

CMPINF 2110

Spring 2021

Homework 05

Solutions

Create the nodes

neo4j@bolt://localhost:7687/neo4j - Neo4j Browser
File Edit View Window Help Developer

Database Information

Use database

neo4j - default

Node Labels

Machine

Relationship Types

No relationships in database

Property Keys

name type

Connected as

Username: neo4j

Roles: admin, PUBLIC

Admin: [server user list](#)
[server user add](#)

Disconnect: [server disconnect](#)

DBMS

Version: 4.2.1

Edition: Enterprise

Name: neo4j

Databases: [dbs](#)

Information: [sysinfo](#)

Query List: [queries](#)

neo4j\$

1 //create machine nodes
2 CREATE (m1:Machine {name:'alpha', type:'printer'}),
3 (m2:Machine {name:'bravo', type:'printer'});

Table

Code

Added 2 labels, created 2 nodes, set 4 properties, completed after 29 ms.

\$:play start

neo4j

Getting started with Neo4j Browser

Neo4j Browser user interface guide

Get started

Try Neo4j with live data

A complete example graph that demonstrates common query patterns.
Actors & movies in cross-referenced pop culture.

Play guide

Cypher basics

Intro to Graphs with Cypher
What is a graph database?
How can I query a graph?

Start querying

Copyright © Neo4j, Inc 2002-2021

\$:server status

Connection status

You are connected as user neo4j

neo4j@bolt://localhost:7687/neo4j - Neo4j Browser
File Edit View Window Help Developer

Database Information

Use database

neo4j - default

Node Labels

4

Job

Machine

Relationship Types

No relationships in database

Property Keys

finished

jobid

name

started

type

Connected as

Username: neo4j

Roles: admin, PUBLIC

Admin: [server user list](#)
[server user add](#)

Disconnect: [server disconnect](#)

DBMS

Version: 4.2.1

Edition: Enterprise

Name: neo4j

Databases: [dbs](#)

Information: [sysinfo](#)
[queries](#)

neo4j\$

1 //create job nodes
2 CREATE (j1:Job {jobid:1, started:'Monday', finished:'Wednesday'}),
3 (j2:Job {jobid:2, started:'Tuesday', finished:'Tuesday'});

Table

Code

Added 2 labels, created 2 nodes, set 6 properties, completed after 20 ms.

1 //create machine nodes
2 CREATE (m1:Machine {name:'alpha', type:'printer'}),
3 (m2:Machine {name:'bravo', type:'printer'});

Table

Code

Added 2 labels, created 2 nodes, set 4 properties, completed after 29 ms.

\$:play start

neo4j

Getting started with Neo4j

Try Neo4j with live data

Cypher basics

Database Information

Use database

neo4j - default

Node Labels

Job

Machine

Part

Relationship Types

No relationships in database

Property Keys

finished

jobid

name

partid

started

type

Connected as

Username: neo4j

Roles: admin, PUBLIC

Admin: [server user list](#)
[server user add](#)

Disconnect: [server disconnect](#)

DBMS

Version: 4.2.1

Edition: Enterprise

Name: neo4j

Databases: [dbs](#)

Information: [sysinfo](#)

Query List: [queries](#)

neo4j\$

Table

```
1 //create Part nodes
2 CREATE (p1:Part {partid:1, type:'widget'}),
3 (p2:Part {partid:2, type:'gizmo'}),
4 (p3:Part {partid:3, type:'gadget'}),
5 (p4:Part {partid:4, type:'sprocket'}),
6 (p5:Part {partid:5, type:'sprocket'});
```

Added 5 labels, created 5 nodes, set 10 properties, completed after 13 ms.

Code

Table

```
1 //create job nodes
2 CREATE (j1:Job {jobid:1, started:'Monday', finished:'Wednesday'}),
3 (j2:Job {jobid:2, started:'Tuesday', finished:'Tuesday'});
```

Added 2 labels, created 2 nodes, set 6 properties, completed after 20 ms.


Code


Table

```
1 //create machine nodes
2 CREATE (m1:Machine {name:'alpha', type:'printer'}),
```

Added 2 labels, created 2 nodes, set 6 properties, completed after 20 ms.

Code

**Database Information**

**Use database**

neo4j - default

Node Labels

{11}

Employee

Job

Machine

Part

Relationship Types

No relationships in database

Property Keys

finished

jobid

joined

name

partid

started

type

Connected as

Username: neo4j

Roles: admin, PUBLIC

Admin: [server user list](#)

[server user add](#)

Disconnect: [server disconnect](#)

DBMS

Version: 4.2.1

Edition: Enterprise

Name: neo4j

Databases: [dbs](#)

Information: [sysinfo](#)

Query List: [queries](#)

neo4j\$

1 //create employee nodes
2 CREATE (e1:Employee {name:'Alice', joined:2017}),
3 (e2:Employee {name:'Bob', joined:2018});

Table

Code

Added 2 labels, created 2 nodes, set 4 properties, completed after 12 ms.

1 //create Part nodes
2 CREATE (p1:Part {partid:1, type:'widget'}),
3 (p2:Part {partid:2, type:'gizmo'}),
4 (p3:Part {partid:3, type:'gadget'}),
5 (p4:Part {partid:4, type:'sprocket'}),
6 (p5:Part {partid:5, type:'sprocket'});

Table

Code

Added 5 labels, created 5 nodes, set 10 properties, completed after 13 ms.

1 //create job nodes
2 CREATE (j1:Job {jobid:1, started:'Monday', finished:'Wednesday'}),
3 (j2:Job {jobid:2, started:'Tuesday', finished:'Thursday'}),
4 (j3:Job {jobid:3, started:'Wednesday', finished:'Friday'});

Table

Code

Added 3 labels, created 3 nodes, set 6 properties, completed after 12 ms.

Database Information

Use database

neo4j - default

Node Labels

(13)

Device

Employee

Job

Machine

Part

Relationship Types

No relationships in database

Property Keys

class

deviceid

finished

jobid

joined

name

partid

started

type

Connected as

Username: neo4j

Roles: admin, PUBLIC

Admin: [server user list](#)

[server user add](#)

Disconnect: [server disconnect](#)

DBMS

Version: 4.2.1

Edition: Enterprise

Name: neo4j

Databases: [db](#)

Information: [sysinfo](#)

Query List: [queries](#)

neo4j\$

1 //create Device nodes
2 CREATE (d1:Device {deviceid:1, class:'doohickey'}),
3 (d2:Device {deviceid:2, class:'thing'});

Added 2 labels, created 2 nodes, set 4 properties, completed after 13 ms.

Table

Code

1 //create employee nodes
2 CREATE (e1:Employee {name:'Alice', joined:2017}),
3 (e2:Employee {name:'Bob', joined:2018});

Added 2 labels, created 2 nodes, set 4 properties, completed after 13 ms.

