PowerStack

CHEAT SHEET - WORKFLOW DEFINITION LANGUAGE

Power Automate (WDL) cheat sheet

The expression functions that run inside cloud flows - string, date, collection, and reference functions, with the null-safe patterns that keep flows from failing.

68	8	Workflow Definition Language
FUNCTIONS	CATEGORIES	LANGUAGE

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Referencing data 8 functions

Most flow logic is plumbing values between actions. These functions pull values out of triggers, actions, variables, and loop items.

triggerBody	The body of the trigger `triggerBody()?['Email']`
triggerOutputs	Full outputs of the trigger `triggerOutputs()?['headers']`
outputs	Outputs of a named action `outputs('Compose')`
body	Body of a named action `body('Get_item')?['Title']`
item	Current item in Apply to each `item()?['ID']`
items	Item of a named loop `items('Apply_to_each')?['Status']`
variables	Read a flow variable `variables('counter')`
parameters	Read an environment parameter `parameters('ApiBaseUrl')`

Strings 11 functions

concat	Join strings together `concat('PO-', variables('id'))`
substring	Slice by position and length `substring('PowerStack', 5, 5)`
replace	Replace all occurrences `replace('a-b-c', '-', '/')`
toUpper / toLower	Change case `toUpper('po-12')`
trim	Remove leading/trailing spaces `trim('  hi  ')`
length	Count characters (or array items) `length('PowerStack')`
indexOf	Position of a substring `indexOf('a@b.com', '@')`
startsWith / endsWith	Test a prefix or suffix `startsWith(item()?['Name'], 'PO-')`
split	Break a string into an array `split('a,b,c', ',')`
guid	Generate a new GUID `guid()`

`formatNumber`	Format a number as a string `formatNumber(1234.5, 'C2', 'en-GB')`

Arrays & collections 11 functions

`first / last`	First or last array element `first(body('Get_items')?['value'])`
`length`	Count items in an array `length(variables('rows'))`
`contains`	Test for membership `contains(variables('ids'), 7)`
`empty`	Test for an empty array/string/object `empty(body('Get_items')?['value'])`
`join`	Join an array into a string `join(variables('tags'), ', ')`
`take / skip`	Slice from the start / past the start `take(variables('rows'), 10)`
`union`	Merge arrays, dropping duplicates `union(variables('a'), variables('b'))`
`intersection`	Items present in both arrays `intersection(variables('a'), variables('b'))`
`createArray`	Build an array from values `createArray('a', 'b', 'c')`
`range`	Sequence of integers `range(1, 5)`
`reverse`	Reverse array order `reverse(variables('rows'))`

Logic & comparison 8 functions

WDL has no operators - comparisons and boolean logic are all functions that take their arguments in parentheses.

`if`	Return a value by condition `if(greater(variables('n'), 0), 'pos', 'neg')`
`equals`	Test equality `equals(item()?['Status'], 'Open')`
`greater / less`	Numeric comparison `greater(variables('total'), 1000)`
`greaterOrEquals / lessOrEquals`	Inclusive comparison `lessOrEquals(variables('age'), 17)`
`and`	All conditions true `and(variables('active'), variables('paid'))`
`or`	Any condition true `or(equals(s, 'A'), equals(s, 'B'))`

not	Invert a condition `not(empty(variables('rows')))`
coalesce	First non-null value `coalesce(item()?['Nick'], item()?['Name'], 'Guest')`

Type conversion 9 functions

int	Parse to integer `int(triggerBody()?['Qty'])`
float	Parse to floating point `float('123.45')`
string	Convert to text `string(variables('count'))`
bool	Convert to boolean `bool('true')`
json	Parse a JSON string to an object `json(triggerBody())`
array	Wrap a value in an array `array(item())`
base64	Encode text as base64 `base64('hello')`
base64ToString	Decode base64 to text `base64ToString(variables('enc'))`
decimal	Exact decimal value `decimal('19.99')`

Date & time 10 functions

Stored timestamps are UTC. Convert to the user's zone only for display.

utcNow	Current UTC timestamp `utcNow()`
formatDateTime	Format a timestamp `formatDateTime(utcNow(), 'dd MMM yyyy')`
addDays	Add days `addDays(utcNow(), 7)`
addHours / addMinutes	Add smaller spans `addHours(utcNow(), -2)`
addToTime	Add an arbitrary span `addToTime(utcNow(), 3, 'Month')`
startOfDay / startOfMonth	Snap to a boundary `startOfDay(utcNow())`
dayOfWeek	Day-of-week number `dayOfWeek(utcNow())`

ticks	Timestamp as a tick count `ticks(utcNow())`
convertFromUtc	UTC to a target zone `convertFromUtc(utcNow(), 'GMT Standard Time')`
convertTimeZone	Between two zones `convertTimeZone(t, 'UTC', 'Eastern Standard Time')`

Math 5 functions

add / sub	Add or subtract `add(variables('total'), 5)`
mul / div	Multiply or divide `div(variables('total'), 2)`
mod	Remainder after division `mod(17, 5)`
min / max	Smallest or largest argument `max(variables('a'), variables('b'))`
rand	Random integer in a range `rand(1, 100)`

Objects & JSON 6 functions

null-safe access ?[ ]	Read a field without failing `body('Get_item')?['Author']?['Email']`
addProperty	Add a field to an object `addProperty(item(), 'Processed', true)`
setProperty	Set/replace a field `setProperty(item(), 'Status', 'Done')`
removeProperty	Drop a field `removeProperty(item(), 'Temp')`
xpath	Query an XML document `xpath(xml(body('HTTP')), '//title/text()')`
coalesce	First non-null of several fields `coalesce(item()?['Mobile'], item()?['Phone'])`