Meeting on Mondays January through March except for Monday holidays.

Example #3: Moving a meeting. We have a status meeting every Monday except next Monday is Labor Day, so we'll have to move that meeting to Tuesday.

Example #4: Meeting every 5 weeks on Thursday plus next Wednesday.



### 3. Basic Time Zone

#### 3.1. Meetings across time zones

##### 3.1.1. Repeating meeting involving multiple time zones

An organizer wants to schedule a repeating meeting (phone/video conference) with people working in many different time zones. Note: some time zones have fifteen or thirty minute offsets rather than the more standard one hour offset. Also some people may be in time zones currently in daylight savings time, while others may not.

##### Example #1:

A product manager wants to schedule several video conferences for 9am GMT0BST in a multi-national corporation across 10 time zones. One participant is in Chatham, New Zealand which has 12 hours, 45 minutes time zone offset from UTC.

##### 3.1.2. Events with begin and end times in different time zones

An airline reservation system is used to book a flight which leaves at 1:10 pm PST from San Francisco, and arrives at 9:43 pm EST in New York, NY (5 hours 33 mins flying time) or one that leaves at 1:45 pm from Sydney, Australia and arrives in San Francisco, CA at 10:05 am PST(13 hours 20 mins flying time). An ICS file is sent to user to add to their calendar.

#### 3.2. Meetings involving daylight savings time

##### 3.2.1. Monthly meetings

An organizer wants to create a monthly meeting between February and August with participants in United States, Germany and Japan. (Japan does not have daylight savings time).

##### 3.2.2. Shift work

An organizer wants to create a schedule where the end time is fixed and the schedule crosses a daylight savings time change.

Example #1: For hospital staff the shifts are normally 8 hours long. When there is a daylight savings time change, one of the shifts will be longer or shorter depending on the direction of the time change.

##### 3.2.3. Flight schedules

An organizer wants to create a schedule where the duration is fixed and the schedule crosses a daylight savings time change.

Example #1: Flight schedules are dependent on the actual flight duration. The arrival time will need to be shifted across a daylight savings time change.

#### 3.2.4. Changes in Daylight Saving Time definitions

An organizer creates a meeting with a person in a different time zone where the government may change the dates for daylight savings time each year, and the time zone definition is changed after the meeting creation time.

Example #1: Israel moves their DST time changes each year.

Example #2: Brazil once moved their DST time change to accommodate the arrival of the Pope.

### 4. Scheduling

#### 4.1. Inviting attendees

##### 4.1.1. Invitations for users on and external to your server

An organizer wants to send out an invitation to people that are both within and external to their calendar server.

##### 4.1.2. Track responses

An organizer wants to track responses or view the attendee list for their meeting invitation for both intra and external participants.

##### 4.1.3. Modify a meeting

An organizer wants to modify the meeting, and have those changes reflected on all invitees calendars. (Start time, duration, date, location, invitees, body)

##### 4.1.4. Modify a meeting with an alert

An organizer wants to modify the meeting, and let the participants know about the change. (Start time, duration, date, location, invitees, body)

##### 4.1.5. Cancel a meeting

An organizer wants to cancel a meeting.

#### 4.2. Responding

##### 4.2.1. Accept an invitation

An attendee wants to accept/decline a meeting invitation. They may wish to change their status later.

##### 4.2.2. Counter a non-repeating meeting

An attendee wants to counter a non-repeating invitation.

Example #1: Joe creates a meeting and invites Mary. Mary can't make it at the time Joe selected, and counters the meeting, offering a time 3 hours later in the day. Joe accepts the counter and the meeting is rescheduled to 3 hours later in the day.

#### 4.2.3. View attendance list

An attendee wants to view the attendee list and/or acceptance of other attendees

Example #1: Joe wants to come to a proposed meeting only if the right people are attending, so Joe needs to see who is invited and who has accepted.

#### 4.3. Free/Busy Time

##### 4.3.1. View free/busy time of another user

A calendar user wants to allow another calendar user to see their calendar.

Example #1: While organizing a meeting, the organizer wants to view all the schedules of all the participants to determine when there are no conflicts.

Example #2: Joe is wants to ask Sam a quick question. Joe looks at Sam's calendar to determine if he might be available.

Example #3: Samantha is analyzing how much time is spent on various projects. She looks at staff member calendars, and adds the time spent. She may need to view the details of meetings to determine this correctly.

Example #4: Your spouse wants to see if you can pickup the kids. They may notice that you have something else scheduled or that you already have marked it on your schedule. They don't necessarily want to add anything to your schedule.

#### 4.4. Recurrence

Similar to basic recurrence, changes to unbounded, repeating meetings/events should retain their unboundedness when a change is made to one or all instances of the meeting/event.

##### 4.4.1. Change all instances

An organizer wants to change all of the instances of a repeating meeting to another date/time.