Table

Code

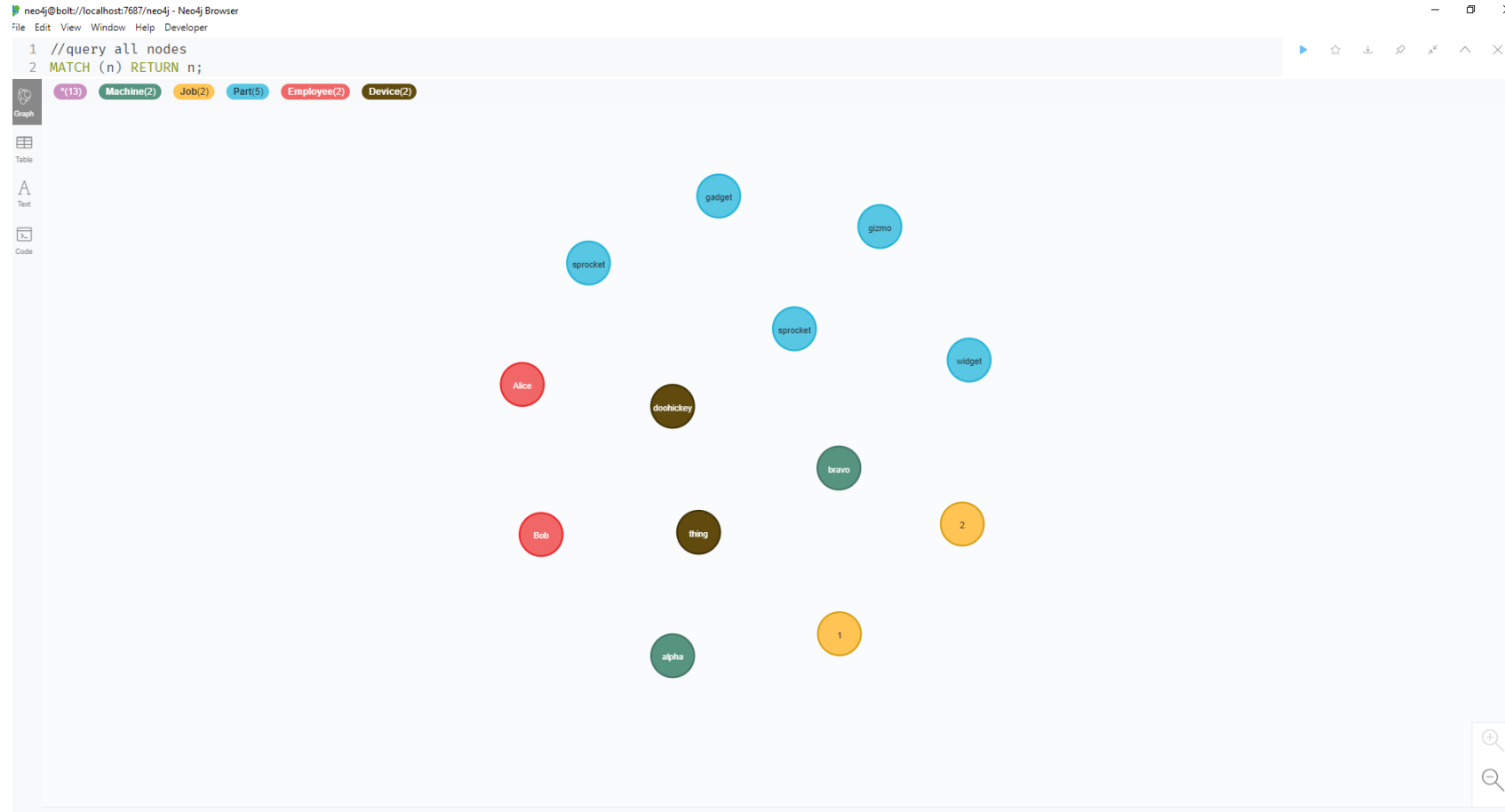
1 //create Part nodes
2 CREATE (p1:Part {partid:1, type:'widget'}),
3 (p2:Part {partid:2, type:'gizmo'}),
4 (p3:Part {partid:3, type:'gadget'}),
5 (p4:Part {partid:4, type:'sprocket'}),
6 (p5:Part {partid:5, type:'sprocket'});

Added 2 labels, created 2 nodes, set 4 properties, completed after 12 ms.

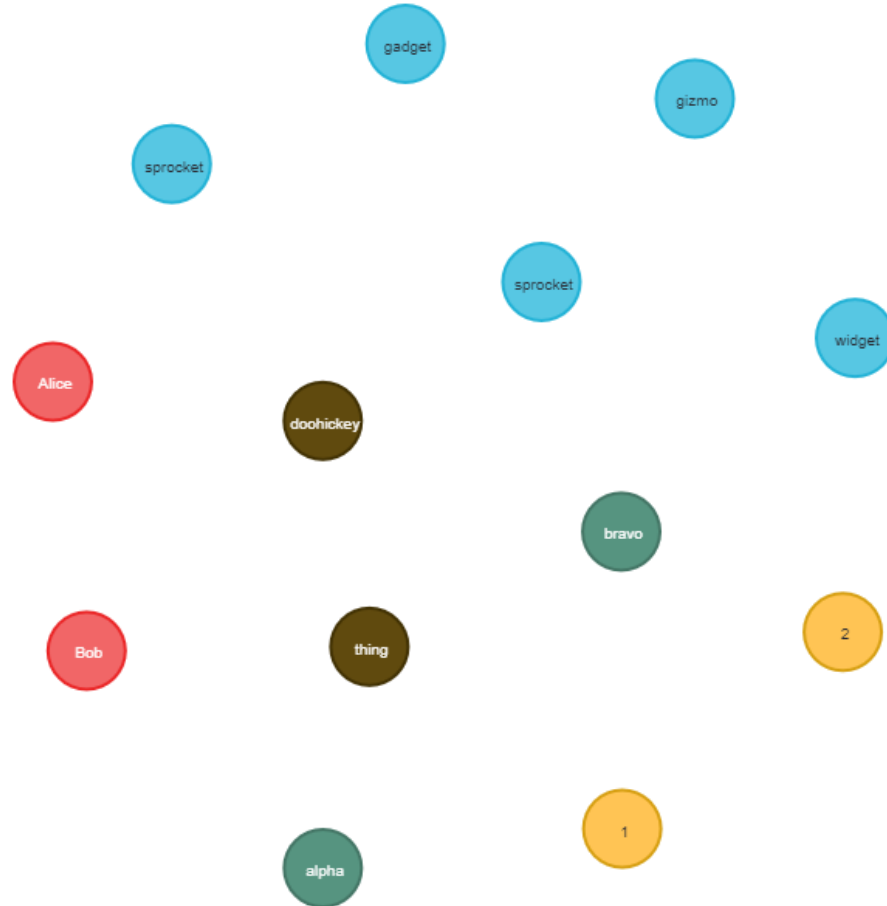
Table

Code

All nodes but have not put in relationships yet



All nodes in the network with colors representing the Labels



Create relationships

Database Information

☆

☰

Database Information

Use database

neo4j - default

Node Labels

{13}

Device

Employee

Job

Machine

Part

Relationship Types

{1}

PRINTS

Property Keys

class

deviceid

finished

jobid

joined

name

partid

started

type

Connected as

Username: neo4j

Roles: admin, PUBLIC

Admin:

