BeyondTrust

U-Series Appliance 4.2
API Config Guide

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U-Series Appliance API Guide

Overview

BeyondTrust administrators can configure U-Series Appliances without going through the web-based interface. A *PowerShell* sample script has been used for demonstration, but BeyondTrust does not prescribe any implementation language or mechanism.

Configuration Workflow

The flow for setup and configuration will be:

1. Call *Set Window license* or *Skip license page* endpoint (As image is not licensed)
2. Call *Deployment* web service
3. Wait for *Deployment* web service to finish by calling the *Deployment Status* endpoint
4. Call *Configuration* web service
5. Wait for *Configuration* web service to finish by calling the *Configuration Status*

> **Note:** *A valid BeyondInsight serial key must be passed through a HTTP header on each call.*

U-Series Appliance Web Services

This portion of the guide details the U-Series Appliance web services (also referred to as endpoints). There are two endpoints in the U-Series Appliance: one to run the configuration, and one to monitor progress.

POST

```
/ApplianceGateway/api/BaseProductLicense/setwindowslicense
```

Endpoint to set Windows license.

POST

```
/ApplianceGateway/api/BaseProductLicense/skippage
```

Endpoint to skip Windows license page.

POST

```
/ApplianceGateway/api/DeploymentWizardAutomation
```

Endpoint to programmatically execute the deployment wizard.

GET

```
/ApplianceGateway/api/DeploymentWizardAutomation
```

Endpoint to get the status of the deployment wizard step execution. This is intended to be used after the Post in this controller has been called, to be able to poll the status as the steps are executed.

Status Code	Description
0	Not Started
1	In Progress
2	Passed
3	Paused
4	Failed

Sample Response Format

```
{
    "stepsStatus": [
```

```json
        {
            "name": "Initialize SQL Server",
            "outcomeInfo": {
                "stepStatus": 2,
                "stepOutcomeMessage": "SQL Server Initialization succeeded"
            }
        },
        {
            "name": "Rename appliance",
            "outcomeInfo": {
                "stepStatus": 2,
                "stepOutcomeMessage": "Appliance renamed to automation"
            }
        },
        {
            "name": "Apply time settings",
            "outcomeInfo": {
                "stepStatus": 2,
                "stepOutcomeMessage": "Applied time settings"
            }
        },
        {
            "name": "Reboot appliance",
            "outcomeInfo": {
                "stepStatus": 2,
                "stepOutcomeMessage": "Reboot requested"
            }
        },
        {
            "name": "Pause the wizard while waiting for a reboot",
            "outcomeInfo": {
                "stepStatus": 2,
                "stepOutcomeMessage": "Pausing for reboot"
            }
        },
        {
            "name": "Create BeyondInsight EMS certificate",
            "outcomeInfo": {
                "stepStatus": 2,
                "stepOutcomeMessage": "Created the BeyondInsight EMS certificate"
            }
        },
        {
            "name": "Apply IP settings",
            "outcomeInfo": {
                "stepStatus": 2,
                "stepOutcomeMessage": "IP settings applied"
            }
        },
        {
            "name": "Generate unique BeyondInsight cryptokey",
            "outcomeInfo": {
                "stepStatus": 2,
                "stepOutcomeMessage": "Generated unique BeyondInsight cryptokey"
            }
        }
```

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```
            }
        ],
        "overAllStatus": 2
    }
```

POST

```
/ApplianceGateway/api/ConfigurationWizardAutomation
```

Endpoint to programmatically execute the configuration wizard.

GET

```
/ApplianceGateway/api/ConfigurationWizardAutomation
```

Endpoint to get the status of the configuration wizard step execution. This is intended to be used after the Post in this controller has been called, to be able to poll the status as the steps are executed.

Status Code	Description
0	Not Started
1	In Progress
2	Passed
3	Paused
4	Failed

Sample Response Format

```
{
    "stepsStatus": [
        {
            "name": "Apply License Settings",
            "outcomeInfo": {
                "stepStatus": 2,
                "stepOutcomeMessage": "License settings applied"
            }
        },
        {
            "name": "Prepare local BeyondInsight Database",
            "outcomeInfo": {
                "stepStatus": 2,
                "stepOutcomeMessage": "Local BeyondInsight database prepared for use"
            }
        },
        {
            "name": "Apply Backup Settings",
            "outcomeInfo": {
```

