cloudshell-autodiscovery Documentation

Release 1.0

Qualisystems

Apr 12, 2017

CONTENTS

CHAPTER

ONE

INSTALLATION

Install via pip:

```
pip install cloudshell-autodiscovery
```

Install from source:

```
git clone git@github.com:QualiSystems/cloudshell-autodiscovery-tool.git
cd cloudshell-autodiscovery-tool
pip install -r requirements.txt
python setup.py install
```

CHAPTER

TWO

BASIC USAGE

Run command to generate input data file:

```
autodiscovery echo-input-template --save-to-file input.yml
```

Now, edit your generated *input.yml* file with devices info and CloudShell server credentials

Run command to discover devices from input file and load them into the CloudShell server:

```
autodiscovery run --input-file input.yml
```

After this command discovered devices will be added into the CloudShell. Yo can find information about the uploaded devices in the generated *report.xlsx* file

CHAPTER

THREE

ADVANCED USAGE

3.1 Generate input data

Run command to generate input data file:

```
autodiscovery echo-input-template --save-to-file input.yml
```

Now, edit your generated *input.yml* file with devices info and CloudShell server credentials

3.2 Generate additional vendors configuration

Run command to generate additional vendors configuration data file:

```
autodiscovery echo-vendors-configuration-template --save-to-file extented_vendors.json
```

Now, edit your generated *extented_vendors.json* file with additional Vendors information

3.3 Discover devices

Run command to generate input data file:

```
autodiscovery run --input-file input.yml --config-file extented_vendors.json --offline
```

Now, check/edit your generated *report.xlsx* file with discovered devices info

3.4 Upload discovered devices into the CloudShell

Run command to upload discovered devices from the report into the CloudShell server:

```
autodiscovery run-from-report --input-file input.yml --config-file extented_vendors.
↪json --report-file report.xlsx
```

After this command discovered devices will be added into the CloudShell

CHAPTER

FOUR

COMMANDS

4.1 Generate input data template command

```
$ autodiscovery echo-input-template --help
Usage: autodiscovery echo-input-template [OPTIONS]

  Generate user input example file in the given format

Options:
  --template-format [yml|json]  Format of the generated user input template
                                file
  --save-to-file TEXT           File to save generated user input template
                                file
  --help                        Show this message and exit.
```

4.2 Generate additional vendors configuration template command

```
$ autodiscovery echo-vendors-configuration-template --help
Usage: autodiscovery echo-vendors-configuration-template [OPTIONS]

  Generate vendors configuration example file in the given format

Options:
  --template-format [json]  Format of the generated user input template file
  --save-to-file TEXT       File to save generated user input template file
  --help                    Show this message and exit.
```

4.3 Run autodiscovery command and generate report for the discovered devices

```
$ autodiscovery run --help
Usage: autodiscovery run [OPTIONS]

  Run Auto discovery command with given arguments from the input file

Options:
  --input-file TEXT             Input file with devices IPs and other
                                configuration data. Can be generated with a
```

```
                                 'echo-input-template' command  [required]
  --config-file TEXT             Vendors configuration file with additional
                                 data. Can be generated with a 'echo-vendors-
                                 configuration-template' command
  --log-file TEXT                File name for logs
  --report-file TEXT             File name for generated report
  --report-type [excel|console]  Type for generated report
  --offline                      Generate report without creation of any
                                 Resource on the CloudShell
  --help                         Show this message and exit.
```

4.4 Run autodiscovery command from the generated report

```
$ autodiscovery run-from-report --help
Usage: autodiscovery run-from-report [OPTIONS]

  Create and autoload CloudShell resources from the generated report

Options:
  --input-file TEXT   Input file with CloudShell configuration data. Can be
                      generated with a 'echo-input-template' command
                      [required]
  --config-file TEXT  Vendors configuration file with additional data. Can be
                      generated with a 'echo-vendors-configuration-template'
                      command
  --log-file TEXT     File name for logs
  --report-file TEXT  File name of the report to run from  [required]
  --help              Show this message and exit.
```

4.5 Get current version of the cloudshell-autodiscovery tool

```
$ autodiscovery version --help
Usage: autodiscovery version [OPTIONS]

  Get version of the CloudShell Autodiscovery CLI tool

Options:
  --help  Show this message and exit.
```

