Package ‘vstsr’

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Type Package
Title Access to Visual Studio Team Services API via R
Version 1.0.0
It enables the extraction of information about repositories, build and release definitions and individual releases.
It also helps create repositories and work items within a project without logging into Visual Studio.
There is the ability to use any API service with a shell for any non-predefined call.

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URL https://github.com/ashbaldry/vstsr,
https://docs.microsoft.com/en-us/rest/api/vsts

BugReports https://github.com/ashbaldry/vstsr/issues

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R topics documented:

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vstsr: A package connecting R and Visual Studio

Description
This package takes a look at the Visual Studio Team Services API calls and wraps them around in easy to use R functions. This includes looking at projects, repositories, work items, and eventually sections such as builds and releases.

Details
For more information about Visual Studio Team Services APIs, take a look at https://docs.microsoft.com/en-us/rest/api/vsts

Projects
This looks at the projects available in a visual studio instance. This lets you change between any project that you might have access to.

Repositories
This looks primarily at the Git repositories available, and whether you want to create a new repository or delete an existing one.

Work Items
This will track any existing work item for a project, and also the ability to create a new work item for a project. Useful if working within a development team and automate inclusion of creating bugs upon creating any certain R error.

Releases
This will look at the releases available for a project, both the definitions and the actual releases. There is the ability to deploy the created releases to a new environment.
For any non-predefined API service available in the package, it is always possible to run the `vsts_run_command` which will use any enabled Visual Studio API call.

---

**vsts_account**

**Visual Studio Team Services Account**

**Description**

Visual Studio Team Services Account

**Usage**

`vsts_account`

**Format**

An `R6Class` generator object

**Details**

For the majority of functions that are within this `vsts_account` object, you can get help about the query or body parameter with `?vsts_<function name>`.

**Fields**

- `user` username for the Visual Studio account
- `pass` password for the Visual Studio account
- `domain` domain name for the Visual Studio account
- `project` (optional) project name within the domain of the Visual Studio account
- `repo` (optional) repository name with the project of the Visual Studio domain

**Examples**

```r
## Not run:
proj <- vsts_account$new('username', 'password', 'domain',
                         'project', 'repo')
str(proj)
## End(Not run)
```
vsts_auth_key  
*Visual Studio Team Service Authentication Key*

**Description**
Creation of a VSTS authentication key that will be used when running any of the API calls.

**Usage**
```r
def vsts_auth_key(user, pass)
```

**Arguments**
- **user** username to access VSTS project
- **pass** password to access VSTS project

**Value**
An authentication key string in the form of 'Basic <Base 64 of user:pass>'

**Examples**
```r
auth_key <- vsts_auth_key('username', 'password')
```

---

vsts_create_release  
*Visual Studio Project Release Information*

**Description**
These functions will allow you to create releases from Visual Studio.

**Usage**
```r
def vsts_create_release(domain, project, auth_key, body)
```

**Arguments**
- **domain** the location of the visual studio server
- **project** the name of the project in domain to look at
- **auth_key** authentication key generated by using `vsts_auth_key`
- **body** a list of extra parameters that can need to be sent to the API call (* mandatory):
  - artifacts  
    * [list] Sets list of artifact to create a release. Check Details for more information.
definitionId * [integer] Sets definition Id to create a release.
description * [character] Sets description to create a release.
isDraft [logical] Sets ’true’ to create release in draft mode, ’false’ otherwise.
manualEnvironments [character] Sets list of environments to manual as condition.
properties [list] The class represents a property bag as a collection of key-value pairs.
reason [character] Sets reason to create a release.

details

The artifacts object within the body contains two items:

- alias[character] Sets alias of artifact.
- instanceReference[list] Sets instance reference of artifact. e.g. for build artifact it is build number.

For more information about release API calls check https://docs.microsoft.com/en-us/rest/api/vsts/release/releases.