server user list

server user add

Disconnect:

server disconnect

DBMS

Version: 4.2.1

Edition: Enterprise

Name: neo4j

Databases:

db

Information:

sysinfo

Query List:

queries

neo4j\$

1 //create relationship alpha prints job 1

2 MATCH (m:Machine {name: 'alpha'})

3 MATCH (j:Job {jobid: 1})

4 CREATE (m)-[r:PRINTS]-(j);

Table

Code

Created 1 relationship, completed after 15 ms.

1 //query all nodes

2 MATCH (n) RETURN n;

{13}

Machine(2)

Job(2)

Part(5)

Employee(2)


Device(2)

Graph



Table

Text

Code



Database Information



Use database

neo4j - default

Node Labels

*(13)

Device

Employee

Job

Machine

Part

Relationship Types

*(2)

PRINTS

Property Keys

class

deviceid

finished

jobid

joined

name

partid


started


type


Connected as

Username: neo4j

Roles: admin, PUBLIC

Admin:  server user list

 server user add


Disconnect:  server disconnect


DBMS


Version: 4.2.1




Edition: Enterprise

Name: neo4j

Databases:  dbs

Information:  sysinfo

Query List:  queries



neo4j\$

```
1 //create relationship bravo Prints job 2
2 MATCH (m:Machine {name: 'bravo'})
3 MATCH (j:Job {jobid: 2})
4 CREATE (m)-[r:PRINTS]-(j);
```

Created 1 relationship, completed after 7 ms.



Table



Code

Created 1 relationship, completed after 7 ms.

neo4j\$ MATCH (n) RETURN n;



Graph



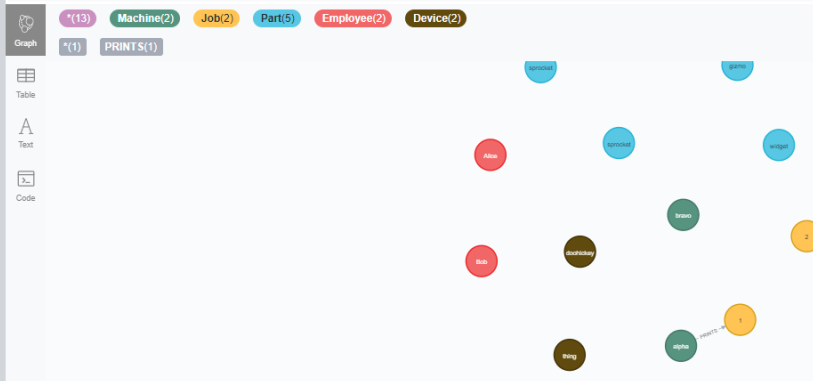
Table



Text



Code



Displaying 13 nodes, 1 relationships.

neo4j@bolt://localhost:7687/neo4j - Neo4j Browser

Database Information

Use database

neo4j - default ▼

Note Labels

(13)
Device
Employee
Job

Machine
Part

Relationship Types

{}
IS_IN
PRINTS

Property Keys

class	deviceid	finished
jobid	joined	name
		partid
started	type	

Connected as

Username: neo4j
 Roles: admin, PUBLIC
 Admin: ➔ server user list
 ➔ server user add
 Disconnect: ➔ server disconnect

DBMS

Version: 4.2.1
 Edition: Enterprise
 Name: neo4j
 Databases: ➔ dbms
 ➔ sysinfo
 Query List: ➔ queries

neo4j\$

1 //create relationship partid 1 IS IN job 1
2 MATCH (p:Part {partid: 1})
3 MATCH (j:Job {jobid: 1})
4 CREATE (p)-[r:IS_IN]-(j);

Created 1 relationship, completed after 9 ms.

Table

Code

neo4j\$ MATCH (n) RETURN n;

Graph

* (13)
Machine(2)
Job(2)
Part(5)
Employee(2)
Device(2)

* (2)
PRINTS(2)

Table

Text

Code

Graph visualization showing 13 nodes and 2 relationships. Nodes are labeled with IDs and names: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13. Relationships are labeled PRINTS(1) and PRINTS(2).

Displaying 13 nodes, 2 relationships.

Database Information

Use database

neo4j - default

Node Labels

{13}

Device

Employee

Job

Machine

Part

Relationship Types

{4}

IS_IN

PRINTS

Property Keys

class

deviceid

finished

jobid

joined

name

partid

started

type

Connected as

Username: neo4j

Roles: admin, PUBLIC

Admin: [server user list](#)

[server user add](#)

Disconnect: [server disconnect](#)

DBMS

Version: 4.2.1

Edition: Enterprise

Name: neo4j

Databases: [db](#)

Information: [sysinfo](#)

Query List: [queries](#)

neo4j\$

```
1 //create relationship partid 2 IS IN job 1
2 MATCH (p:Part {partid: 2})
3 MATCH (j:Job {jobid: 1})
4 CREATE (p)-[r:IS_IN]-(j);
```

Created 1 relationship, completed after 7 ms.

Created 1 relationship, completed after 7 ms.

neo4j\$ MATCH (n) RETURN n;

{13}

Machine(2)

Job(2)

Part(5)

Employee(2)

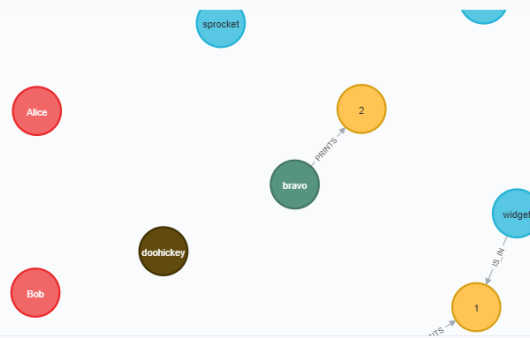
Device(2)

{3}

PRINTS(2)

IS_IN(1)

Graph
 Table
 Text
 Code



Displaying 13 nodes, 3 relationships.