CHAPTER

FIVE

INPUT DATA SCHEMES

5.1 Input data JSON scheme

```
{
   "$schema": "http://json-schema.org/draft-04/schema#",
   "definitions": {
      "cli-creds": {
         "type": "object",
         "properties": {
            "enable password": {
               "description": "CLI enable password on the device",
               "type": "string"
            },
            "password": {
               "description": "CLI password on the device",
               "type": "string"
            },
            "user": {
               "description": "CLI user on the device",
               "type": "string"
            }
         }
      },
      "ip-range": {
         "type": "string",
         "description": "Device IP (10.10.10.10) or a range of device IPs (10.10.10.
↪10-45)"
      }
   },
   "type": "object",
   "description": "schema for input data with devices information",
   "required": [
      "cloudshell",
      "community-strings",
      "devices-ips"
   ],
   "properties": {
      "vendor-settings": {
         "type": "object",
         "additionalProperties": {
            "type": "object",
            "description": "additional settings for the specific vendor",
            "properties": {
               "cli-credentials": {
```

```
                "type": "array",
                "minItems": 1,
                "uniqueItems": true,
                "items": {
                   "$ref": "#/definitions/cli-creds"
                }
             },
             "folder-path": {
                "description": "full path for the resource folder",
                "type": "string"
             }
          }
       }
    },
    "cloudshell": {
       "type": "object",
       "description": "schema for CloudShell API credentials",
       "required": [
          "ip",
          "user",
          "password"
       ],
       "properties": {
          "ip": {
             "description": "IP address for the CloudShell API",
             "type": "string"
          },
          "password": {
             "description": "password for the CloudShell API",
             "type": "string"
          },
          "user": {
             "description": "user for the CloudShell API",
             "type": "string"
          }
       }
    },
    "community-strings": {
       "type": "array",
       "minItems": 1,
       "uniqueItems": true,
       "items": {
          "type": "string",
          "description": "Possible SNMP read community string for the devices"
       }
    },
    "devices-ips": {
       "type": "array",
       "minItems": 1,
       "uniqueItems": true,
       "items": {
          "oneOf": [
             {
                "$ref": "#/definitions/ip-range"
             },
             {
                "type": "object",
                "properties": {
```

```
                    "range": {
                        "$ref": "#/definitions/ip-range"
                    },
                    "domain": {
                        "type": "string",
                        "description": "CloudShell Domain name"
                    }
                }
            }
        ]
    }
  }
}
```

5.2 Additional vendors configuration JSON sheme

```
{
   "$schema": "http://json-schema.org/draft-04/schema#",
   "definitions": {
      "name": {
         "type": "string",
         "description": "name for the vendor"
      },
      "family_name": {
         "type": "string",
         "description": "resource family name for the device on the CloudShell"
      },
      "model_name": {
         "type": "string",
         "description": "resource model name for the device on the CloudShell"
      },
      "driver_name": {
         "type": "string",
         "description": "driver name for the device on the CloudShell"
      },
      "aliases": {
         "type": "array",
         "items": {
            "type": "string",
            "description": "regex string which can be an alias for the vendor name"
         }
      },
      "default_prompt": {
         "type": "string",
         "description": "regexp string for the default prompt"
      },
      "enable_prompt": {
         "type": "string",
         "description": "regexp string for the enable prompt"
      },
      "networking_device": {
         "type": "object",
         "required": [
            "name",
```

```
            "type",
            "operation_systems"
         ],
         "properties": {
            "name": {
               "$ref": "#/definitions/name"
            },
            "aliases": {
               "$ref": "#/definitions/aliases"
            },
            "type": {
               "enum": [
                  "networking"
               ]
            },
            "default_os": {
               "type": "string",
               "description": "default operation system name for the vendor"
            },
            "default_prompt": {
               "$ref": "#/definitions/default_prompt"
            },
            "enable_prompt": {
               "$ref": "#/definitions/enable_prompt"
            },
            "operation_systems": {
               "type": "array",
               "items": {
                  "type": "object",
                  "description": "operation system data within specific vendor",
                  "required": [
                     "name",
                     "families"
                  ],
                  "properties": {
                     "name": {
                        "$ref": "#/definitions/name"
                     },
                     "aliases": {
                        "$ref": "#/definitions/aliases"
                     },
                     "default_model": {
                        "type": "string",
                        "description": "model type of the device (switch/router/ect.)"
                     },
                     "models_map": {
                        "type": "array",
                        "items": {
                           "type": "object",
                           "required": [
                              "model",
                              "aliases"
                           ],
                           "properties": {
                              "model": {
                                 "type": "string",
                                 "description": "model type of the device (switch/
↪router/ect.)"
```

```
                                },
                                "aliases": {
                                    "$ref": "#/definitions/aliases"
                                }
                            }
                        }
                    },
                    "families": {
                        "type": "object",
                        "additionalProperties": {
                            "type": "object",
                            "description": "family/model name info by the device model␣
↪type",
                            "properties": {
                                "first_gen": {
                                    "type": "object",
                                    "required": [
                                        "family_name",
                                        "model_name",
                                        "driver_name"
                                    ],
                                    "properties": {
                                        "family_name": {
                                            "$ref": "#/definitions/family_name"
                                        },
                                        "model_name": {
                                            "$ref": "#/definitions/model_name"
                                        },
                                        "driver_name": {
                                            "$ref": "#/definitions/driver_name"
                                        }
                                    }
                                },
                                "second_gen": {
                                    "type": "object",
                                    "required": [
                                        "family_name",
                                        "model_name",
                                        "driver_name"
                                    ],
                                    "properties": {
                                        "family_name": {
                                            "$ref": "#/definitions/family_name"
                                        },
                                        "model_name": {
                                            "$ref": "#/definitions/model_name"
                                        },
                                        "driver_name": {
                                            "$ref": "#/definitions/driver_name"
                                        }
                                    }
                                }
                            }
                        }
                    }
                }
            }
```

```
            }
         },
         "pdu_device": {
            "type": "object",
            "required": [
               "name",
               "type",
               "family_name",
               "model_name",
               "driver_name"
            ],
            "properties": {
               "name": {
                  "$ref": "#/definitions/name"
               },
               "type": {
                  "enum": [
                     "PDU"
                  ]
               },
               "default_prompt": {
                  "$ref": "#/definitions/default_prompt"
               },
               "enable_prompt": {
                  "$ref": "#/definitions/enable_prompt"
               },
               "family_name": {
                  "$ref": "#/definitions/family_name"
               },
               "model_name": {
                  "$ref": "#/definitions/model_name"
               },
               "driver_name": {
                  "$ref": "#/definitions/driver_name"
               }
            }
         }
      },
      "type": "array",
      "description": "schema for the additional vendors configuration",
      "items": {
         "type": "object",
         "oneOf": [
            {
               "$ref": "#/definitions/networking_device"
            },
            {
               "$ref": "#/definitions/pdu_device"
            }
         ]
      }
}
```