```
            "stepStatus": 2,
            "stepOutcomeMessage": "Backup settings applied"
        }
    },
    {
        "name": "Apply BeyondInsight Credentials",
        "outcomeInfo": {
            "stepStatus": 2,
            "stepOutcomeMessage": "BeyondInsight Credentials applied"
        }
    },
    {
        "name": "Apply Central Policy password",
        "outcomeInfo": {
            "stepStatus": 2,
            "stepOutcomeMessage": "Central Policy password applied"
        }
    },
    {
        "name": "Apply Updater Credentials",
        "outcomeInfo": {
            "stepStatus": 2,
            "stepOutcomeMessage": "Updater Credentials applied"
        }
    },
    {
        "name": "Apply Updater Settings",
        "outcomeInfo": {
            "stepStatus": 2,
            "stepOutcomeMessage": "Updater settings applied"
        }
    },
    {
        "name": "Apply PowerBroker for Windows",
        "outcomeInfo": {
            "stepStatus": 2,
            "stepOutcomeMessage": "PowerBroker for Windows applied"
        }
    },
    {
        "name": "Apply SSL Certificate Settings",
        "outcomeInfo": {
            "stepStatus": 2,
            "stepOutcomeMessage": "SSL certificate applied"
        }
    },
    {
        "name": "Apply Features",
        "outcomeInfo": {
            "stepStatus": 2,
            "stepOutcomeMessage": "Features applied"
        }
    },
    {
        "name": "Apply SMTP settings",
```

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```
            "outcomeInfo": {
                "stepStatus": 2,
                "stepOutcomeMessage": "Applied SMTP settings"
            }
        },
        {
            "name": "Apply Internet Connection Settings",
            "outcomeInfo": {
                "stepStatus": 2,
                "stepOutcomeMessage": "Internet Connection Settings applied"
            }
        }
    ],
    "overAllStatus": 2
}
```

GET

```
/UVMInterface/api/UVMConfiguration/IsApplianceConfigured
```

Endpoint to get the status of the appliance configuration.

Status Code	Description
0	Not Configured
1	Configured

> **Note:** *Once complete, the configuration and deployment end points will be removed, and if the deployment or configuration is called, a **502** will be returned by the gateway.*

GET

```
/ApplianceGateway/api/ApplianceInfoAutomation
```

Endpoint to get the network details.

Sample Response Format

```
{
    "ipSettings": [
        {
            "networkAdapter": " networkAdapter ",
            "networkCardId": "0",
            "useDhcp": true,
            "macAddress": null,
            "domainIp": "XX.XXX.XX.XXX",
```

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```
            "subnetMask": "XXX.XXX.XXX.X",
            "defaultGateway": "XX.XXX.XX.X",
            "preferredDnsServer": "XX.XXX.X.XX",
            "alternateDnsServer": "XX.XXX.X.XX",
            "dnsSuffix": " dnsSuffix ",
            "modifiedSetting": false
        }
    ]
}
```

Prerequisite Before Deployment

Run *Set Windows license* or *Skip License Page* endpoint as Windows is not licensed.

Set Windows License

Route

```
/ApplianceGateway/api/BaseProductLicense/setwindowslicense
```

Windows key JSON will be sent to the web service.

Sample JSON format

```
{
    "key": "XXXXX- XXXXX - XXXXX - XXXXX - XXXXX "
}
```

Skip Windows License Page

Route

```
/ApplianceGateway/api/BaseProductLicense/skippage
```

Empty JSON will be sent to the web service.

Deployment Wizard

Route

```
/ApplianceGateway/api/DeploymentWizardAutomation
```

> **Note:** *A valid BeyondInsight license key must be passed through a HTTP header*

The Deployment JSON will be sent to the web service and will include:

- Windows User credentials
- Licensing Agreements
- Appliance Name
- IP Settings
- Internet Connection Settings
- Time zone and Time Settings
- SMTP Settings

Sample JSON Format

```
{
  "configureUser": {
    "username": "btadmin",
    "password": "password",
    "email": "dummy@domain.com"
  },
  "licenseAgreement": {
    "acceptBtEula": true,
    "acceptMsEula": true,
    "acceptSqlServerEula": true
  },
  "applianceName": {
    "applianceName": "applianceName"
  },
  "ipSettings": [
    {
      "networkAdapter": "networkAdapter",
      "networkCardId": "",
      "useDhcp": true,
      "macAddress": "",
      "domainIp": "XX.XXX.XX.XXX",
      "subnetMask": "XXX.XXX.XXX.X",
      "defaultGateway": "XX.XXX.XX.X",
      "preferredDnsServer": "XX.XXX.X.XX",
      "alternateDnsServer": "XX.XXX.X.XX",
      "dnsSuffix": "dnsSuffix",
      "modifiedSetting": false
    }
  ],
  "internetConnectionSettings": {
    "connectThroughProxy": true,
    "proxySetting": {
      "proxyAddress": "XX.XXX.XX.XXX",
      "proxyPort": 808,
      "proxyUsername": "",
```

