

# Time Period Definitions

## Frequency Definitions

To define synchronization frequencies in *up.time* , you input a string that represents the amount of time between actions. These units of time can be days, hours, minutes, seconds, or a combination. Frequency definitions are used when configuring user detail synchronization, when configuring up.time to use an Active Directory or LDAP listing for user authentication and management. (See [Changing How Users Are Authenticated](#) for more information.)

All time units are represented by a one-letter abbreviation:

- days: *d*
- hours: *h*
- minutes: *m*
- seconds: *s*

Frequency definitions can be a combination of any of these time units and their values, in descending order, without spaces:

- 1d
- 1d12h
- 1h30m
- 30s

## Time Period Definitions

When defining new, or editing existing, Maintenance Profiles and Monitoring Periods, you need to use precise definitions that *up.time* can correctly interpret. Time period definitions use a controlled vocabulary that allow you to precisely define, combine, and exclude time periods. The following sections provide you with information on accurately defining time period definitions:

*Note - Although all examples listed in the following sections are written in mixed case (e.g., “Every Oct 28”), none of the terms used in time period definitions is case sensitive.*

### Building Blocks

The following tables outline the basic components of all time period definitions.

#### Time Units

- Units of time that act as building blocks in definitions include times of day, days of the week, months, years, and exact dates.

Times		
Required	<ul style="list-style-type: none"><li>• hour of day</li><li>• 12-hour clock suffix, inputted as “ <i>AM</i> ” or “ <i>PM</i> ”</li></ul>	correct:  <i>8:00 PM</i>
Optional	<ul style="list-style-type: none"><li>• minutes of the hour</li><li>• spaces</li></ul>	correct:  <i>8 PM , 8:00PM , 8PM</i>
Not Accepted	<ul style="list-style-type: none"><li>• missing 12-hour clock suffix</li><li>• 24-hour clock convention</li></ul>	incorrect:  <i>8:00</i>  <i>20:00 , 20:00 PM</i>
Days		
Required	three-letter abbreviation	correct:  <i>Sun , Mon , Tue</i>  <i>Wed , Thu</i>  <i>Fri , Sat</i>
Not Accepted	<ul style="list-style-type: none"><li>• full spellings</li><li>• other abbreviation styles</li></ul>	incorrect:  <i>S , M , T</i>  <i>We , Th</i>  <i>Friday , Saturday</i>
Dates		
Required	single- or two-digit number	correct:  <i>8 , 09 , 10</i>

Not Accepted	<ul style="list-style-type: none"> <li>• ordinal suffixes</li> <li>• full spellings</li> </ul>	incorrect: <i>8th , 9th , tenth</i>
Months		
Required	three-letter abbreviation	correct: <i>Jan , Feb , Mar , Apr</i> <i>May , Jun , Jul , Aug</i> <i>Sep , Oct , Nov , Dec</i>
Not Accepted	other abbreviation styles	incorrect: <i>J , F , M , A</i> <i>June , July , August</i> <i>Se , Oc , No , De</i>
Years		
Required	full year	correct: <i>2008</i>
Not Accepted	any abbreviation of the year	incorrect: <i>08 , '08 , Y2K+8</i>

## Lists and Ranges

Days can be inputted as a list:

- each day is separated by a comma (e.g., "*mon, tue, wed*")
- spaces are optional (e.g., "*mon,tue,wed*")

Times and days can be inputted as ranges:

- Elements in the range must be separated by hyphens
- spaces are optional; the following examples are correct:
  - *8AM-8PM*
  - *8:00 AM - 8:00 PM*
  - *Fri - Mon*
  - *Fri-Mon*
- ranges wrap around day and week boundaries:
  - "*10PM - 2AM*" is interpreted as 10:00 p.m. to 11:59 p.m. on one day, and 12:00 a.m. to 2:00 a.m. the following calendar day
  - "*Fri-Mon*" is interpreted as Friday through Saturday on one week, then Sunday through Monday the following week
  - *up.time* converts day ranges to lists (e.g., "*Fri-Mon*" becomes "*Fri, Sat, Sun, Mon*")
- day ranges and lists can be mixed; the following examples are correct:
  - *Fri - Sun, Mon*
  - *Fri-Sun,Mon*

## Basic Expressions

Use the following templates to create basic expressions that are used to define time periods in *up.time* . Note that underlined components of a template are optional.

### Fixed Dates

<month>	<date>	,	<year>	<time range>
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Basic example:

*Oct 28, 2008*

Spaces are optional:

*Oct28,2008*

Time ranges are optional:

*Oct 28, 2008 7 PM - 11 PM*

*Oct28,20087PM-11PM*

Note: Fixed dates that do not include a time range are interpreted to include the entire day (i.e., 12:00 a.m. through 11:59 p.m.), although this will not automatically appear in the defined time period.