Database Information

Use database

neo4j - default

Node Labels

*(13)

Device

Employee

Job

Machine

Part

Relationship Types

*(5)

IS_IN

PRINTS

Property Keys

class

deviceid

finished

jobid

joined

name

partid

started

type

Connected as

Username: neo4j

Roles: admin, PUBLIC

Admin: [server user list](#)

[server user add](#)

Disconnect: [server disconnect](#)

DBMS

Version: 4.2.1

Edition: Enterprise

Name: neo4j

Databases: [db](#)

Information: [sysinfo](#)

Query List: [queries](#)

neo4j\$

```
1 //create relationship partid 3 IS IN job 2
2 MATCH (p:Part {partid: 3})
3 MATCH (j:Job {jobid: 2})
4 CREATE (p)-[r:IS_IN]->(j);
```

Created 1 relationship, completed after 6 ms.

Table

Code

Created 1 relationship, completed after 6 ms.

neo4j\$ MATCH (n) RETURN n;

*(13)

Machine(2)

Job(2)

Part(5)

Employee(2)

Device(2)

*(4)

PRINTS(2)

IS_IN(2)

Graph

Table

Text

Code

```
graph TD
    Alice((Alice))
    doohickey((doohickey))
    bravo((bravo))
    1((1))
    2((2))
    alpha((alpha))
    gizmo((gizmo))
    widget((widget))
    bravo -- PRINTS --> 1
    1 -- IS_IN --> 2
    1 -- PRINTS --> alpha
    1 -- IS_IN --> widget
    gizmo -- IS_IN --> widget
```

Displaying 13 nodes, 4 relationships.

Database Information

Use database

neo4j - default

Node Labels

{13}

Device

Employee

Job

Machine

Part

Relationship Types

{7}

IS_IN

PRINTS

Property Keys

class

deviceid

finished

jobid

joined

name

partid

started

type

Connected as

Username: neo4j

Roles: admin, PUBLIC

Admin:

server user list

server user add

Disconnect:

server disconnect

DBMS

Version: 4.2.1

Edition: Enterprise

Name: neo4j

Databases:

db

Information:

sysinfo

Query List:

queries

neo4j\$

1 //create relationship partid 5 IS IN job 2

2 MATCH (p:Part {partid: 5})

3 MATCH (j:Job {jobid: 2})

4 CREATE (p)-[r:IS_IN]-(j);

Created 1 relationship, completed after 6 ms.

neo4j\$ MATCH (n) RETURN n;

{13}

Machine(2)

Job(2)

Part(5)

Employee(2)

Device(2)

{6}

PRINTS(2)

IS_IN(4)

```
graph TD
    Alice((Alice))
    Bob((Bob))
    doohickery((doohickery))
    bravo((bravo))
    gadget((gadget))
    glzmo((glzmo))
    1((1))
    1 -- PRINTS --> doohickery
    1 -- IS_IN --> bravo
    1 -- IS_IN --> gadget
    1 -- IS_IN --> glzmo
```

Displaying 13 nodes, 6 relationships.

Database Information

Use database

neo4j - default

Node Labels

(13) Device Employee Job
Machine Part

Relationship Types

(8) IS_COMPONENT_OF IS_IN PRINTS

Property Keys

class deviceid finished
jobid joined name partid
started type

Connected as

Username: neo4j
Roles: admin, PUBLIC
Admin: [server user list](#)
[server user add](#)
Disconnect: [server disconnect](#)

DBMS

Version: 4.2.1
Edition: Enterprise
Name: neo4j
Databases: [dbs](#)
Information: [sysinfo](#)
Query List: [queries](#)

neo4j\$

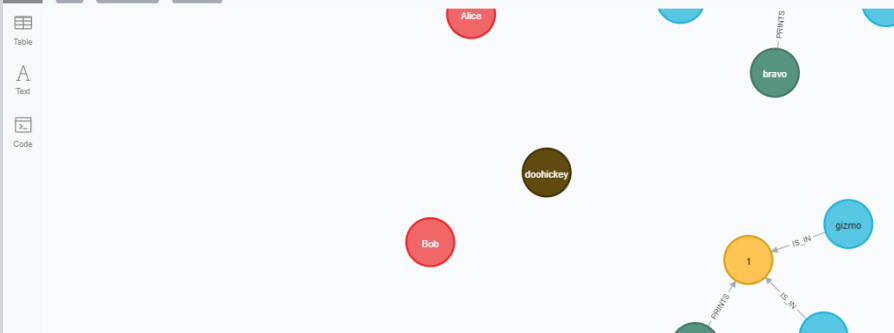
```
1 //create relationship part 1 IS COMPONENT OF device 2
2 MATCH (p:Part {partid: 1})
3 MATCH (d:Device {deviceid: 2})
4 CREATE (p)-[r:IS_COMPONENT_OF]-(d);
```

Created 1 relationship, completed after 11 ms.

Created 1 relationship, completed after 11 ms.

neo4j\$ MATCH (n) RETURN n;

(13) Machine(2) Job(2) Part(5) Employee(2) Device(2)
(7) PRINTS(2) IS_IN(5)



Displaying 13 nodes, 7 relationships.

Database Information

Use database

neo4j - default

Node Labels

{13} Device Employee Job Machine Part

Relationship Types

{9} IS_COMPONENT_OF IS_IN PRINTS

Property Keys

class deviceid finished jobid joined name partid started type

Connected as

Username: neo4j
Roles: admin, PUBLIC
Admin: [server user list](#)
[server user add](#)
Disconnect: [server disconnect](#)

DBMS

Version: 4.2.1
Edition: Enterprise
Name: neo4j
Databases: [dbs](#)
Information: [sysinfo](#)
Query List: [queries](#)

```
neo4j$  
  
1 //create relationship part 2 IS COMPONENT OF device 1  
2 MATCH (p:Part {partid: 2})  
3 MATCH (d:Device {deviceid: 1})  
4 CREATE (p)-[r:IS_COMPONENT_OF]->(d);  
  
Created 1 relationship, completed after 7 ms.  
  
neo4j$ MATCH (n) RETURN n;  
  
*(13) Machine(2) Job(2) Part(5) Employee(2) Device(2)  
*(8) PRINTS(2) IS_COMPONENT_OF(1) IS_IN(5)
```

Displaying 13 nodes, 8 relationships.

Use database

Node Labels

Relationship Types

Property Keys

Connected as

DBMS

```
Version: 4.2.1
Edition: Enterprise
Name: neo4j
Databases: ➤ dbs
Information: ➤ sysinfo
Query List: ➤ queries
```

neo4j\$

Created 1 relationship, completed after 6 ms.

Created 1 relationship, completed after 6 ms.

```
neo4j$ MATCH (n) RETURN n;
```

Graph

1

Text

Code

Displaying 13 nodes, 9 relationships.

