

%xcdtc2dt - Convert ISO 8601 Date/Time Character Variables to SAS Date/Time Values

Overview

The %xcdtc2dt macro converts character ISO 8601 formatted date/time variables (--DTC) into SAS analysis date (-DT), time (-TM), and datetime (-DTM) variables. Additionally, it can create a relative day variable (-DY) when a reference date is provided.

Version Information

- **Version:** 1.0
- **Last Updated:** 19FEB2021
- **Author(s):** Atorus Research

Dependencies

- SAS version: SAS 9.4 V9
- No other macro dependencies
- Input must be in ISO 8601 format (YYYY-MM-DDThh:mm:ss)

Parameters

Parameter	Required	Default	Description
dtcdate	Yes	-	Name of the input --DTC variable in ISO 8601 format
prefix	No	a	Prefix for the output analysis variables (-DT, -TM, -DTM, -DY)
refdate	No	-	Numeric reference date for calculating relative days

Return Values/Output

The macro creates the following variables (where 'prefix' is the specified prefix):

- **prefixDT:** SAS date value
- **prefixTM:** SAS time value (only if time component is present)
- **prefixDTM:** SAS datetime value (only if time component is present)
- **prefixDY:** Relative day number (only if refdate is specified)

Processing Details

1. Input Validation:

- Checks if required parameter (dtcdate) is provided
- Validates length of input date string

2. Date/Time Processing:

- For dates without time (length 10): converts to SAS date
- For dates with time (length 16 or 19): converts to SAS datetime and splits into date and time components

3. Relative Day Calculation:

- If reference date is provided, calculates days between dates
- Uses formula: $DY = date - refdate + (date \geq refdate)$

Examples

Basic Usage - Date Only

```
%xcdtc2dt(aestdtc, prefix=ast);
```

Usage with Reference Date

```
%xcdtc2dt(aestdtc, prefix=ast, refdate=trtsdt);
```

Advanced Usage with Custom Prefix

```
%xcdtc2dt(  
    dtcdate=visitdtc,  
    prefix=vst,  
    refdate=studystdt  
);
```

Common Issues and Solutions

Issue	Solution
Invalid date format	Ensure input date is in ISO 8601 format (YYYY-MM-DD)
Missing relative days	Check if both input date and reference date are non-missing
Partial dates	Only the date portion will be converted, time variables will not be created

Notes and Limitations

- Input must be in ISO 8601 format
- Handles both partial (date only) and complete (date and time) timestamps
- Time component must be complete if present (partial times are treated as date-only)
- Relative day calculation accounts for same-day events (adds 1 for dates \geq reference)

See Also

- `%xcdtcdy`: For relative day calculations
- `%xuepoch`: Derives the EPOCH variable for SDTM datasets
- `%xuvisit`: Visit and timing derivations

Change Log

Version	Date	Author	Changes
1.0	19FEB2021	Atorus Research	Initial version