

# DDiscovery-Write-Data User Guide

## (English)

This project uses a Digilent Digital Discovery to write custom data sequences to a digital device. All settings and data bits are stored in **config.json**, and you can keep several named configurations in the same file.

## Dependencies

- Python 3.7 or newer
- dwfpy

Install dwfpy

```
pip install dwfpy
```

## File Layout

main.py      Main script; reads config.json and programs the device  
config.json   Settings file in JSON format; may hold multiple write profiles  
README.md    Chinese guide  
README\_en.md English guide

## config.json Example

```
{  
  "config1": {  
    "frequency": 100,  
    "num_cycles_to_reset": 2,  
    "length_of_data": 16,  
    "repeats": 2,  
    "clock_channel": 24,  
    "data_channel": 25,  
    "resetn_channel": 26,  
    "reset_idle_state": "initial",  
    "data": {  
      "bit1": 1,  
      "bit2": 0,  
      "...": "...",  
      "bit16": 1  
    }  
  }  
}
```

```
},  
"config2": { ... }  
}
```

## Field Description

frequency	Clock frequency in Hz
num_cycles_to_reset	Clock cycles that reset stays low
length_of_data	Bits per write; must equal the key-value pairs in data
repeats	Times to repeat the whole data sequence
clock_channel	Clock output channel (24–39)
data_channel	Data output channel (24–39)
resetn_channel	Reset output channel (24–39)
reset_idle_state	Idle level for reset: initial / low / high / z
data	Object of bit-name:0/1 pairs

## Usage Steps

1. Edit config.json and add or modify configurations.
2. Connect the Digilent Digital Discovery device.
3. Run python main.py.
4. Follow the prompts:
  - Press Enter to write every configured sequence once.
  - Type q and press Enter to quit.

## Behavior Example

If one profile sets data to 1010 and repeats to 2, the device outputs 1010 1010 (one sequence twice in a row).

## Notes

- Make sure config.json is valid JSON; the script will point out any error.
- Channel numbers must be in the 24–39 range and cannot repeat.
- The number of data bits must equal length\_of\_data.
- To change frequency, channels, or repeat count, just edit config.json.

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