Example #1:

Chair sends recurring meeting to invitee that starts Monday April 11, 2005 and repeats every day for 5 days from 0900-1000. This should yield a recurring meeting with following date/times:

04/11/05	0900-1000
04/12/05	0900-1000
04/13/05	0900-1000
04/14/05	0900-1000
04/15/05	0900-1000

Chair reschedules time portion for all instances of the recurring meeting +1

hour, so from 1000-1100. This should yield a recurring meeting with following date/times:

04/11/05	1000-1100
04/12/05	1000-1100
04/13/05	1000-1100
04/14/05	1000-1100
04/15/05	1000-1100

#### 4.4.2. Change one instance

An organizer wants to change one instance of a repeating meeting to another date/time.

##### Example #1:

Chair sends recurring meeting to invitee that starts Monday April 25, 2005 and repeats everyday for 5 days from 0900-1000. This should yield a recurring meeting with following date/times:

04/25/05	0900-1000
04/26/05	0900-1000
04/27/05	0900-1000
04/28/05	0900-1000
04/29/05	0900-1000

Chair reschedules a single instance's (Tuesday's) time portion +1 hr, so from 1000-1100 on Tuesday April 26, 2005. This should yield a recurring meeting with following date/times:

04/25/05	0900-1000
04/26/05	1000-1100
04/27/05	0900-1000
04/28/05	0900-1000
04/29/05	0900-1000

##### Example #2:

Chair sends monthly recurring staff meeting held on first Tuesday of the month to staff members. The first meeting is Tuesday, February 7, 2006. The meetings will continue indefinitely into the future. Normally the location for the meeting is fixed, but needs to be changed for the June meeting. Chair changes the location, and resends the invitation.

#### 4.4.3. Extending a series

An organizer creates a repeating meeting for some day of the week, then later needs to add another meeting to the series on the same day of the week.

##### Example #1:

Chair sends recurring meeting to invitee that starts Wednesday April 27, 2005 and repeats every Wednesday for the next 5 weeks from 0900-1000. This should yield a recurring meeting with following date/times:

04/27/05	0900-1000
05/04/05	0900-1000
05/11/05	0900-1000
05/18/05	0900-1000
05/25/05	0900-1000

Chair extends the series of meetings to six weeks by adding a single instance, Wednesday June 1, 2005. All other attributes are the same. This should yield a recurring meeting with following date/times:

04/27/05	0900-1000
05/04/05	0900-1000
05/11/05	0900-1000
05/18/05	0900-1000
05/25/05	0900-1000
06/01/05	0900-1000

#### 4.4.4. Adding an extra date that is an exception to a series

An organizer creates a repeating meeting for some day of the week, then later needs to add another meeting to the series on a different day of the week.

##### Example #1:

Chair sends recurring meeting to invitee that starts Wednesday April 27, 2005 and repeats every Wednesday for the next 5 weeks from 0900-1000. This should yield a recurring meeting with following date/times:

04/27/05	0900-1000
05/04/05	0900-1000
05/11/05	0900-1000
05/18/05	0900-1000
05/25/05	0900-1000

Chair adds a single instance, Tuesday May 31, 2005. This should yield a recurring meeting with following date/times:

04/27/05	0900-1000
05/04/05	0900-1000
05/11/05	0900-1000
05/18/05	0900-1000
05/25/05	0900-1000
05/31/05	0900-1000

#### 4.4.5. Change the body of all instances

An organizer wants to change the body of all the instances of a repeating

meeting.

Example #1:

Chair sends recurring meeting to invitee that starts Monday April 18, 2005 and repeats everyday for 5 days from 0900-1000. This should yield a recurring meeting with following date/times:

04/18/05	0900-1000
04/19/05	0900-1000
04/20/05	0900-1000
04/21/05	0900-1000
04/22/05	0900-1000

Chair sends an update to the body part for all instances of the recurring meeting to add a rough agenda format to the description field.

4.4.6. Change the body of one instance

An organizer wants to change the body of one of the instances of a repeating meeting.

Example #1: Chair needs to make changes to individual meeting agendas before each meeting.

4.4.7. Add/Remove attendee to/from all instances

An organizer wants to add/remove an attendee to all the instances of a repeating meeting

4.4.8. Add/Remove attendee to/from one instance

An organizer wants to add/remove an attendee to/from one of the instances of a repeating meeting

4.4.9. This and future

An organizer wants to change all dates/times for a meeting from now until the end of the interval.

Example #1:

Joe creates a five day repeating meeting (M-F) and invites some people. Later, while trying to get a room, Joe needs to reschedule Weds and All Future to be an hour later in the day.

Example #2:

Susan created a repeating staff meeting on the first Monday of the month two months ago. She wants to change the meeting to be the first Tuesday of the month from now onward.

## 4.5. Time Zone

### 4.5.1. Repeating Meeting across time zones with reschedule

An organizer has scheduled a repeating meeting (phone/video conference) with people working in many different time zones and wants to change the time of one of the meetings.

#### Example #1:

A product manager wants to schedule several video conferences for 9am GMT0BST on Tuesdays in a multi-national corporation across 10 time zones. One participant is in Chatham, New Zealand which has 12 hours, 45 minutes time zone offset from UTC. The third in the series needs to be changed to Wednesday to accommodate two of the participants. (Note: for this to work properly, the dates must be stored with time zone format)