#### Fixed Date Ranges

<i>from</i>	<i>&lt;month&gt;</i>	<i>&lt;date&gt;</i>	<i>&lt;year&gt;</i>	<i>&lt;time range&gt;</i>
<i>to</i>	<i>&lt;month&gt;</i>	<i>&lt;date&gt;</i>	<i>&lt;year&gt;</i>	<i>&lt;time range&gt;</i>

Basic example:

*From Oct 28, 2008 to Oct 29, 2008*

Spaces are optional:

*FromOct28,2008toOct29,2008*

Time ranges are optional:

*From Oct 28, 2008 7 PM to Oct 29, 2008 2 AM*

Note: A fixed date without a time that is at the end of a date range is interpreted to include the first minute of the next day (e.g., up.time converts " *From Oct 28, 2008 to Oct 29, 2008*" into " *From Oct 28, 2008 12:00AM to Oct 30, 2008 12:00AM*").

Note: The time range in a fixed date range merely acts as a more precise start point and end point; a fixed date range is a contiguous block of time that has no gaps.

#### Weekly Recurrence

<i>every</i>	<i>&lt;day&gt; / &lt;day range / list&gt;</i>	<i>&lt;time range&gt;</i>
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Basic example:

*Sun*

*Sun - Tue*

*Every Sun, Mon, Tue*

Spaces are optional:

*Sun-Tue*

*EverySun,Mon,Tue*

Time ranges are optional:

*Sun 9 AM - 5 PM*

*Sun - Tue 9AM - 5PM*

*EverySun,Mon,Tue9AM-5PM*

Note: Recurring days that do not include a time range are interpreted to include the entire day (i.e., 12:00 a.m. through 11:59 p.m.), although this will not automatically appear in the defined time period.

#### Yearly Recurrence

<i>every</i>	<i>&lt;month&gt;</i>	<i>&lt;date&gt;</i>	<i>&lt;time range&gt;</i>
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Basic example:

*Every Oct 28*

Ordinal suffixes are optional:

*Every Oct 28th*

Time ranges are optional:

*Every Oct 28 7PM - 11PM*

Note: You cannot define a date range within a yearly recurrence; instead, combine a separate yearly recurrences for each date in the date range.

#### Monthly Recurrence

<i>every month on the</i>	<i>&lt;date&gt;</i>	<i>&lt;time range&gt;</i>
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Basic example:

*Every month on the 28*

Ordinal suffixes are optional:

*Every month on the 28th*

Time ranges are optional:

*Every month on the 28 6 PM - 11 PM*

*Every month on the 28th 6PM-11PM*

Monthly Ordinal Recurrence

<i>every month on the</i>	<i>&lt;ordinal_as_word&gt;</i>	<i>&lt;day&gt;</i>	<i>&lt;time range&gt;</i>
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Basic example:

*Every month on the last Fri*

Time ranges are optional:

*Every month on the last Fri 6 PM - 11 PM*

*Every month on the last Fri 6PM-11PM*

Note: The ordinal must be stated as a word: *first* , *second* , *third* , *fourth* , and *last* .

## Combining Expressions and Excluding Time Periods

Elaborate time period definitions are built from a combination of the basic expressions defined in the previous section:

- fixed dates
- fixed date ranges
- weekly recurrences
- monthly recurrences
- monthly ordinal recurrences
- yearly recurrences

### Combinations

Combine basic expressions by writing each one on a new line in the *Definition* box when defining a Maintenance Profile or Monitoring Period. The following examples demonstrate combinations of different basic expressions used to define a maintenance window:

Combining fixed dates:

*Dec 25, 2008 12AM - 12PM*

*Jan 1, 2009 12AM - 12PM*

Combining a fixed date and a fixed date range:

*Dec 25, 2008 12AM - 12PM*

*From Dec 31, 2008 11PM to Jan 1, 2009 12PM*

Combining weekly recurrences:

*Mon-Fri 1AM-3AM*

*Sat 1AM-5:30AM*

*Sun*

Combining yearly recurrences:

*Every Dec 25 12AM-12PM*

*Every Dec 31 11PM-11:59PM*

*Every Jan 1st 12AM-12PM*

Combining monthly recurrences:

*Every month on the 2*

*Every month on the 16th*

Combining monthly ordinal recurrences:

*Every month on the first Fri*

*Every month on the third Fri*

*Every month on the last Fri*

Note that when a time period consists of more than one component time period expression, a condition met within any of those component time periods applies to the entire time period. For example, if a Monitoring Period named "Open Hours" is defined as:

*Mon-Fri 9AM-5PM*

*Sat 10AM-5PM*

*Sun 12PM-5PM*

An alert-worthy event that occurs on Sunday at 1:00 p.m. means the entire time period definition has been fulfilled.

## Exclusions

Time periods can be excluded from greater time period definitions by using the term “ *exclude* ” as a prefix to the exclusionary expression. The following examples demonstrate the use of exclusions in time periods:

Excluding a monthly recurrence from a weekly recurrence:

*Sun 3PM-5PM*

*Exclude every month on the last Sunday*

Defining two yearly recurrences to exclude from a weekly recurrence:

*Mon-Fri 2AM-3AM*

*Exclude every Jan 1*

*Exclude every Jan 2*