Database Information

Use database

neo4j - default

Node Labels

*{13} Device Employee Job Machine Part

Relationship Types

*{11} IS_COMPONENT_OF IS_IN PRINTS

Property Keys

class deviceid finished jobid joined name partid started type

Connected as

Username: neo4j
Roles: admin, PUBLIC
Admin: server user list
server user add
server user disconnect
server disconnect

DBMS

Version: 4.2.1
Edition: Enterprise
Name: neo4j
Databases: db
Information: sysinfo
Query List: queries

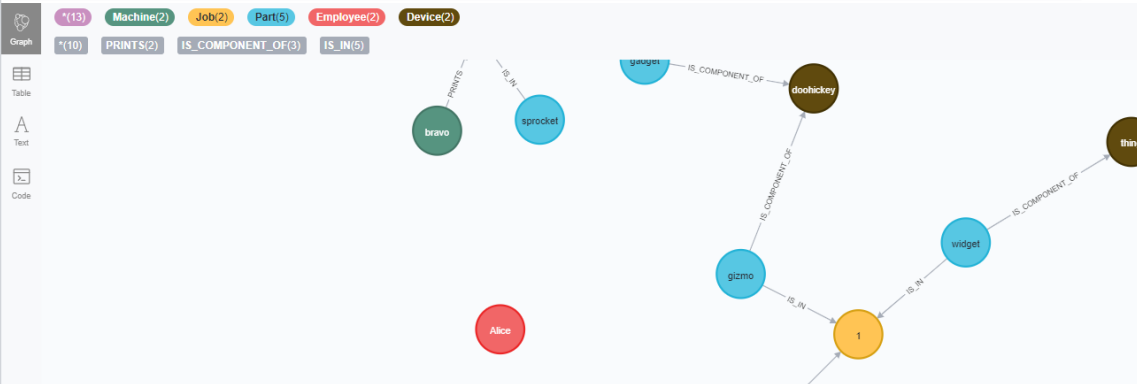
neo4j\$

```
1 //create relationship part 4 IS COMPONENT OF device 2
2 MATCH (p:Part {partid: 4})
3 MATCH (d:Device {deviceid: 2})
4 CREATE (p)-[r:IS_COMPONENT_OF]->(d);
```

Created 1 relationship, completed after 5 ms.

Created 1 relationship, completed after 5 ms.

neo4j\$ MATCH (n) RETURN n;



Displaying 13 nodes, 10 relationships.

Database Information

Use database

neo4j - default

Node Labels

*{13}

Device

Employee

Job

Machine

Part

Relationship Types

*{12}

IS_COMPONENT_OF

IS_IN

PRINTS

Property Keys

class

deviceid

finished

jobid

joined

name

partid

started

type

Connected as

Username: neo4j

Roles: admin, PUBLIC

Admin:

server user list

server user add

Disconnect:

server disconnect

DBMS

Version: 4.2.1

Edition: Enterprise

Name: neo4j

Databases:

db

Information:

sysinfo

Query List:

queries

neo4j\$

```
1 //create relationship part 5 IS COMPONENT OF device 2
2 MATCH (p:Part {partid: 5})
3 MATCH (d:Device {deviceid: 2})
4 CREATE (p)-[r:IS_COMPONENT_OF]->(d);
```

Created 1 relationship, completed after 5 ms.

Created 1 relationship, completed after 5 ms.

neo4j\$ MATCH (n) RETURN n;

*{13}

Machine(2)

Job(2)

Part(5)

Employee(2)

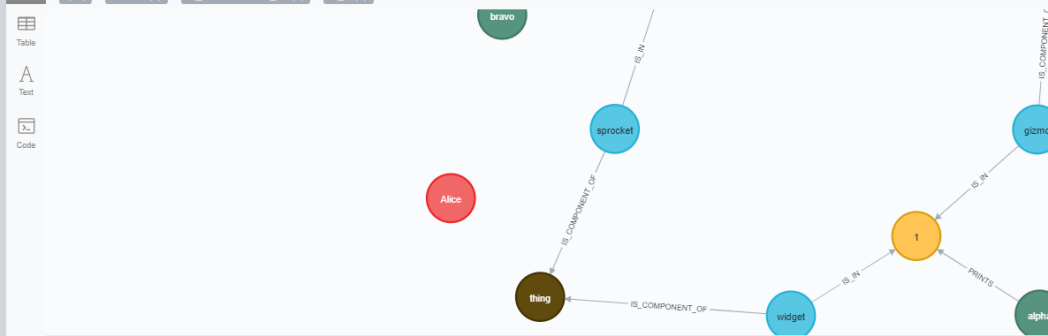
Device(2)

*{11}

PRINTS(2)

IS_COMPONENT_OF(4)

IS_IN(5)



Displaying 13 nodes, 11 relationships.

Database Information

Use database

neo4j - default

Node Labels

{13} Device Employee Job
Machine Part

Relationship Types

{13} ASSEMBLES
IS_COMPONENT_OF IS_IN
PRINTS

Property Keys

class deviceid finished
jobid joined name partid
started type

Connected as

Username: neo4j
Roles: admin, PUBLIC
Admin: [server user list](#)
[server user add](#)
Disconnect: [server disconnect](#)

DBMS

Version: 4.2.1
Edition: Enterprise
Name: neo4j
Databases: [dbs](#)
Information: [sysinfo](#)
Query List: [queries](#)

neo4j\$

```
1 //create relationship employee alice assembles device 2
2 MATCH (e:Employee {name: 'Alice'})
3 MATCH (d:Device {deviceid: 2})
4 CREATE (e)-[r:ASSEMBLES]->(d);
```

Created 1 relationship, completed after 10 ms.

neo4j\$ MATCH (n) RETURN n;

Graph

{13} Machine(2) Job(2) Part(5) Employee(2) Device(2)
{12} PRINTS(2) IS_COMPONENT_OF(5) IS_IN(5)

Displaying 13 nodes, 12 relationships.

Database Information

Use database

neo4j - default

Node Labels

*{13} Device Employee Job Machine Part

Relationship Types

*{14} ASSEMBLES IS_COMPONENT_OF IS_IN PRINTS

Property Keys

class deviceid finished jobid joined name partid started type

Connected as

Username: neo4j
Roles: admin, PUBLIC
Admin: [server user list](#)
[server user add](#)
Disconnect: [server disconnect](#)

DBMS

Version: 4.2.1
Edition: Enterprise
Name: neo4j
Databases: [dbs](#)
Information: [sysinfo](#)
Query List: [queries](#)

neo4j\$

```
1 //create relationship employee bob assembles device 1
2 MATCH (e:Employee {name: 'Bob'})
3 MATCH (d:Device {deviceid: 1})
4 CREATE (e)-[r:ASSEMBLES]->(d);
```

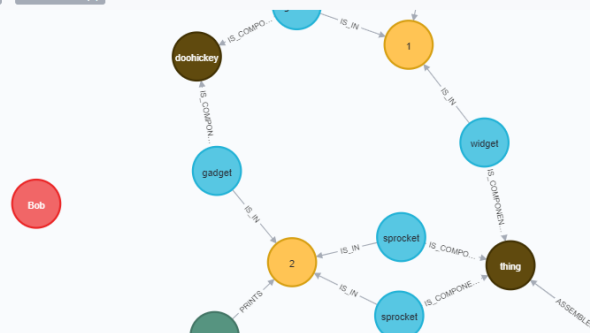
Created 1 relationship, completed after 6 ms.