```
      "proxyPassword": ""
    }
  },
  "timeSettings": {
    "syncType": 0,
    "ntpServer": "ntpServer",
    "timezone": "Central Standard Time"
  },
  "smtpSettingsDto": {
    "emailServer": "emailServer",
    "smtpPort": 25,
    "ssl": true,
    "requiresAuthentication": false,
    "username": "username",
    "password": "password"
  }
}
```

Configuration Wizard

Route

```
/ApplianceGateway/api/ConfigurationWizardAutomation
```

> **Note:** *A valid BeyondInsight license key must be passed through a HTTP header.*

The Configuration JSON will be sent to the web service and will include:

- BeyondTrust Licenses
- Solution & Roles
- User Credentials
- Roles Configuration
- Backup And Restore
- Update Method

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Sample JSON Format

```
{
  "license": {
    "licenseMode": 0,
    "serialNumber": "",
    "licenseKey": ""
  },
  "rolesSelected": {
    "sqlServerRole": true,
    "analysisServerRole": true,
    "sqlServerReportingServicesRole": true,
    "beyondInsightDatabaseAccess": true,
    "beyondInsightManagementConsole": true,
    "omniworkerRole": true,
    "eventCollectorRole": true,
    "passwordSafeConsoleRole": true,
    "biulSetupRole": false,
    "discoveryScannerRole": true,
    "epmDatabaseRole": true,
    "epmEventCollectorRole": true,
    "epmPrivilegeManagementReportingRole": true,
    "epmWebPolicyEditorRole": true
  },
  "credentials": {
    "biUserName": "btadmin",
    "biUserPassword": "password",
    "cpPassword": "password",
    "btUpdaterName": "btadmin",
    "btUpdaterPassword": "password",
    "biulUsername": "btadmin",
    "biulPassword": "password"
  },
  "roleConfigurationBiul": {
    "biulIsRemote": true,
    "biulServerName": "XX.XXX.XXX.XX",
    "biulSqlUser": "username",
    "biulSqlPassword": "password",
    "biulDatabaseName": "PBSMC",
    "biulPort": 0,
    "biulDbInstance": "InstanceName"
  },
  "roleConfigurationRemoteSql": {
    "biIncomingDatabasePassword": "password",
    "allowIncomingDatabaseConnections": false
  },
  "roleConfigurationSqlAccess": {
    "biConnectionServerName": "ServerName",
    "biConnectionDatabaseName": "RetinaCsDatabase",
    "biCommandTimeout": 300,
    "biConnectionTimeout": 60,
    "biDatabaseConnectionStringUsername": "beyondtrust_user",
    "biDatabaseConnectionStringUserPassword": "password",
    "biDatabaseConnectionStringMultiSubnetFailover": false,
```

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```
      "biCreateRemoteDatabase": false,
      "biDatabaseIsLocal": true,
      "biAdministratorUsername": "btadmin",
      "biAdministratorPassword": "password"
    },
    "roleConfigurationEpmDatabase": {
      "EpmConfigurationType": 1,
      "EpmServerName": "localhost",
      "EpmEcSqlUser": "epmEventCollector",
      "EpmEcSqlPassword": "password",
      "EpmRrSqlUser": "epmReportReader",
      "EpmRrSqlPassword": "password"
    },
    "backupRestore": {
      "backupOption": 1,
      "backupSetting": {
        "path": "path",
        "username": "",
        "password": "",
        "domain": "",
        "startTime": "2021-07-19T18:55:51.522Z",
        "frequency": 0,
        "backupPassword": "password"
      }
    },
    "updates": {
      "updatesOption": 0,
      "serverAddress": "ServerAddress"
    }
  }
```

PowerShell Script Descriptions

> **Note:** Set Windows license endpoint or skip license page endpoint must be called before running scripts.