Examples

#Add in own details to get a non-NULL output
auth_key <- vsts_auth_key('<username>', '<password>')</nart_list <- list(list(alias = 'Art1', instanceReference = list(id = 1)),
  list(alias = 'Art2', instanceReference = list(id = 2)))
body <- list(definitionId = 1, description = 'R API Release',
  artifacts = I(art_list))
vsts_create_release('domain', 'project', auth_key, body)

---

vsts_create_workitem  Visual Studio Project Work Items

Description

These functions will allow you to scrape work item information from a particular Visual Studio project.

Usage

vsts_create_workitem(domain, project, item_type, auth_key, ...)

vsts_deploy_release

Arguments

domain  the location of the visual studio server
project the name of the project in domain to look at
item_type the type of work item to be created
auth_key authentication key generated by using vsts_auth_key
... arguments passed to vsts_get_workitem_fields

Details

For more information about work item API calls check https://docs.microsoft.com/en-us/rest/api/vsts/wit/work%20items.

vsts_deploy_release  Visual Studio Project Release Environment Information

Description

These functions will allow you to run release environment tasks from Visual Studio.

Usage

vsts_deploy_release(domain, project, release, env, auth_key)

Arguments

domain  the location of the visual studio server
project the name of the project in domain to look at
release the release ID of the release
env the release environment ID to release on
auth_key authentication key generated by using vsts_auth_key

Details


Examples

#Add in own details to get a non-NULL output
auth_key <- vsts_auth_key("<username>", "<password>")
vsts_deploy_release('domain', 'project', auth_key, 1, 1)
vsts_get_build_defs  Visual Studio Project Build Definition Information

Description

These functions will allow you to scrape build definition information from Visual Studio.

Usage

vsts_get_build_defs(domain, project, auth_key, query = NULL)

Arguments

- domain: the location of the visual studio server
- project: the name of the project in domain to look at
- auth_key: authentication key generated by using vsts_auth_key
- query: a list of extra parameters that can be sent to the API call:
  - revision: [integer] The revision number to retrieve. If this is not specified, the latest version will be returned.
  - minMetricsTime: [string] If specified, indicates the date from which metrics should be included.
  - propertyFilters: [string] A comma-delimited list of properties to include in the results.
  - includeLatestBuilds: [logical]

Details

For more information about the build definition API calls check https://docs.microsoft.com/en-us/rest/api/vsts/build/definitions.

Examples

#Add in own details to get a non-NULL output
auth_key <- vsts_auth_key('<username>', '<password>')
vsts_get_build_defs('domain', 'project', auth_key)
vsts_get_commits  
*Visual Studio Project Git Repositories*

**Description**

These functions will allow you to scrape git repository information from Visual Studio.

**Usage**

`vsts_get_commits(domain, project, repo, auth_key, query = NULL)`

**Arguments**

- **domain**: the location of the visual studio server
- **project**: the name of the project in domain to look at
- **repo**: the name of the repository in project to look at
- **auth_key**: authentication key generated by using `vsts_auth_key`
- **query**: a list of extra parameters that can be sent to the API call:
  - **branch**: [character] name of a branch in the repository (cannot combine with commit)
  - **commit**: [character] id of a commit in the repository (cannot combine with branch)
  - **itemPath**: [character] path of an item in the repository
  - **committer**: [character] name of the person who committed the change
  - **author**: [character] name of the author
  - **fromDate**: [Date] start date to search from
  - **toDate**: [Date] end date to search from

**Details**

For more information about git repository API calls check [https://docs.microsoft.com/en-us/rest/api/vsts/git/](https://docs.microsoft.com/en-us/rest/api/vsts/git/).

**Examples**

```r
#Add in own details to get a non-NULL output
auth_key <- vsts_auth_key('<username>', '<password>')
vsts_get_commits('domain', 'project', 'repo', auth_key)
```
vsts_get_projects

Visual Studio Projects

Description

These functions will allow you to scrape project information from Visual Studio.

