### Java SimpleDateFormat Patterns

Reference material for Java SimpleDateFormat patterns used in **Date Format** settings of Logpresso Sonar loggers. These patterns are used when parsing date strings extracted by regular expressions into Date objects.

#### Main Pattern Characters

Year

|  |  |  |  |
| --- | --- | --- | --- |
| Pattern | Description | Example Input | Result |
| y | Year (minimum digits) | 23 | 2023 |
| yy | Year (2 digits) | 23 | 2023 |
| yyyy | Year (4 digits) | 2023 | 2023 |

Month

|  |  |  |  |
| --- | --- | --- | --- |
| Pattern | Description | Example Input | Result |
| M | Month (minimum digits) | 4 | April |
| MM | Month (2 digits) | 04 | April |
| MMM | Month (abbreviated) | Apr | April |
| MMMM | Month (full name) | April | April |

Day

|  |  |  |  |
| --- | --- | --- | --- |
| Pattern | Description | Example Input | Result |
| d | Day (minimum digits) | 6 | 6th day |
| dd | Day (2 digits) | 06 | 6th day |
| D | Day of year | 96 | April 6th |

Time (24-hour format)

|  |  |  |  |
| --- | --- | --- | --- |
| Pattern | Description | Example Input | Result |
| H | Hour (0~23, minimum digits) | 9 | 9 AM |
| HH | Hour (0~23, 2 digits) | 09 | 9 AM |
| m | Minute (minimum digits) | 5 | 5 min |
| mm | Minute (2 digits) | 05 | 5 min |
| s | Second (minimum digits) | 3 | 3 sec |
| ss | Second (2 digits) | 03 | 3 sec |

Time (12-hour format)

|  |  |  |  |
| --- | --- | --- | --- |
| Pattern | Description | Example Input | Result |
| h | Hour (1~12, minimum digits) | 9 | 9 |
| hh | Hour (1~12, 2 digits) | 09 | 9 |
| a | AM/PM | AM | AM |

Milliseconds

|  |  |  |  |
| --- | --- | --- | --- |
| Pattern | Description | Example Input | Result |
| S | Millisecond (minimum digits) | 1 | 1 millisecond |
| SSS | Millisecond (3 digits) | 123 | 123 milliseconds |

Day of Week

|  |  |  |  |
| --- | --- | --- | --- |
| Pattern | Description | Example Input | Result |
| E | Day of week (abbreviated) | Tue | Tuesday |
| EEEE | Day of week (full name) | Tuesday | Tuesday |
| u | Day of week number (1=Monday) | 2 | Tuesday |

Time Zone

|  |  |  |  |
| --- | --- | --- | --- |
| Pattern | Description | Example Input | Result |
| z | Time zone name (abbreviated) | KST | Korea Standard Time |
| zzzz | Time zone name (full) | Korea Standard Time | Korea Standard Time |
| Z | RFC 822 time zone | +0900 | UTC+9 |
| X | ISO 8601 time zone (hour) | +09 | UTC+9 |
| XX | ISO 8601 time zone (hour/min) | +0900 | UTC+9 |
| XXX | ISO 8601 time zone (with colon) | +09:00 | UTC+9 |

#### Commonly Used Pattern Examples

Apache Access Log

Date string: 06/Apr/2023:11:54:03 +0900Pattern: dd/MMM/yyyy:HH:mm:ss Z

System Log (syslog)

Date string: Apr 6 11:54:03Pattern: MMM d HH:mm:ssor: MMM dd HH:mm:ss

Common Timestamp

Date string: 2023-04-06 11:54:03Pattern: yyyy-MM-dd HH:mm:ss

ISO 8601 Format

Date string: 2023-04-06T11:54:03+09:00Pattern: yyyy-MM-dd'T'HH:mm:ssXXX

Windows Event Log

Date string: 4/6/2023 11:54:03 AMPattern: M/d/yyyy h:mm:ss a

#### Using Literal Characters

To express characters without special meaning in patterns, enclose them in single quotes ('):

Date string: 2023-04-06T11:54:03Pattern: yyyy-MM-dd'T'HH:mm:ss

To express a single quote itself, use two single quotes ('').

#### Important Notes

Case Sensitivity

* M: Month
* m: minute
* H: Hour (0~23)
* h: Hour (1~12)
* D: Day of year
* d: Day of month

Locale Dependency

Month names (MMM, MMMM) and day names (E, EEEE) are interpreted differently based on **Date Locale** settings:

* en (English): Apr, April, Tue, Tuesday
* ko (Korean): 4월, 4월, 화, 화요일

Pattern Length Meaning

* Short patterns (M, d, H): Minimum required digits
* Long patterns (MM, dd, HH): Fixed digits (zero-padded)
* Very long patterns (MMM, MMMM): Text format

#### Practical Tips

**Check log format**: First verify the actual date format in logs.

**Match with regex**: The string extracted by regex must exactly match the pattern.

**Locale settings**: Set appropriate locale if there are non-English month/day names.

**Test**: Test with sample data before applying the pattern.

#### Related Documents

* [Loggers](https://docs.logpresso.comnull): How to set date formats for each logger type
* [Parsers](https://docs.logpresso.comnull): Date processing methods in parsers