Created 1 relationship, completed after 6 ms.

neo4j\$ MATCH (n) RETURN n;

*{13} Machine(2) Job(2) Part(5) Employee(2) Device(2)
*{13} PRINTS(2) IS_COMPONENT_OF(5) IS_IN(5) ASSEMBLES(1)

Graph
Table
Text
Code



Displaying 13 nodes, 13 relationships.

Database Information

Use database

neo4j - default

Node Labels

{13}

Device

Employee

Job

Machine

Part

Relationship Types

{15}

ASSEMBLES

IS_COMPONENT_OF

IS_IN

OPERATES

PRINTS

Property Keys

class

deviceid

finished

jobid

joined

name

partid

started

type

Connected as

Username: neo4j

Roles: admin, PUBLIC

Admin: [server user list](#)
[server user add](#)
[server disconnect](#)

DBMS

Version: 4.2.1

Edition: Enterprise

Name: neo4j

Databases: [dbs](#)

Information: [sysinfo](#)

Query List: [queries](#)

neo4j\$

```
1 //create relationship employee alice operates machine bravo
2 MATCH (e:Employee {name: 'Alice'})
3 MATCH (m:Machine {name: 'bravo'})
4 CREATE (e)-[r:OPERATES]->(m);
```

Created 1 relationship, completed after 11 ms.

Created 1 relationship, completed after 11 ms.

neo4j\$ MATCH (n) RETURN n;

{13}

Machine(2)

Job(2)

Part(5)

Employee(2)

Device(2)

{14}

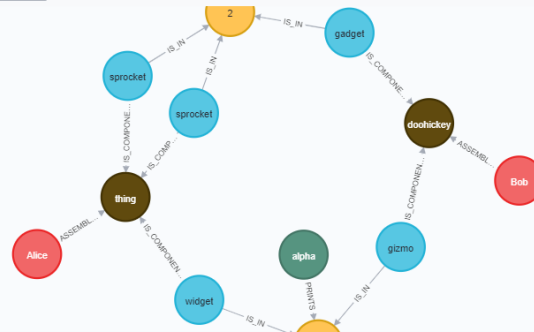
PRINTS(2)

IS_COMPONENT_OF(5)

IS_IN(5)

ASSEMBLES(2)

Graph
Table
Text
Code



Displaying 13 nodes, 14 relationships.

Database Information

Use database

neo4j - default

Node Labels

(13)

Device

Employee

Job

Machine

Part

Relationship Types

(16)

ASSEMBLES

IS_COMPONENT_OF

IS_IN

OPERATES

PRINTS

Property Keys

class

deviceid

finished

jobid

joined

name

partid

started

type

Connected as

Username: neo4j

Roles: admin, PUBLIC

Admin: [server user list](#)
[server user add](#)
[server disconnect](#)

Disconnect: [server disconnect](#)

DBMS

Version: 4.2.1

Edition: Enterprise

Name: neo4j

Databases: [dbs](#)

Information: [sysinfo](#)

Query List: [queries](#)

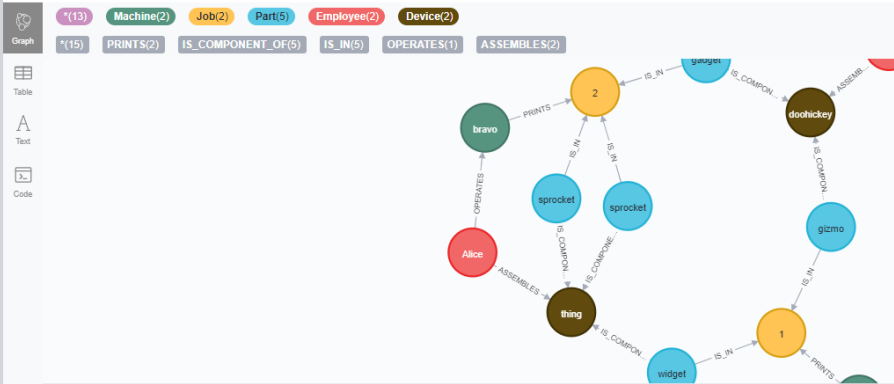
neo4j\$

```
1 //create relationship employee bob operates machine alpha
2 MATCH (e:Employee {name: 'Bob'})
3 MATCH (m:Machine {name: 'alpha'})
4 CREATE (e)-[r:OPERATES]->(m);
```

Created 1 relationship, completed after 6 ms.