Usage

vsts_get_projects(domain, auth_key, quiet = FALSE)

Arguments

domain the location of the visual studio server
auth_key authentication key generated by using vsts_auth_key
quiet logical whether want general running information from printing. Any issue with the API call will still show up if set to TRUE

Details

For more information about project API calls check https://docs.microsoft.com/en-us/rest/api/vsts/core/projects.

vsts_get_releases

Visual Studio Project Release Information

Description

These functions will allow you to scrape releases from Visual Studio.

Usage

vsts_get_releases(domain, project, auth_key, query = NULL)

vsts_get_release(domain, project, release, auth_key)

Arguments

domain the location of the visual studio server
project the name of the project in domain to look at
auth_key authentication key generated by using vsts_auth_key
query a list of extra parameters that can be sent to the API call: propertyFilters [character] A comma-delimited list of extended properties to retrieve.
**vsts_get_releases**

**tagFilter** [character] A comma-delimited list of tags. Only releases with these tags will be returned.

**isDeleted** [logical] Gets the soft deleted releases, if true.

**sourceBranchFilter** [character] Releases with given sourceBranchFilter will be returned.

**artifactVersionId** [character] Releases with given artifactVersionId will be returned. E.g. in case of Build artifactType, it is buildId.

**sourceId** [character] Unique identifier of the artifact used. e.g. For build it would be projectGuid:BuildDefinitionId, for Jenkins it would be JenkinsConnectionId:JenkinsDefinitionId, for TfsOnPrem it would be TfsOnPremConnectionId:ProjectName:TfsOnPremDefinitionId. For third-party artifacts e.g. TeamCity, BitBucket you may refer 'uniqueSourceIdentifier' inside vss-extension.json https://github.com/Microsoft/vsts-rm-extensions/blob/master/Extensions.

**artifactTypeId** [character] Releases with given artifactTypeId will be returned. Values can be Build, Jenkins, GitHub, Nuget, Team Build (external), ExternalTFSBuild, Git, TFVC, ExternalTfsXamlBuild.

**expand** [character] The property that should be expanded in the list of releases.

**continuationToken** [integer] Gets the releases after the continuation token provided.

**top** [integer] Number of releases to get. Default is 50.

**queryOrder** [character] Gets the results in the defined order of created date for releases. Default is descending.

**maxCreatedTime** [Date] Releases that were created before this time.

**minCreatedTime** [Date] Releases that were created after this time.

**statusFilter** [character] Releases that have this status.

**createdBy** [character] Releases created by this user.

**searchText** [character] Releases with names starting with searchText.

**definitionEnvironmentId** [integer] Releases from this release environment Id.

**definitionId** [integer] Releases from this release definition Id.

**releaseIdFilter** [character] A comma-delimited list of releases Ids. Only releases with these Ids will be returned.

**Details**

For more information about release API calls check https://docs.microsoft.com/en-us/rest/api/vsts/release/releases.

**Examples**

```bash
#Add in own details to get a non-NUL output
auth_key <- vsts_auth_key('username', 'password')
vsts_get_releases('domain', 'project', auth_key)
```
vsts_get_release_defs  Visual Studio Project Release Definition Information

Description

These functions will allow you to scrape release definition information from Visual Studio.

Usage

vsts_get_release_defs(domain, project, auth_key, quiet = FALSE)

Arguments

domain the location of the visual studio server
project the name of the project in domain to look at
auth_key authentication key generated by using vsts_auth_key
quiet logical whether want general running information from printing. Any issue with the API call will still show up if set to TRUE

Details

For more information about release definition API calls check https://docs.microsoft.com/en-us/rest/api/vsts/release/definitions.

Examples

#Add in own details to get a non-NULL output
auth_key <- vsts_auth_key('<username>', '<password>')
vsts_get_release_defs('domain', 'project', auth_key)

vsts_get_repos  Visual Studio Project Repositories

Description

These functions will allow you to scrape project information from Visual Studio.

