

# Package ‘AzureCognitive’

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**Title** Interface to Azure Cognitive Services

**Version** 1.0.0

**Description** An interface to Azure Cognitive Services <<https://docs.microsoft.com/azure/cognitive-services/welcome>>. Both an 'Azure Resource Manager' interface, for deploying Cognitive Services resources, and a client framework are supplied. While 'AzureCognitive' can be called by the end-user, it is meant to provide a foundation for other packages that will support specific services, like Computer Vision, Custom Vision, language translation, and so on. Part of the 'AzureR' family of packages.

**URL** <https://github.com/Azure/AzureCognitive>  
<https://github.com/Azure/AzureR>

**BugReports** <https://github.com/Azure/AzureCognitive/issues>

**License** MIT + file LICENSE

**Depends** R (>= 3.3)

**Imports** AzureAuth (>= 1.2.0), AzureRMR, jsonlite, httr (>= 1.3),

**Suggests** knitr, testthat

**VignetteBuilder** knitr

**RoxygenNote** 6.1.1

**NeedsCompilation** no

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az\_cognitive\_service *Azure Cognitive Service resource class*

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### Description

Class representing a cognitive service resource, exposing methods for working with it.

### Usage

```
az_cognitive_service
```

### Format

An object of class R6ClassGenerator of length 24.

### Methods

The following methods are available, in addition to those provided by the [AzureRMR::az\\_resource](#) class:

- `list_keys()`: Return the access keys for this service.
- `get_endpoint()`: Return the service endpoint, along with an access key. See 'Endpoints' below.
- `regen_key(key)`: Regenerates (creates a new value for) an access key. The argument `key` can be 1 or 2.
- `list_service_tiers()`: List the service pricing tiers (SKUs) available for this service.

### Initialization

Initializing a new object of this class can either retrieve an existing service, or create a new service on the host. Generally, the best way to initialize an object is via the `get_cognitive_service` and `create_cognitive_service` methods of the [az\\_resource\\_group](#) class, which handle the details automatically.

### Endpoints

The client-side interaction with a cognitive service is via an *endpoint*. Endpoint interaction in AzureCognitive is implemented using S3 classes. You can create a new endpoint object via the `get_endpoint()` method, or with the standalone `cognitive_endpoint()` function. If you use the latter, you will also have to supply any necessary authentication credentials, eg a subscription key or token.

### See Also

[cognitive\\_endpoint](#), [create\\_cognitive\\_service](#), [get\\_cognitive\\_service](#)

**Examples**

```
## Not run:

# recommended way of creating a new resource: via resource group method
rg <- AzureRMR::get_azure_login()$
  get_subscription("sub_id")$
  get_resource_group("rgname")
cogsvc <- rg$create_cognitive_service("myvisionservice",
  service_type="ComputerVision", service_tier="F0")

cogsvc$list_service_tiers()
cogsvc$list_keys()
cogsvc$regen_key()
cogsvc$get_endpoint()

## End(Not run)
```

---

call\_cognitive\_endpoint

*Call a Cognitive Service REST endpoint*

---

**Description**

Call a Cognitive Service REST endpoint

**Usage**

```
call_cognitive_endpoint(endpoint, ...)

## S3 method for class 'cognitive_endpoint'
call_cognitive_endpoint(endpoint, operation,
  options = list(), headers = list(), body = NULL, encode = NULL,
  ..., http_verb = c("GET", "POST", "PUT", "PATCH", "DELETE", "HEAD"),
  http_status_handler = c("stop", "warn", "message", "pass"))
```

**Arguments**

endpoint	An object of class <code>cognitive_endpoint</code> .
...	Further arguments passed to lower-level functions. For the default method, these are passed to <code>httr::content</code> ; in particular, you can convert a structured JSON response into a data frame by specifying <code>simplifyDataFrame=TRUE</code> .
operation	The operation to perform.
options	Any query parameters that the operation takes.
headers	Any optional HTTP headers to include in the REST call. Note that <code>call_cognitive_endpoint</code> will handle authentication details automatically, so don't include them here.

body	The body of the HTTP request for the REST call.
encode	The encoding (really content-type) for the body. See the encode argument for <a href="#">httr::POST</a> . The default value of NULL will use raw encoding if the body is a raw vector, and json encoding for anything else.
http_verb	The HTTP verb for the REST call.
http_status_handler	How to handle a failed REST call. stop, warn and message will call the corresponding *_for_status handler in the httr package; pass will return the raw response object unchanged. The last one is mostly intended for debugging purposes.

### Details

This function does the low-level work of constructing a HTTP request and then calling the REST endpoint. It is meant to be used by other packages that provide higher-level views of the service functionality.

### Value

For a successful REST call, the contents of the response. This will usually be a list, obtained by translating the raw JSON body into R. If the call returns a non-success HTTP status code, based on the http\_status\_handler argument.