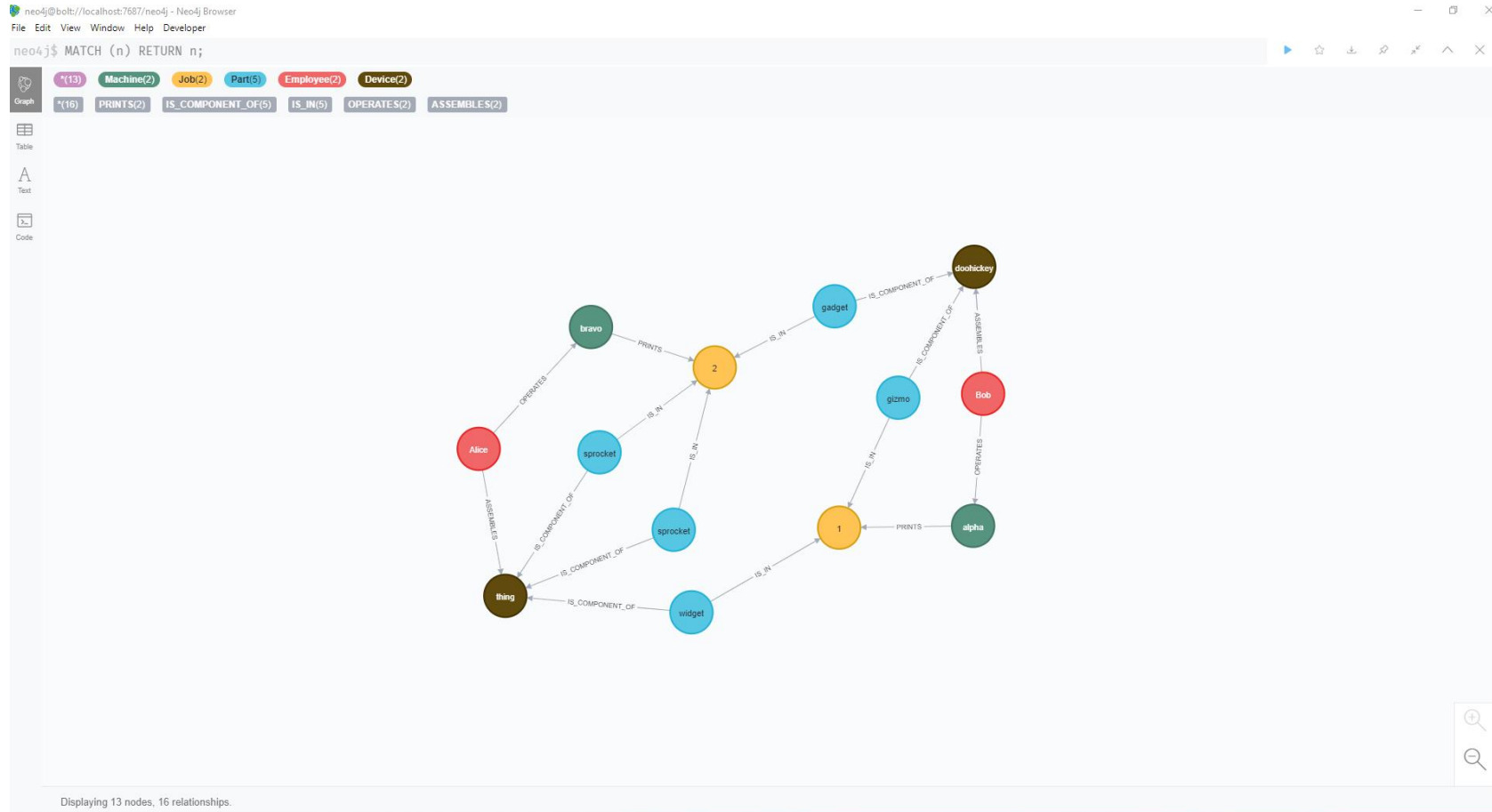
Created 1 relationship, completed after 6 ms.

neo4j\$ MATCH (n) RETURN n;

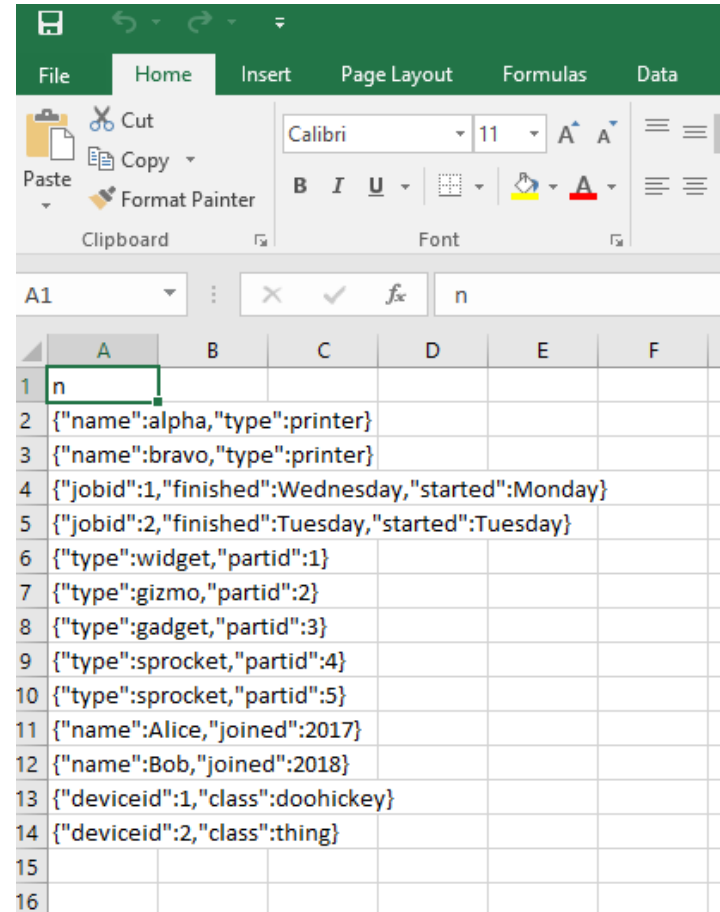


Displaying 13 nodes, 15 relationships.

