ndexR Cheat Sheet

Installation and Connection

```
# via Bioconductor
source("https://bioconductor.org/biocLite.R")
biocLite("ndexr")
# load library
library(ndexr)
# connect anonymously
ndexcon <- ndex_connect()
```

```
# via GitHub using devtools R package
require(devtools)
install_github("frankkramer-lab/ndexr")
```

```
# ...or using credentials
ndexcon <- ndex_connect("username", "password")
```

① Find networks

```
# browse & search for a specific
networks <- ndex_find_networks(ndexcon)
networks <- ndex_find_networks(ndexcon, "EGFR")
networks <- ndex_find_networks(ndexcon, accountName="username")
# get the UUID of the first search result
networkId <- networks[1,"externalId"]
```

② Download networks

```
# ...complete networks
rcx <- ndex_get_network(ndexcon, networkId)
# ...summary, meta-data, aspects & provenance
networkSummary <- ndex_network_get_summary(ndexcon, networkId)
networkMetadata <- ndex_network_get_metadata(ndexcon, networkId)
aspect <- ndex_network_get_aspect(ndexcon, networkId, "nodeAttributes")
aspectMetadata <- ndex_network_aspect_get_metadata(ndexcon, networkId, "nodeAttributes")
provenance = ndex_network_get_provenance(ndexcon, networkId)
```

③ Work with the networks

```
# remove NDEx artefacts from network
rcx <- rcx_asNewNetwork(rcx)
# ...do some fancy stuff with the network, then update the meta-data
rcx <- rcx_updateMetaData(rcx)
# work with NGraph instead
ngraph = ngraph_fromRCX(rcx)
rcx = ngraph_toRCX(ngraph)
# or start from scratch
rcx = rcx_new( data.frame( '@id'=c(1,2,3),
                           n=c("Some Name","And another name",NA),
                           r=c("HGNC:Symbol",NA,"UniProt:C3P0"),
                           check.names=FALSE))
# print the RCX object
print(rcx)
```

④ Upload a network to the NDEx server

```
# upload network as a new network
networkId <- ndex_create_network(ndexcon, rcx)
# update the network
ndex_update_network(ndexcon, rcx)
ndex_update_network(ndexcon, rcx, networkId)
```

⑤a Share networks with people

```
# find people
users <- ndex_find_users(ndexcon, "user")
userId <- users$externalId
user <- ndex_find_user_byName(ndexcon, "username")
user <- ndex_find_user_byId(ndexcon, userId)
# manage accounts
user <- ndex_create_user( ndexcon, userName="UserName", password="SecretPassword",
                          emailAddress="A@bc.de", isIndividual=TRUE,
                          displayName="J.D.", firstName="John", lastName="Doe",
                          website="www.abc.de", description="Nothing to see here..")
ndex_verify_user(ndexcon, userId, "4ct1v4t10n-C0d3")
ndex_update_user(ndexcon, userId, firstName = "Max", lastName = "Power")
ndex_user_change_password(ndexcon, userId, "SuperSaveNewPassword")
ndex_user_forgot_password(ndexcon, userId)
ndex_user_mail_password(ndexcon, userId)
ndex_delete_user(ndexcon, userId)
networkPermissions <- ndex_user_list_permissions(ndexcon, userId)
networkPermission <- ndex_user_show_permission( ndexcon, userId, networkId,
                                                directonly=TRUE)
showcase = ndex_user_get_showcase(ndexcon, userId)
networkSummary <- ndex_user_get_networksummary(ndexcon, userId)
```

⑤b Share networks with groups

```
# find groups
groups <- ndex_find_groups(ndexcon, "Ideker Lab")
groupId <- groups$externalId
group <- ndex_get_group(ndexcon, groupId)
# manage groups
group <- ndex_create_group( ndexcon, "SomeGroupName", image="http://bit.ly/1M3NoQZ",
                            website="www.gidf.com", description="Special group..")
ndex_update_group(ndexcon, groupId, description="A really nice group!")
ndex_delete_group(ndexcon,groupId)
ndex_group_set_membership(ndexcon, groupId, userId, type="MEMBER")
users <- ndex_group_list_users (ndexcon, groupId, type="ADMIN", start=0, size=10)
networkPermissions <- ndex_group_list_networks(ndexcon, groupId, permission="READ")
networkPermission <- ndex_group_network_get_permission(ndexcon, groupId, networkId)
groups <- ndex_user_list_groups(ndexcon, userId)
group <- ndex_user_show_group(ndexcon, userId, groupId)
```

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⑥ Collaborate on networks

```r
# control user permissions to a network
permissions = ndex_network_get_permission(ndexcon, networkId, "user")
permissions = ndex_network_get_permission(ndexcon, networkId, "user", "READ")
ndex_network_update_permission(ndexcon, networkId, user=userId, "WRITE")
ndex_network_delete_permission(ndexcon, networkId, user=userId)

# control group permissions to a network
permissions = ndex_network_get_permission(ndexcon, networkId, "group")
ndex_network_update_permission(ndexcon, networkId, group=groupId, "READ")
ndex_network_delete_permission(ndexcon, networkId, group=groupId)

# change network properties
ndex_network_update_profile(ndexcon, networkId, name="Some fancy name for the network")
ndex_network_update_profile(ndexcon, networkId, description="Description of the network")
ndex_network_update_profile(ndexcon, networkId, version="1.2.3.4")

# realize, you did bad things, so better delete the network
ndex_delete_network(ndexcon, networkId)
```

⑦ Publish networks

```r
# make the network visible to everyone
ndex_network_set_systemProperties(ndexcon, networkId, readOnly=TRUE)
ndex_network_set_systemProperties(ndexcon, networkId, showcase=TRUE)
ndex_network_set_systemProperties(ndexcon, networkId, visibility="PUBLIC")

# publish the link to the network
http://www.ndexbio.org/#/newNetwork/9ed0cd55-9ac0-11e4-9499-000c29202374
```