### See Also

[cognitive\\_endpoint](#), [create\\_cognitive\\_service](#), [get\\_cognitive\\_service](#)

### Examples

```
## Not run:

endp <- cognitive_service("https://myvisionservice.api.cognitive.azure.com",
  service_type="Computervision", key="key")

# analyze an online image
img_link <- "https://news.microsoft.com/uploads/2014/09/billg1_print.jpg"
call_cognitive_endpoint(endp,
  operation="analyze",
  body=list(url=img_link),
  options=list(details="celebrities"),
  http_verb="POST")

# analyze an image on the local machine
img_raw <- readBin("image.jpg", "raw", file.info("image.jpg")$size)
call_cognitive_endpoint(endp,
  operation="analyze",
  body=img_raw,
  encode="raw",
  http_verb="POST")
```

```
## End(Not run)
```

---

cognitive\_endpoint      *Object representing an Azure Cognitive Service endpoint*

---

## Description

Object representing an Azure Cognitive Service endpoint

## Usage

```
cognitive_endpoint(url, service_type, key = NULL, aad_token = NULL,
  cognitive_token = NULL, auth_header = "ocp-apim-subscription-key")
```

## Arguments

url	The URL of the endpoint.
service_type	What type (or kind) of service the endpoint provides. See below for the services that AzureCognitive currently recognises.
key	The subscription key (single- or multi-service) to use to authenticate with the endpoint.
aad_token	An Azure Active Directory (AAD) OAuth token, as an alternative to a key for the services that allow AAD authentication.
cognitive_token	A Cognitive Service token, as another alternative to a key for the services that accept it.
auth_header	The name of the HTTP request header for authentication. Only used if a subscription key is supplied.

## Details

Currently, cognitive\_endpoint recognises the following service types:

- CognitiveServices: multiple service types
- ComputerVision: generic computer vision service
- Face: face recognition
- LUIS: language understanding
- CustomVision.Training: Training endpoint for a custom vision service
- CustomVision.Prediction: Prediction endpoint for a custom vision service
- ContentModerator: Content moderation (text and images)
- Text: text analytics
- TextTranslate: text translation

**Value**

An object inheriting from class `cognitive_endpoint`, that can be used to communicate with the REST endpoint. The subclass of the object indicates the type of service provided.

**See Also**

[call\\_cognitive\\_endpoint](#), [create\\_cognitive\\_service](#), [get\\_cognitive\\_service](#)

**Examples**

```
## Not run:

cognitive_service("https://myvisionservice.api.cognitive.azure.com",
  service_type="Computervision", key="key")

cognitive_service("https://mylangservice.api.cognitive.azure.com",
  service_type="LUIS", key="key")

# authenticating with AAD
token <- AzureAuth::get_azure_token("https://cognitiveservices.azure.com",
  tenant="mytenant", app="app_id", password="password")
cognitive_service("https://myvisionservice.api.cognitive.azure.com",
  service_type="Computervision", aad_token=token))

## End(Not run)
```

---

create\_cognitive\_service

*Create, retrieve or delete an Azure Cognitive Service*

---

**Description**

Methods for the [AzureRMR::az\\_resource\\_group](#) class.

**Usage**

```
create_cognitive_service(name, service_type, service_tier, location = self$location,
  subdomain = name, properties = list(), ...)
get_cognitive_service(name)
delete_cognitive_service(name, confirm = TRUE, wait = FALSE)
```

**Arguments**

- `name`: The name for the cognitive service resource.
- `service_type`: The type of service (or "kind") to create. See 'Details' below.
- `service_tier`: The pricing tier (SKU) for the service.

- **location:** The Azure location in which to create the service. Defaults to the resource group's location.
- **subdomain:** The subdomain name to assign to the service; defaults to the resource name. Set this to NULL if you don't want to assign the service a subdomain of its own.
- **properties:** For create\_cognitive\_service, an optional named list of other properties for the service.
- **confirm:** For delete\_cognitive\_service, whether to prompt for confirmation before deleting the resource.
- **wait:** For delete\_cognitive\_service, whether to wait until the deletion is complete before returning.

## Details

These are methods to create, get or delete a cognitive service resource within a resource group.

For create\_cognitive\_service, the type of service created can be one of the following:

- **CognitiveServices:** multiple service types
- **ComputerVision:** generic computer vision service
- **Face:** face recognition
- **LUIS:** language understanding
- **CustomVision.Training:** Training endpoint for a custom vision service
- **CustomVision.Prediction:** Prediction endpoint for a custom vision service
- **ContentModerator:** Content moderation (text and images)
- **Text:** text analytics
- **TextTranslate:** text translation

The possible tiers depend on the type of service created. Consult the Azure Cognitive Service documentation for more information. Usually there will be at least one free tier available.

## Value

For create\_cognitive\_service and get\_cognitive\_service, an object of class az\_cognitive\_service.

## See Also

[cognitive\\_endpoint](#), [call\\_cognitive\\_endpoint](#)

[Azure Cognitive Services documentation](#), [REST API reference](#)

## Examples

```
## Not run:  
  
rg <- AzureRMR::get_azure_login()  
  get_subscription("sub_id")$  
  get_resource_group("rgname")
```

```
rg$create_cognitive_service("myvisionservice",  
    service_type="ComputerVision", service_tier="F0")  
  
rg$create_cognitive_service("mylangservice",  
    service_type="LUIS", service_tier="F0")  
  
rg$get_cognitive_service("myvisionservice")  
  
rg$delete_cognitive_service("myvisionservice")  
  
## End(Not run)
```

---

get\_cognitive\_token     *Obtain authentication token for a cognitive service*

---

### **Description**

Obtain authentication token for a cognitive service

### **Usage**

```
get_cognitive_token(key, region, token_host = NULL)
```

### **Arguments**

key	The subscription key for the service.
region	The Azure region where the service is located.
token_host	Optionally, the URL for the token endpoint.



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