There are a total of four sample files, as follows:

- **DeploymentUSeries.ps1**: PowerShell script to be called for deployment of appliance
- **Deployment.json**: Contains sample JSON format used by the deployment script (DeploymentUSeries.ps1)
- **ConfigurationUSeries.ps1**: PowerShell script to be called for configuration of appliance
- **Configuration.json**: Contains sample JSON format used by the configuration script (ConfigurationUSeries.ps1)

DeploymentUSeries.ps1

This file contains the PowerShell script that calls the deployment endpoint. This must be the first script called. You must pass three parameters in this script, as follows:

- **$UvmAddress:** IP of U-Series Appliance

> **Example:** Replace "XX.XXX.XXX.XXX" with an actual IP of U-Series Appliance in **DeploymentUSeries.ps1** script.

- **$InputFileName:** Name of the file which contains JSON Data to be passed to the deployment endpoint. In this case, the value is **DeploymentUSeries.ps1**. If you are using your own file, then this is name of that file. You can edit this value in the **DeploymentUSeries.ps1** file according to the requirement.
- **$Header:** You must pass header with key "SerialNumber" and value "actual serialnumber".

> **Example:** Replace "XXXX-XXXXX-XXXXX-XXXXX-XXXXX-XXXXX" with an actual serial number in **DeploymentUSeries.ps1** script.

Deployment.json

This file contains sample JSON format used by the deployment script. You can edit the values according to the requirement.

Deployment Script Results

After running the deployment script, one of the following outputs displays:

- **Deployment Completed**: Implies that deployment is successful.
- **Deployment Failed**: Implies that deployment is failed and displays an error message. You can work on the error and rerun the script.

> **Note:** This script returns a "Not halting script" message when the endpoint will not be available during restart.

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ConfigurationUSeries.ps1

This file contains the PowerShell script that calls the configuration endpoints. This must be the second script to be called after deployment script. You must pass three parameters in this script, as follows:

- **$UvmAddress**: IP of U-Series Appliance.

> *Example:* *Replace "XX.XXX.XXX.XXX" with actual IP of U-Series Appliance in **ConfigurationUSeries.ps1** script.*

- **$InputFileName**: Name of the file which contains JSON Data to be passed to the configuration endpoint. In this case, the value is **Configuration.psd1**. If you are using your own file, then this is the name of that file. You can edit this value in the **ConfigurationUSeries.ps1** file according to the requirement.
- **$Header**: Need to pass header with key "SerialNumber" and value "actual serial number".

Configuration.json

This file contains sample JSON format used by the configuration script. You can edit the values according to the requirement.

Configuration Script Results

After running the configuration script, one of the following outputs displays:

- **Configuration Completed**: Implies the configuration is successful.
- **Configuration Failed**: Implies the configuration failed and displays an error message. You can then work on the error and rerun the script.

Troubleshoot Failures in the U-Series Appliance API

Failure Scenarios

- If a *401* error is received from the API, it means either the alpha feature has not been enabled or the U-Series Appliance has already been configured.
- If an error is encountered during the configuration, a status message is returned when checking the API, that states that an error occurred and indicates at which step it initially failed.

  The next step is for the user is to attempt to resolve this manually and run the Configuration Wizard again through the current **https://<host>/ConfigurationWizard**. Alternatively, the user can redeploy the image and try again. The configuration API cannot be run a second time.

U-Series Appliance Parameters

Omit Parameters

In the U-Series Appliance, not all parameters need to be passed for every scenario. You can omit those parameters that are not needed. This scenario is demonstrated in the sample data for the example scripts.

Select 1 for Proxy

> *Example:* If you select *1* for proxy, these parameters are *not* needed:
> - *ProxyAddress*
> - *ProxyPort*
> - *ProxyUsername*
> - *ProxyPassword*

Local SQL

> *Example:* If Local SQL is installed, these parameters are *not* needed:
> - *RemoteDbCommandTimeout*
> - *RemoteDbDatabaseName*
> - *RemoteDbMultiSubnetEnabled*
> - *RemoteDbPassword*
> - *RemoteDbServerName*
> - *RemoteDbConnectionTimeout*
> - *RemoteDbUserName*

Cloud Platforms

> *Example:* For cloud platforms these parameters *are* needed:
>
> *PasswordRemAdminCurrent*
>
> *In any other scenario, this parameter is not required.*

