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1 Appendix II: Format Specifications

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1.1 Oracle Date and Time Format Model

A date-time format model is composed of one or more date-time format elements. The following table lists the elements of the Oracle date-time format model.

Date-time Format Elements

Element	Meaning
- / , . ; : "text"	Punctuation and quoted text is reproduced in the result.
AD A.D.	AD indicator with or without periods.
AM A.M.	Meridian indicator with or without periods.
BC B.C.	BC indicator with or without periods.
CC SCC	Century. <ul style="list-style-type: none"> • If the last 2 digits of a 4-digit year are between 01 and 99 (inclusive), then the century is one greater than the first 2 digits of that year. • If the last 2 digits of a 4-digit year are 00, then the century is the same as the first 2 digits of that year. For example, 2002 returns 21; 2000 returns 20.
D	Day of week (1-7).
DAY	Name of day, padded with blanks to length of 9 characters.
DD	Day of month (1-31).
DDD	Day of year (1-366).

Element	Meaning
DL	<p>Returns a value in the long date format, which is an extension of Oracle Database's DATE format (the current value of the NLS_DATE_FORMAT parameter). Makes the appearance of the date components (day name, month number, and so forth) depend on the NLS_TERRITORY and NLS_LANGUAGE parameters. For example, in the AMERICAN_AMERICA locale, this is equivalent to specifying the format 'fmDay, Month dd, yyyy'. In the GERMAN_GERMANY locale, it is equivalent to specifying the format 'fmDay, dd. Month yyyy'.</p> <p>Restriction: You can specify this format only with the TS element, separated by white space.</p>
DS	<p>Returns a value in the short date format. Makes the appearance of the date components (day name, month number, and so forth) depend on the NLS_TERRITORY and NLS_LANGUAGE parameters. For example, in the AMERICAN_AMERICA locale, this is equivalent to specifying the format 'MM/DD/RRRR'. In the ENGLISH_UNITED_KINGDOM locale, it is equivalent to specifying the format 'DD/MM/RRRR'.</p> <p>Restriction: You can specify this format only with the TS element, separated by white space.</p>
DY	Abbreviated name of day.
E	Abbreviated era name (Japanese Imperial, ROC Official, and Thai Buddha calendars).
EE	Full era name (Japanese Imperial, ROC Official, and Thai Buddha calendars).
FF [1..9]	<p>Fractional seconds; no radix character is printed (use the X format element to add the radix character). Use the numbers 1 to 9 after FF to specify the number of digits in the fractional second portion of the datetime value returned. If you do not specify a digit, then Oracle Database uses the precision specified for the datetime datatype or the datatype's default precision.</p> <p>Examples: 'HH:MI:SS.FF'</p> <pre>SELECT TO_CHAR(SYSTIMESTAMP, 'SS.FF3') from dual;</pre>
FM	<p>Returns a value with no leading or trailing blanks.</p> <p>See Also: Additional discussion on this format model modifier in the Oracle Database SQL Reference</p>
FX	<p>Requires exact matching between the character data and the format model.</p> <p>See Also: Additional discussion on this format model modifier in the Oracle Database SQL Reference</p>

Element	Meaning
HH	Hour of day (1-12).
HH12	Hour of day (1-12).
HH24	Hour of day (0-23).
IW	Week of year (1-52 or 1-53) based on the ISO standard.
IYY IY I	Last 3, 2, or 1 digit(s) of ISO year.
IYYY	4-digit year based on the ISO standard.
J	Julian day; the number of days since January 1, 4712 BC. Number specified with J must be integers.
MI	Minute (0-59).
MM	Month (01-12; January = 01).
MON	Abbreviated name of month.
MONTH	Name of month, padded with blanks to length of 9 characters.
PM P.M.	Meridian indicator with or without periods.
Q	Quarter of year (1, 2, 3, 4; January - March = 1).
RM	Roman numeral month (I-XII; January = I).
RR	Lets you store 20th century dates in the 21st century using only two digits. See Also: Additional discussion on RR datetime format element in the Oracle Database SQL Reference
RRRR	Round year. Accepts either 4-digit or 2-digit input. If 2-digit, provides the same return as RR. If you do not want this functionality, then enter the 4-digit year.
SS	Second (0-59).
SSSSS	Seconds past midnight (0-86399).
TS	Returns a value in the short time format. Makes the appearance of the time components (hour, minutes, and so forth) depend on the NLS_TERRITORY and NLS_LANGUAGE initialization parameters. Restriction: You can specify this format only with the DL or DS element, separated by white space.

