Processing scripts for Parameters

Overview

Processing scripts enable advanced logic integration within communication flows between managed devices and the CONTROL platform. These Python-based scripts implement business logic to transform parameter values before they are processed and stored by the platform.

Processing scripts execute primarily when the CONTROL platform receives a value from the configured parameter. However, they may also run during other operations and actions as detailed below.

Available Variables

When a processing script executes, the CONTROL platform automatically populates several variables with contextual information:

Variable	Description
`value`	The value of the parameter being received or processed
`parameter_name`	The name of the parameter being received or processed
`parameter_id`	The unique ID of the parameter being received or processed
`variable_name`	The variable name of the parameter being received or processed
`operation`	The name of the current operation: `add_object`, `del_object`, or `get_value`
`index`	The instance number or index of the object being added

The platform expects the transformed value to be assigned to a variable named `result`.

Basic Example

This example applies a mathematical formula to transform the received value:

```
result = (value - 10) / 10000
```

This script subtracts 10 from the received parameter value, then divides the result by 10,000. The CONTROL platform will use the value stored in `result` instead of the original received value.

Execution Context

Processing scripts execute in multiple scenarios:

- When the CONTROL platform receives a parameter value from a managed device
- After creating or deleting objects on managed devices
- During operations that modify other parameters and settings

In these contexts, scripts can modify additional parameters, adjust device settings, and trigger management operations as described in the **Special Objects for Scripts** section.

Python Operators

Processing scripts support standard Python arithmetic operators:

Operator	Name	Description	Example
`+`	Addition	Adds values on either side of the operator	`a + b = 30`
`-`	Subtraction	Subtracts right-hand operand from left-hand operand	`a - b = -10`
`*`	Multiplication	Multiplies values on either side of the operator	`a * b = 200`
`/`	Division	Divides left-hand operand by right-hand operand	`b / a = 2`
`%`	Modulus	Divides left-hand operand by right-hand operand and returns remainder	`b % a = 0`
`**`	Exponent	Performs exponential (power) calculation	`a**2 = 100`
`//`	Floor Division	Division where the result is the quotient with digits after the decimal point removed. If one operand is negative, the result is floored (rounded toward negative infinity)	`9//2 = 4`, `9.0//2.0 = 4.0`, `-11//3 = -4`, `-11.0//3 = -4.0`

Example variable assignments:

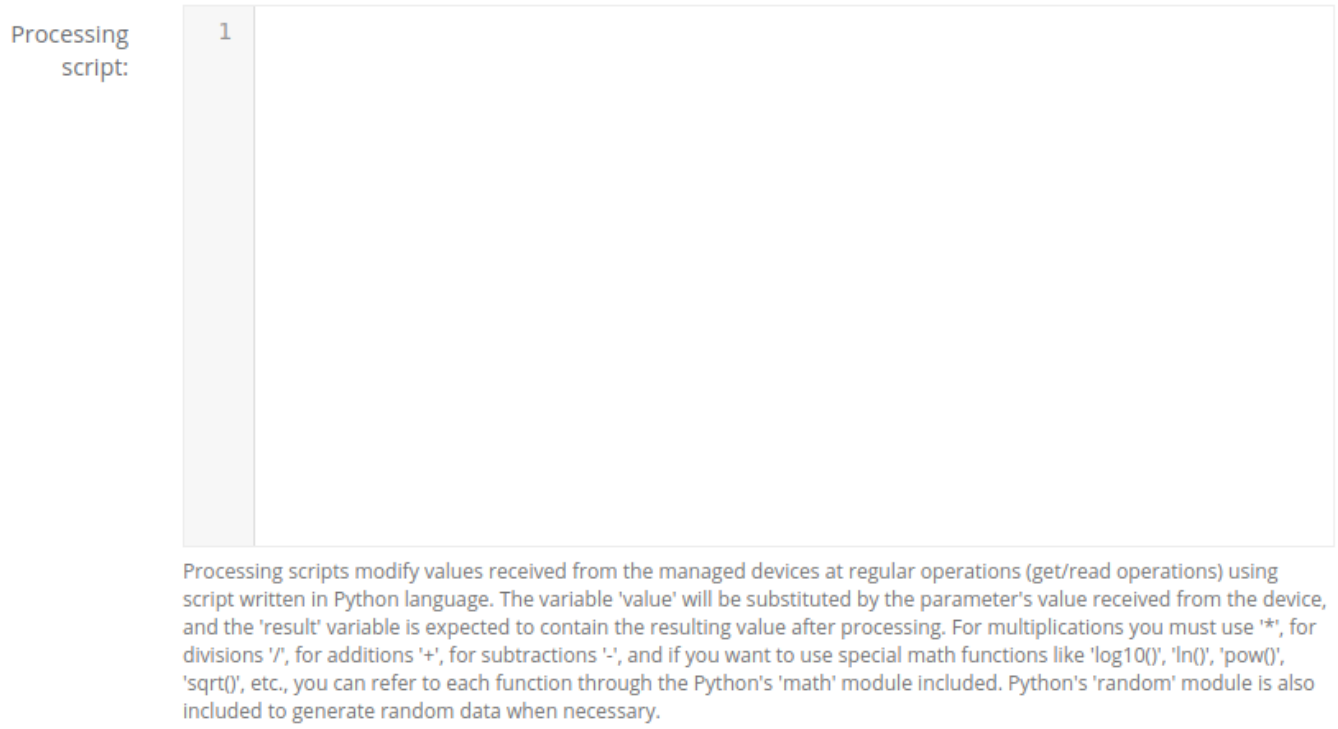
```
a = 10
b = 20
```

Configuration

Processing scripts are configured within the **Parameter** configuration screen. Access this screen by following these simple steps.

Script Configuration Location

On the **Parameter** configuration screen, locate the script configuration section under **Advanced settings**:



Included Python Modules

The script processing environment includes the following Python modules by default:

math Module

Provides mathematical functions for advanced calculations.

Examples:

```
result = math.log10(value)  # Calculate base-10 logarithm of 'value'

result = math.sqrt(value)   # Calculate the square root of 'value'

result = math.acos(value)   # Calculate the arc cosine of 'value' in radians

result = value * math.pi    # Multiply 'value' by the mathematical pi constant
```

Reference: https://docs.python.org/3/library/math.html

random Module

Generates pseudo-random numbers.

Example:

```
result = value + random.randint(1, 10)  # Add a random number between 1 and 10 to 'value'
```

Reference: https://docs.python.org/3/library/random.html

json Module

Provides JSON encoding and decoding capabilities.

Example:

```
result = json.loads(value)['bytes']  # Parse JSON string and extract the 'bytes' element
```

Reference: https://docs.python.org/3/library/json.html

Advanced Capabilities

Special Objects and Operations

The script execution context includes special objects that allow you to:

- Modify attributes of managed devices
- Update device settings

- Perform related management actions and operations

For detailed information about special objects and usage examples, see the **Special Objects for Scripts** section.

Special Functions

Function	Description	Parameters
`detect_network_entity_info`	Retrieves network entity information for a device and optionally extends the current parameter value	`context: dict, extend: bool = False, device_headers: dict or None = None, current_val: str = None, old_val: str = None`

Visual Workflow Designer

In certain environments, a visual workflow designer is available to build scripts using a graphical interface.

Disabling Visual Designer Transformation

To prevent the visual workflow designer from transforming a script, add this comment as the first line:

```
# _NO_VWD_
```

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