

admiral :: CHEATSHEET



What you need to know

{admiral} is an open-source, modularized toolbox that enables the development of ADaM datasets in R. {admiral} code is comprised of interchangeable blocks, i.e. function calls, that sequentially derive new variables or parameters to help construct an ADaM dataset.

Generic Variable-Adding Functions

01	01	a
02	01	b
03	02	c
	02	d
	03	e
	03	f

derive_vars_merged(dataset, dataset_add, new_vars, filter_add, order, mode...)
Add new variable(s) to the input dataset based on variables from another dataset. Merged observations can be selected by a condition and/or selecting the first/last observation for each by group.

```
derive_vars_merged(  
  dataset = adsl,  
  dataset_add = vs,  
  by_vars = exprs(STUDYID, USUBJID),  
  order = exprs(convert_dtc_to_dtm(VSDTC)),  
  mode = "last",  
  new_vars = exprs(LASTWGT = VSSTRESN),  
  filter_add = VSTESTCD == "WEIGHT"  
)
```

01	01	r
02	01	s
03	02	u
	02	v
	03	x
	03	y

derive_vars_joined(dataset, dataset_add, new_vars, filter_add, order, mode...)
Add variables from an additional dataset to the input dataset. The selection of the observations from the additional dataset can depend on variables from both datasets.

```
derive_vars_joined(  
  dataset = adae, dataset_add = period_ref,  
  by_vars = exprs(STUDYID, USUBJID),  
  join_vars = exprs(APERSDT, APEREDT),  
  filter_join = APERSDT <= ASTDT & [...]  
)
```

Notable others:

derive_vars_transposed()
derive_var_merged_summary()

Generic Parameter-Adding Functions

01	x
01	y
02	x
02	y

derive_param_computed(dataset, dataset_add = NULL, by_vars, parameters, set_values_to, ...)
Add a parameter computed from the analysis value of other parameters.

01	x
01	y
01	x + y
02	u
02	v
02	u + v

```
derive_param_computed(  
  dataset = advs,  
  by_vars = exprs(USUBJID, VISIT),  
  parameters = c("SYSBP", "DIABP"),  
  set_values_to = exprs(  
    AVAL = (AVAL.SYSBP + 2 * AVAL.DIABP) / 3,  
    PARAMCD = "MAP",  
    PARAM = "Mean Arterial Pressure",  
    AVALU = "mmHg"  
  )  
)
```

01	1
01	4
02	5
02	7

derive_extreme_records(dataset, dataset_add, dataset_ref, by_vars, order, mode, keep_source_vars, set_values_to, ...)
Add the first or last observation for each by group as new observations. The new observations can be selected from the input dataset or an additional dataset.

01	1
01	4
01	4
02	5
02	7
02	7

```
derive_extreme_records(  
  dataset = adlb, by_vars = exprs(USUBJID),  
  order = exprs(AVAL, AVISITN),  
  mode = "first", filter_add = !is.na(AVAL),  
  keep_source_vars = exprs(AVAL),  
  set_values_to = exprs(DTYPE = "MIN")  
)
```

Notable others:

derive_expected_records()
derive_extreme_event()
derive_locf_records()
derive_param_exposure()
derive_summary_records()

Note: These functions are just some examples of the many generic variable/parameter-adding functions in {admiral}. Check the [reference page](#) for all of them!

Functions Treating Days/Dates/Datetimes

derive_vars_dt(dtm)(dataset, new_vars_prefix, ...)
Derive or impute a date/datetime from a date character Vector.

```
derive_vars_dt(admh, new_vars_prefix = "AST", dtc = MHSTDTCT)
```

derive_vars_dy(dataset, reference_date, source_vars)
Adds relative day variables (-DY).

```
derive_vars_dy(  
  dataset = adsl, reference_date = TRTSDTM,  
  source_vars = exprs(TRTSDTM, ASTDTM, AENDT)  
)
```

derive_vars_dtm_to_(dt/tm)(dataset, source_vars,...)
Derive date/time variables from datetime variables.

```
derive_vars_dtm_to_tm(  
  dataset = adcm, source_var = exprs(TRTSDTM)  
)
```

derive_vars_duration(dataset, new_var, new_var_unit, start_date, end_date).
Derive duration between two dates.

```
derive_vars_duration(  
  dataset = adsl, new_var = AAGE, new_var_unit = AAGEU,  
  start_date = BRTHDT, end_date = RANDDT,  
  out_unit = "years"  
)
```

Computation Functions for Vectors

These functions do what their names suggest and can be used inside **dplyr:: mutate()** or other {admiral} functions.