Parameters

Parameter	Description
IAcceptSqlServerLicenseTerms	Required, must pass true.
IAcceptMicrosoftWindowsLicenseTerms	Required, must pass true.
IAcceptBeyondTrustLicenseTerms	Required, must pass true.
NewMachineName	Required, new machine named.
ProxySetting	One of these values: • **1**: Connect to the internet for licensing and updates. No proxy required. • **2**: Connect to the internet for licensing and updates through a proxy server. • **3**: No internet connection. (Requires performing manual updates).
ProxyAddress	Only needed if setting proxy **2**.
ProxyPort	Only needed if setting proxy **2**.
ProxyUsername	Only needed if setting proxy **2**.
ProxyPassword	Only needed if setting proxy **2**.
SmtpPServer	SMTP Server.
SmtpPPort	SMTP Port.
SmtpRequiresAuthentication	SMTP Requires Auth.
SmtpUsername	SMTP username (only if **SmtpRequiresAuthentication** is set).
Username	Windows/Central Policy username.
PasswordRemAdmin	Windows/Central Policy user password.
BiUsername	BI username.
PasswordBiAdmin	BI user password.
UpdaterUsername	BT Updater username.
PasswordUpdaterAdmin	BT Updater user password.
PasswordRemAdminCurrent	Existing windows administrator password (only used on Cloud platforms).
BiAdminEmail	BI and U-Series Appliance admin email address.
TimeZoneName	Use a time zone name from the list below.
RemoteDbCommandTimeout	(only used on SQL-less U-Series Appliances).
RemoteDbDatabaseName	(only used on SQL-less U-Series Appliances).
RemoteDbMultiSubnetEnabled	(only used on SQL-less U-Series Appliances).
RemoteDbPassword	(only used on SQL-less U-Series Appliances).
RemoteDbServerName	(only used on SQL-less U-Series Appliances).
RemoteDbConnectionTimeout	(only used on SQL-less U-Series Appliances).
RemoteDbUserName	(only used on SQL-less U-Series Appliances).
RemoteDbCreateDatabase	To indicate whether to create a new database (only used on SQL-less U-Series Appliances).

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Timezone Parameters

The **TimeZoneName** parameter can be one of these strings:

Morocco Standard Time	Azerbaijan Standard Time	AUS Central Standard Time
UTC	Russia Time Zone 3	E. Australia Standard Time
GMT Standard Time	Mauritius Standard Time	AUS Eastern Standard Time
Greenwich Standard Time	Georgian Standard Time	West Pacific Standard Time
W. Europe Standard Time	Caucasus Standard Time	Tasmania Standard Time
Central Europe Standard Time	Afghanistan Standard Time	Magadan Standard Time
Romance Standard Time	West Asia Standard Time	Vladivostok Standard Time
Central European Standard Time	Ekaterinburg Standard Time	Russia Time Zone 10
W. Central Africa Standard Time	Pakistan Standard Time	Central Pacific Standard Time
Namibia Standard Time	India Standard Time	Russia Time Zone 11
Jordan Standard Time	Sri Lanka Standard Time	New Zealand Standard Time
GTB Standard Time	Nepal Standard Time	UTC+12
Middle East Standard Time	Central Asia Standard Time	Fiji Standard Time
Egypt Standard Time	Bangladesh Standard Time	Kamchatka Standard Time
Syria Standard Time	N. Central Asia Standard Time	Tonga Standard Time
E. Europe Standard Time	Myanmar Standard Time	Samoa Standard Time
South Africa Standard Time	SE Asia Standard Time	Line Islands Standard Time
FLE Standard Time	North Asia Standard Time	Azores Standard Time
Turkey Standard Time	China Standard Time	Cape Verde Standard Time
Israel Standard Time	North Asia East Standard Time	UTC-02
Kaliningrad Standard Time	Singapore Standard Time	Mid-Atlantic Standard Time
Libya Standard Time	W. Australia Standard Time	E. South America Standard Time
Arabic Standard Time	Taipei Standard Time	SA Eastern Standard Time
Belarus Standard Time	Ulaanbaatar Standard Time	Argentina Standard Time
Russian Standard Time	Tokyo Standard Time	Greenland Standard Time
E. Africa Standard Time	Korea Standard Time	Montevideo Standard Time
Iran Standard Time	Yakutsk Standard Time	Bahia Standard Time
Arabian Standard Time	Cen. Australia Standard Time	Pacific SA Standard Time

Newfoundland Standard Time

Paraguay Standard Time

Atlantic Standard Time

Central Brazilian Standard Time

SA Western Standard Time

Venezuela Standard Time

SA Pacific Standard Time

Eastern Standard Time

US Eastern Standard Time

Central America Standard Time

Central Standard Time

Central Standard Time (Mexico)

Canada Central Standard Time

US Mountain Standard Time

Mountain Standard Time (Mexico)

Mountain Standard Time

Pacific Standard Time (Mexico)

Pacific Standard Time

Alaskan Standard Time

Hawaiian Standard Time

UTC-11

Dateline Standard Time