Element	Meaning
TZD	Daylight savings information. The TZD value is an abbreviated time zone string with daylight savings information. It must correspond with the region specified in TZR. Example: PST (for US/Pacific standard time); PDT (for US/Pacific daylight time).
TZH	Time zone hour. (See TZM format element.) Example: 'HH:MI:SS.FFTZH:TZM'.
TZM	Time zone minute. (See TZH format element.) Example: 'HH:MI:SS.FFTZH:TZM'.
TZR	Time zone region information. The value must be one of the time zone regions supported in the database. Example: US/Pacific
WW	Week of year (1-53) where week 1 starts on the first day of the year and continues to the seventh day of the year.
W	Week of month (1-5) where week 1 starts on the first day of the month and ends on the seventh.
X	Local radix character. Example: 'HH:MI:SSXFF'.
Y,YYY	Year with comma in this position.
YEAR SYEAR	Year, spelled out; s prefixes BC dates with a minus sign (-).
YYYY SYYYY	4-digit year; s prefixes BC dates with a minus sign.
YYY YY Y	Last 3, 2, or 1 digit(s) of year.

See Also:

[Datetime Format Models](#) in *Oracle Database SQL Reference*

1.2 Oracle Number Format Model

A number format model is composed of one or more number format elements. The following table lists the elements of the Oracle number format model.

Number Format Elements

Element	Example	Description
, (comma)	9,999	Returns a comma in the specified position. You can specify multiple commas in a number format model. Restrictions: <ul style="list-style-type: none"> • A comma element cannot begin a number format model. • A comma cannot appear to the right of a decimal character or period in a number format model.
.(period)	99.99	Returns a decimal point, which is a period (.) in the specified position. Restriction: You can specify only one period in a number format model.
\$	\$9999	Returns value with a leading dollar sign.
0	0999 9990	Returns leading zeros. Returns trailing zeros.
9	9999	Returns value with the specified number of digits with a leading space if positive or with a leading minus if negative. Leading zeros are blank, except for a zero value, which returns a zero for the integer part of the fixed-point number.
B	B9999	Returns blanks for the integer part of a fixed-point number when the integer part is zero (regardless of zeros in the format model).
C	C999	Returns in the specified position the ISO currency symbol (the current value of the <code>NLS_ISO_CURRENCY</code> parameter).
D	99D99	Returns in the specified position the decimal character, which is the current value of the <code>NLS_NUMERIC_CHARACTER</code> parameter. The default is a period (.). Restriction: You can specify only one decimal character in a number format model.

Element	Example	Description
EEEE	9.9EEEE	Returns a value using in scientific notation.
G	9G999	Returns in the specified position the group separator (the current value of the <code>NLS_NUMERIC_CHARACTER</code> parameter). You can specify multiple group separators in a number format model. Restriction: A group separator cannot appear to the right of a decimal character or period in a number format model.
L	L999	Returns in the specified position the local currency symbol (the current value of the <code>NLS_CURRENCY</code> parameter).
MI	9999MI	Returns negative value with a trailing minus sign (-). Returns positive value with a trailing blank. Restriction: The MI format element can appear only in the last position of a number format model.
PR	9999PR	Returns negative value in <angle brackets>. Returns positive value with a leading and trailing blank. Restriction: The PR format element can appear only in the last position of a number format model.
RN rn	RN rn	Returns a value as Roman numerals in uppercase. Returns a value as Roman numerals in lowercase. Value can be an integer between 1 and 3999.
S	S9999 9999S	Returns negative value with a leading minus sign (-). Returns positive value with a leading plus sign (+). Returns negative value with a trailing minus sign (-). Returns positive value with a trailing plus sign (+). Restriction: The S format element can appear only in the first or last position of a number format model.
TM	TM	The text minimum number format model returns (in decimal output) the smallest number of characters possible. This element is case insensitive. The default is TM9, which returns the number in fixed notation unless the output exceeds 64 characters. If the output exceeds 64 characters, then Oracle Database

Element	Example	Description
		<p>automatically returns the number in scientific notation.</p> <p>Restrictions:</p> <ul style="list-style-type: none"> You cannot precede this element with any other element. You can follow this element only with one 9 or one E (or e), but not with any combination of these. The following statement returns an error: <ul style="list-style-type: none"> <code>SELECT TO_CHAR(1234, 'TM9e') FROM DUAL;</code>
U	U9999	Returns in the specified position the Euro (or other) dual currency symbol (the current value of the NLS_DUAL_CURRENCY parameter).
V	999V99	Returns a value multiplied by 10^n (and if necessary, round it up), where n is the number of 9's after the V.
X	XXXX xxxx	<p>Returns the hexadecimal value of the specified number of digits. If the specified number is not an integer, then Oracle Database rounds it to an integer.</p> <p>Restrictions:</p> <ul style="list-style-type: none"> This element accepts only positive values or 0. Negative values return an error. You can precede this element only with 0 (which returns leading zeroes) or FM. Any other elements return an error. If you specify neither 0 nor FM with X, then the return always has 1 leading blank.

See Also:

[Number Format Models](#) in *Oracle Database SQL Reference*