compute_age_years()
compute_dtf()
compute_duration()
compute_tmf()
convert_date_to_dtm()

convert_dtc_to_dt()
convert_dtc_to_dtm()
impute_dtc_dt()
impute_dtc_dtm()

Special Variable-Adding Functions

derive_var_age_years(dataset, age_var, age_unit, new_var)
Derive age in years.

derive_var_dthcaus(dataset, source_datasets, ...)
Derive death cause (DTHCAUS) and traceability variables if required.

derive_var_extreme_dt/dtm(dataset, new_var, source_datasets, mode, ...)
Derive the first or last date from multiple sources to the dataset, e.g., the last known alive date/datetime.

derive_vars_period(dataset, dataset_ref, new_vars)
Add subperiod, period, or phase variables.

derive_var_atoxgr(dataset, lotox_description_var, hitox_description_var)
Derive character lab grade based on high and low severity/toxicity grade(s).

derive_var_base/chg/pchg(dataset, ...)
Derive baseline/change/percent change variables.

derive_var_ontrtfl(dataset, start_date, ref_start_date, ref_end_date, ref_end_window ...)
Derive on-treatment flag (ONTRTFL) with a single assessment date (e.g ADT) or event start and end dates (e.g. ASTDT/AENDT).

derive_var_trtemfl(dataset, new_var, start_date, end_date, trt_start_date, trt_end_date, end_window, ...)
Derive treatment emergent analysis flag (TRTEMFL).

Special Parameter-Adding Functions

***derive_param_bmi**(dataset, by_vars, set_values_to, ...)
Derive BMI parameter.

***derive_param_bsa**(dataset, by_vars, set_values_to, ...)
Derive body surface area parameter (multiple methods).

***derive_param_map**(dataset, by_vars, set_values_to, ...)
Derive mean arterial pressure parameter.

derive_param_doseint(dataset, by_vars, set_values_to, ...)
Derive dose intensity parameter.

derive_param_tte(dataset, dataset_adsl, source_datasets, by_vars, start_date, event_conditions, censor_conditions, ...)
Derive time-to-event parameter.

* wrapper of derive_param_computed().

Note: These functions are just some examples of the many special variable/parameter-adding functions in {admiral}. Check the [reference page](#) for all of them!

Higher Order Functions

Meta-functions that take {admiral} functions as input and facilitate their execution.

		A	B
		A	B
		A	B
		A	B

call_derivation(dataset, derivation, variable_params, ...)
Call a single derivation multiple times with some parameters/arguments fixed across calls and others varying.

```
call_derivation(
  dataset = adae,
  derivation = derive_vars_dt,
  variable_params = list(
    params([...]),
    params([...])
  ))
```

x		
✓		
✓		
x		

			×
			✓
			✓
			×

restrict_derivation(dataset, derivation, args, filter)
Execute a derivation on a subset of the input dataset.

```
restrict_derivation(
  dataset = adlb,
  derivation = derive_vars_merged,
  args = params([...]),
  filter = AVISITN > 0
)
```

A			
B			

			A
			A
			B
			B

slice_derivation(dataset, derivation, args, ...)
The input dataset is split into slices (subsets) and for each slice the derivation is called separately. Some or all arguments of the derivation may vary depending on the slice.

```
slice_derivation(
  dataset = advs,
  derivation = derive_vars_dtm,
  args = params([...]),
  derivation_slice(filter = [...], args = [...]),
  derivation_slice(filter = [...], args = [...]),
)
```

Templates

Example scripts to be used as a starting point for ADaM creation.

list_all_templates(package)
List all available ADaM templates in {admiral} (or another package).

use_ad_template(adam_name, package, overwrite, open)
Open an ADaM template script. `use_ad_template("adsl")`

Utilities

x	
y	

convert_blanks_to_na()
Turn SAS blank strings into R NAs.

`convert_blanks_to_na(c("a", "", "b"))`

x	y
x	x
x	x
y	y

extract_duplicate_records(dataset, by_vars)
Extract duplicate records from a dataset.

```
extract_duplicate_records(
  dataset = adsl,
  by_vars = exprs(USUBJID)
)
```

01	
02	
03	
04	

filter_exist(dataset, dataset_add, by_vars, filter_add)
Returns all records in the input dataset belonging to by groups present in a (possibly filtered) source dataset.

```
filter_exist(
  dataset = adsl, dataset_add = adae,
  by_vars = exprs(USUBJID),
  filter_add = AEDECOD == "FATIGUE"
)
```

01	x
01	y
02	x
02	y

filter_extreme(dataset, by_vars, order, mode, check_type = "warning")
Filters the first or last observation for each by group.

```
filter_extreme(
  by_vars = exprs(USUBJID),
  order = exprs(EXSEQ),
  mode = "first"
)
```