The completed network

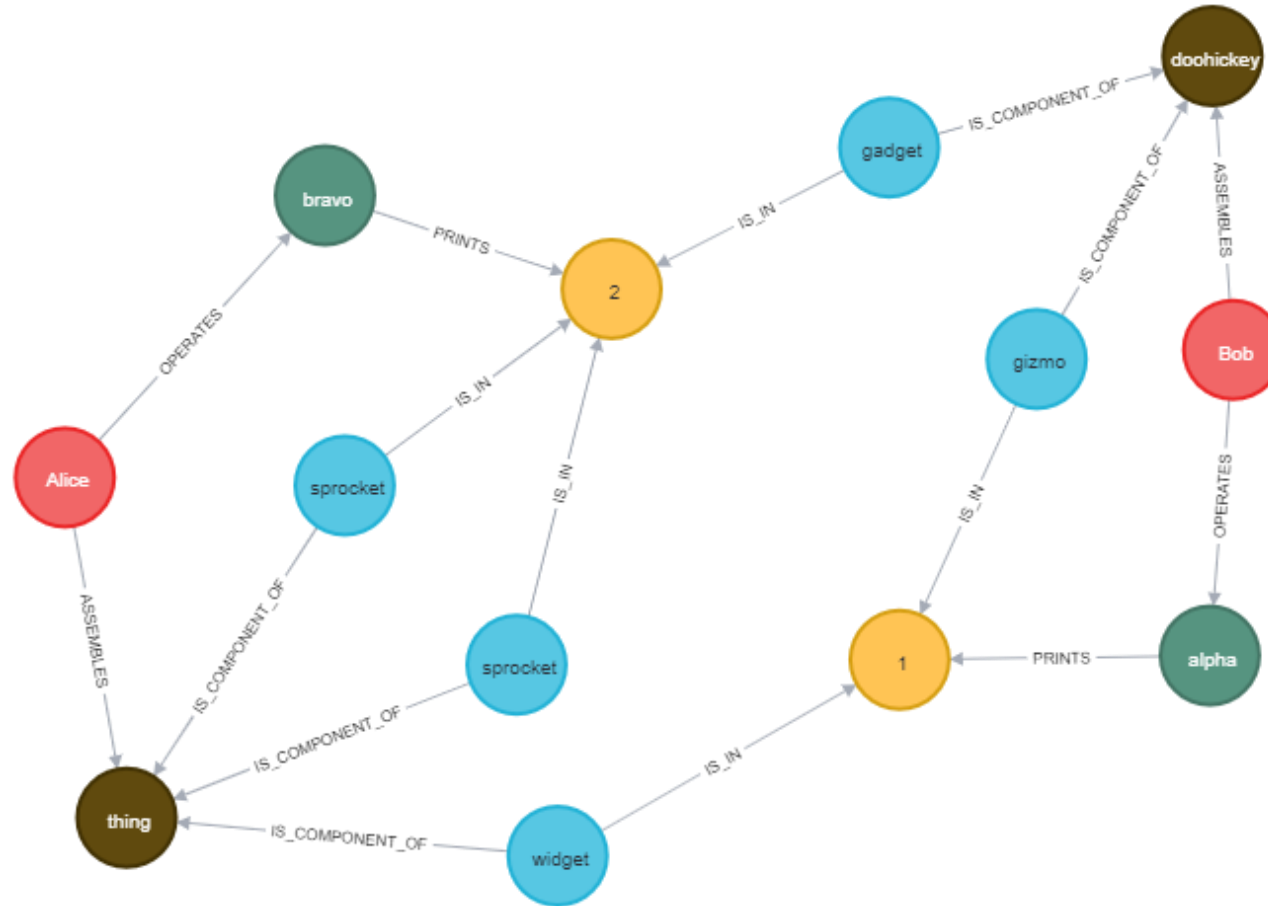


Export “table” to CSV



	A	B	C	D	E	F
1	n					
2	{"name":alpha,"type":printer}					
3	{"name":bravo,"type":printer}					
4	{"jobid":1,"finished":Wednesday,"started":Monday}					
5	{"jobid":2,"finished":Tuesday,"started":Tuesday}					
6	{"type":widget,"partid":1}					
7	{"type":gizmo,"partid":2}					
8	{"type":gadget,"partid":3}					
9	{"type":sprocket,"partid":4}					
10	{"type":sprocket,"partid":5}					
11	{"name":Alice,"joined":2017}					
12	{"name":Bob,"joined":2018}					
13	{"deviceid":1,"class":doohickey}					
14	{"deviceid":2,"class":thing}					
15						
16						

Complete network exported to PNG



Query subset of the graph

neo4j@bolt://localhost:7687/neo4j - Neo4j Browser

File Edit View Window Help Developer

Database Information

Use database

neo4j - default

Node Labels

{13} Device Employee Job
Machine Part

Relationship Types

{16} ASSEMBLES
IS_COMPONENT_OF IS_IN
OPERATES PRINTS

Property Keys

class deviceid finished
jobid joined name partid
started type

Connected as

Username: neo4j
Roles: admin, PUBLIC
Admin: [.server user list](#)
[.server user add](#)
Disconnect: [.server disconnect](#)

DBMS

Version: 4.2.1
Edition: Enterprise
Name: neo4j
Databases: [.dbs](#)
Information: [.sysinfo](#)
Query List: [.queries](#)

neo4j\$ MATCH (p:Part)-[r:IS_IN]-[j:Job] RETURN p, j;

Graph

Part(5) Job(2)

IS_IN(5)

Displaying 7 nodes, 5 relationships.

Parts related to Jobs

neo4j\$ MATCH (e:Employee)-[r:ASSEMBLES]-[d:Device] RETURN e, d;

Graph

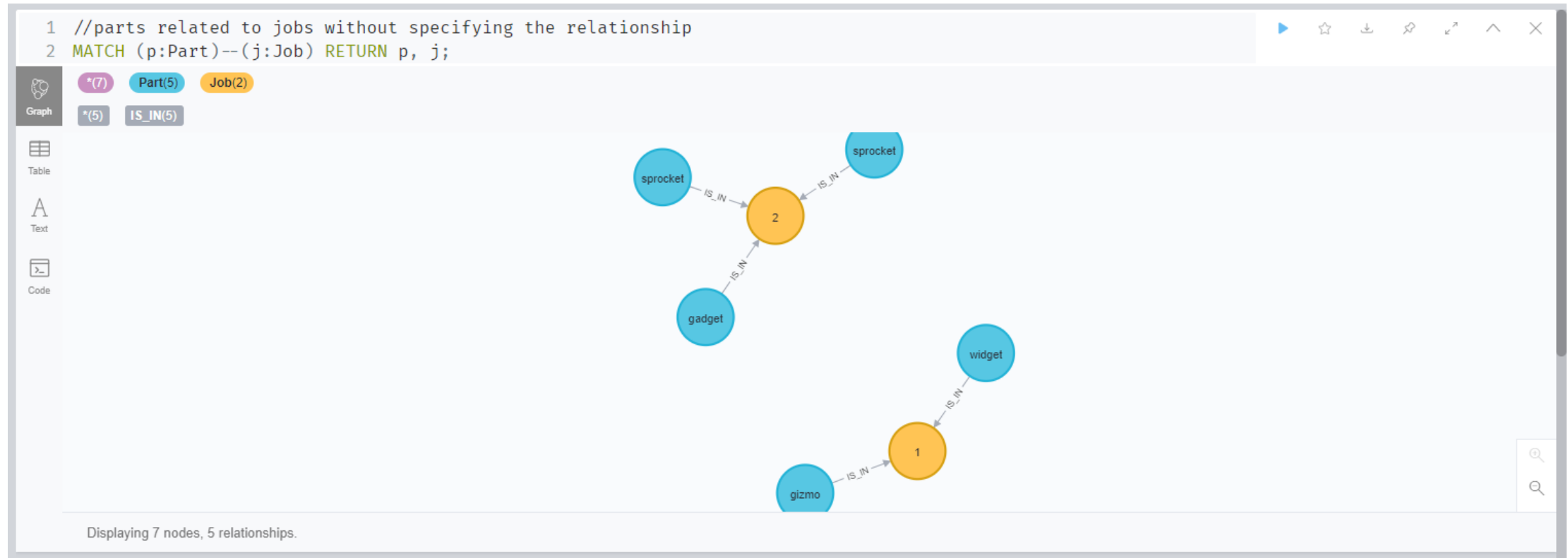
Employee(2) Device(2)

ASSEMBLES(2)

Displaying 4 nodes, 2 relationships.

Employees related to Devices

Multiple ways to execute these queries.
Do not need to specify the exact RELATIONSHIP TYPE.
Can query Part and Job nodes related in any way!



Same applies to Employees related to Devices

```
1 //employees related to devices without specifying the type of relationship
2 MATCH (e:Employee)--(d:Device)
3 RETURN e, d;
```

Graph

*(4) Employee(2) Device(2)

*(2) ASSEMBLES(2)

Table

Text

Code

```
graph TD
  Bob((Bob)) -- ASSEMB... --> doohickey((doohickey))
  Alice((Alice)) -- ASSEMB... --> thing((thing))
```

Displaying 4 nodes, 2 relationships.