CHAPTER

SIX

INPUT DATA EXAMPLES

6.1 Input data in YAML format

```
# IP of devices to discover (could be a range or single one)
devices-ips:
    -   range: 192.168.10.3-45
        domain: Some Domain
    -   range: 192.168.8.1-9.10
        domain: Some other Domain
    -   192.168.42.235

# IP and credentials for the CloudShell API
cloudshell:
    ip: 192.168.85.9
    user: admin
    password: admin

# Possible SNMP community strings
community-strings:
    -   public
    -   public2

# Additional settings per Vendor (Possible CLI credentials (user/password), resource␣
↪folder)
vendor-settings:
    default:
        cli-credentials:
            -   user: root
                password: Password1
                enable password: Password2we
            -   user: root1
                password: Password2
        folder-path: autodiscovery
    Cisco:
        cli-credentials:
            -   user: cisco
                password: Password1
            -   user: cisco2
                password: Password2
        folder-path: cisco
    Juniper:
        cli-credentials:
            -   user: juniper
                password: Password1
```

```
            -   user: juniper2
                password: Password2
                enable_password: Password2
```

6.2 Input data in JSON format

```
{
    "cloudshell": {
        "ip": "192.168.85.9",
        "password": "admin",
        "user": "admin"
    },
    "community-strings": [
        "public",
        "public2"
    ],
    "devices-ips": [
        {
            "domain": "Some Domain",
            "range": "192.168.10.3-45"
        },
        {
            "domain": "Some other Domain",
            "range": "192.168.8.1-9.10"
        },
        "192.168.42.235"
    ],
    "vendor-settings": {
        "Cisco": {
            "cli-credentials": [
                {
                    "password": "Password1",
                    "user": "cisco"
                },
                {
                    "password": "Password2",
                    "user": "cisco2"
                }
            ],
            "folder-path": "cisco"
        },
        "Juniper": {
            "cli-credentials": [
                {
                    "password": "Password1",
                    "user": "juniper"
                },
                {
                    "enable_password": "Password2",
                    "password": "Password2",
                    "user": "juniper2"
                }
            ]
        },
        "default": {
```

```
            "cli-credentials": [
                {
                    "enable password": "Password2we",
                    "password": "Password1",
                    "user": "root"
                },
                {
                    "password": "Password2",
                    "user": "root1"
                }
            ],
            "folder-path": "autodiscovery"
        }
    }
}
```

6.3 Additional vendors configuration in JSON format

```
[
   {
      "name": "Cisco",
      "aliases": [
         "[Cc]iscoSystems"
      ],
      "type": "networking",
      "default_os": "IOS",
      "default_prompt": ">\\s*$",
      "enable_prompt": "(?:(?!\\)).)#\\s*$",
      "operation_systems": [
         {
            "name": "IOS",
            "aliases": [
               "CAT[ -]?OS",
               "IOS[ -]?X?[E]?"
            ],
            "default_model": "switch",
            "models_map": [
               {
                  "model": "switch",
                  "aliases": [
                     "[Cc]atalyst",
                     "C2950"
                  ]
               },
               {
                  "model": "router",
                  "aliases": [
                     "IOS[ -]?X?[E]?"
                  ]
               }
            ],
            "families": {
               "switch": {
                  "first_gen": {
                     "family_name": "Switch",
```

```
                    "model_name": "Cisco IOS Switch",
                    "driver_name": "Generic Cisco IOS Driver Version3"
                },
                "second_gen": {
                    "family_name": "CS_Switch",
                    "model_name": "Cisco IOS Switch 2G",
                    "driver_name": "Cisco IOS Switch 2G"
                }
            },
            "router": {
                "first_gen": {
                    "family_name": "Router",
                    "model_name": "Cisco IOS Router",
                    "driver_name": "Generic Cisco IOS Driver Version3"
                },
                "second_gen": {
                    "family_name": "CS_Router",
                    "model_name": "Cisco IOS Router 2G",
                    "driver_name": "Cisco IOS Router 2G"
                }
            }
        }
    ]
  }
]
```

CHAPTER

SEVEN

INDICES AND TABLES

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- modindex
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