

# MongoDB-Beziehungen

## Quellen

- 6 Rules of Thumb for MongoDB Schema Design
- [learnmongodbthehardway.com](http://learnmongodbthehardway.com)

## Beispieldaten

```
+-----+ 1      n +-----+  n      m +-----+
| Klasse |-----| Schueler |-----| Fach |
+-----+-----+-----+-----+-----+
```

## 1:n

### One-to-Few: Embedding, nur eine Collection ohne Referenzen

Collection: klasse

```
[
  {
    name: 'I2A',
    schueler: [ { vorname: 'Anna', nachname: 'Arm' }, { vorname: 'Berta', nachname: 'Bein' } ]
  },
  {
    name: 'I4A',
    schueler: [ { vorname: 'Carla', nachname: 'Copf' } ]
  }
]
```

### One-to-Many, Child-Referencing

Collection: klasse

```
[
  { name: 'I2A', schueler_id: [ 1, 2 ] },
  { name: 'I4A', schueler_id: [ 3 ] }
]
```

Collection: schueler

```
[
  { _id: 1, vorname: 'Anna', nachname: 'Arm' },
  { _id: 2, vorname: 'Berta', nachname: 'Bein' },
  { _id: 3, vorname: 'Carla', nachname: 'Copf' },
]
```

#### Application-level-join

```
i4a = db.klasse.findOne({name: 'I4A'});
schueler_der_i4a = db.schueler.find({ _id: { $in: i4a.schueler_id }});
```

### One-to-Squillions, Parent-Referencing, Linking

Collection: klasse

```
[
  { _id: 11, name: 'I2A' },
  { _id: 12, name: 'I4A' }
]
```

Collection: schueler

```
[
  { vorname: 'Anna', nachname: 'Arm', klasse_id: 12 },
  { vorname: 'Berta', nachname: 'Bein', klasse_id: 12 },
  { vorname: 'Carla', nachname: 'Copf', klasse_id: 11 },
]
```

#### Application-level-join

```
i4a = db.klasse.findOne({name: 'I4A'});
schueler_der_i4a = db.schueler.find({ klasse_id: i4a._id });
```

## n:m

### Two way linking, n,m < 10

#### Collection: schueler

```
[
  { _id: 1, vorname: 'Anna',  nachname: 'Arm',  fach_id: [ 101, 103 ] },
  { _id: 2, vorname: 'Berta', nachname: 'Bein', fach_id: [ 102 ] },
  { _id: 3, vorname: 'Carla', nachname: 'Copf', fach_id: [ 101, 102 ] },
]
```

#### Collection: fach

```
[
  { _id: 101, name: 'DB',  schueler_id: [ 1, 3 ] },
  { _id: 102, name: 'KN',  schueler_id: [ 2, 3 ] },
  { _id: 103, name: 'SWT', schueler_id: [ 1 ] }
]
```

#### Application-level-join

```
kn = db.fach.findOne({name: 'KN'});
schueler_im_fach_kn = db.schueler.find({ _id: { $in: kn.schueler_id } });
```

### One way linking, n sehr groß

#### Collection: schueler

```
[
  { _id: 1, vorname: 'Anna',  nachname: 'Arm',  fach_id: [ 101, 103 ] },
  { _id: 2, vorname: 'Berta', nachname: 'Bein', fach_id: [ 102 ] },
  { _id: 3, vorname: 'Carla', nachname: 'Copf', fach_id: [ 101, 102 ] },
]
```

#### Collection: fach

```
[
  { _id: 101, name: 'DB' },
  { _id: 102, name: 'KN' },
  { _id: 103, name: 'SWT' }
]
```

#### Application-level-join

```
kn = db.fach.findOne({name: 'KN'});
schueler_im_fach_kn = db.schueler.find({ fach_id: kn._id });
```