

# Cytoscape and iGraph

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This vignette will show you how to convert networks between iGraph and Cytoscape.

## Installation

### Required Software

The whole point of RCy3 is to connect with Cytoscape. You will need to install and launch Cytoscape:

- Download the latest Cytoscape from <http://www.cytoscape.org/download.php>
- Complete installation wizard
- Launch Cytoscape

### From igraph to Cytoscape

The igraph package is a popular network tool among R users. With RCy3, you can easily translate igraph networks to Cytoscape networks!

Here is a basic igraph network construction from the `graph_from_data_frame` docs, [http://igraph.org/r/doc/graph\\_from\\_data\\_frame.html](http://igraph.org/r/doc/graph_from_data_frame.html):

```
actors <- data.frame(name=c("Alice", "Bob", "Cecil", "David",  
                           "Esmeralda"),  
                    age=c(48,33,45,34,21),  
                    gender=c("F","M","F","M","F"))  
relations <- data.frame(from=c("Bob", "Cecil", "Cecil", "David",  
                              "David", "Esmeralda"),  
                        to=c("Alice", "Bob", "Alice", "Alice", "Bob", "Alice"),  
                        same.dept=c(FALSE,FALSE,TRUE,FALSE,FALSE,TRUE),  
                        friendship=c(4,5,5,2,1,1), advice=c(4,5,5,4,2,3))  
ig <- graph_from_data_frame(relations, directed=TRUE, vertices=actors)
```

You now have an igraph network, `g`. In order to translate the network together with all vertex (node) and edge attributes over to Cytoscape, simply use:

```
createNetworkFromIgraph(ig,"myIgraph")
```

### From Cytoscape to igraph

Inversely, you can use `createIgraphFromNetwork()` in RCy3 to retrieve vertex (node) and edge

data.frames to construct an igraph network.

```
ig2 <- createIgraphFromNetwork("myIgraph")
```

Compare the round-trip result for yourself...

```
ig  
ig2
```