Usage

vsts_get_repos(domain, project, auth_key, quiet = FALSE)

vsts_create_repo(domain, project, repo, auth_key, quiet = FALSE)

vsts_delete_repo(domain, project, repo, auth_key, quiet = FALSE)
vsts_get_workitems

Arguments

- **domain**  the location of the visual studio server
- **project**  the name of the project in domain to look at
- **auth_key**  authentication key generated by using `vsts_auth_key`
- **quiet**  logical whether want general running information from printing. Any issue with the API call will still show up if set to `TRUE`
- **repo**  the name of the repository in project to look at

Details

For more information about repository API calls check [https://docs.microsoft.com/en-us/rest/api/vsts/git/](https://docs.microsoft.com/en-us/rest/api/vsts/git/).

Examples

```shell
# Add in own details to get a non-NULL output
auth_key <- vsts_auth_key('<username>', '<password>')

# Get repo list
vsts_get_repos('domain', 'project', auth_key)

# Create new repo
vsts_create_repo('domain', 'project', 'repo', auth_key)

# Delete existing repo
vsts_delete_repo('domain', 'project', 'repo', auth_key)
```

---

vsts_get_workitems  Visual Studio Project Get Work Items

Description

These functions will allow you to scrape work item information from a particular Visual Studio project.

Usage

```
vsts_get_workitems(domain, auth_key, query = NULL)

vsts_get_workitem(domain, auth_key, id)
```
**vsts_get_workitem_fields**

**Arguments**

- **domain**  
  the location of the visual studio server
- **auth_key**  
  authentication key generated by using `vsts_auth_key`
- **query**  
  a list of extra parameters that can be sent to the API call:
  - **ids** [character] a comma-separated list of up to 200 IDs of the work items to get
  - **fields** [character] a comma-separated list of up to 100 fields to get with each work item. If not specified, all fields with values are returned. Calculated fields such as Attached File Count must be specifically queried for using this parameter.
  - **asOf** [Date] gets the work items as they existed at this time
  - **ErrorPolicy** [character] determines if the call will throw an error when encountering a work item (default behavior) that doesn’t exist (throw) or simply omit it (omit)
- **id**  
  (for single work item request) ID of the work item to retrieve

**Details**

For more information about work item API calls check [https://docs.microsoft.com/en-us/rest/api/vsts/wit/work%20items](https://docs.microsoft.com/en-us/rest/api/vsts/wit/work%20items).

---

**vsts_get_workitem_fields**

*Visual Studio Work Item Fields*

**Description**

This contains all the fields required of any work item in a visual studio project and helps add/ rename the fields of the selected work item.

**Usage**

```csharp
```

**Arguments**

- **System.Title** [character] title of the Visual Studio work item
- **System.Description** [character] description of the Visual Studio work item
- **System.TeamProject** [character] name of the Visual Studio project
- **System.AreaPath** [character] path of the Visual Studio work item
vsts_run_command

System.IterationPath
    [character] name of the Visual Studio iteration path
Microsoft.VSTSCOMMON.Priority
    [integer] priority of the work item - 1 to 4
... other fields that might have been missed out originally

Details

For more information about work item fields API calls check https://docs.microsoft.com/en-us/rest/api/vsts/wit/fields.

vsts_run_command Visual Studio Custom API Calls

Description

For any requirement not currently in place in the vstsr package, then this function will allow you to use the relevant API call without any extra requirements.
For the most part it is just a shell of VEBR but will have the auth_key set up already.

Usage

vsts_run_command(url, verb, auth_key, body = NULL, query = NULL)

Arguments

url the URI of the API call to run
verb name of the verb to use
auth_key authentication key generated by using vsts_auth_key
body check VEBR for more details. If the object is a named list, then it will be transformed into a JSON string so that can be added to the call. Use https://docs.microsoft.com/en-us/rest/api/vsts/ to find out any required parameter for the body.
query a list of extra parameters that can be sent to the API call. If not required then leave as NULL

Examples

## Not run:
auth_key <- vsts_auth_key('username', 'password')
#Get commits of a repository
URL <- paste0('https://{accountName}.visualstudio.com/{project}', '/_apis/git/repositories/{repositoryId}/commits/', '{commitId}?api-version=4.1-preview')
vsts_run_command(URL, 'GET', auth_key)

## End(Not run)
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