

# Processing with Conductor

*Conductor manages the function element tree, and performs integration calculations.*

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## 1. Processing Order

1. conductor implements Runnable.
2. First Visitor is used by Runnable.run(), and NodeList, ReactorList, and AnalyzerList are created.

In the case of an instance tree like below,

```
external
  cell
    NaChannel
      4sGate
      2sGate
    /NaChannel
    K1Channel
  /cell
/external
```

The order of every node is registered in the NodeList

```
external
  cell
    NaChannel
      4sGate
      2sGate
    K1Channel
```

, the Reactor order is registered in the ReactorList

```
      4sGate
      2sGate
    NaChannel
    K1Channel
  cell
external
```

Analyzer order is registered in the AnalyzerList, the same manner as the ReactorList.

3. Next, NodeList.setLinks() is called.
4. When start() is called, a flag for calculating is set and integrate() is called.
  1. In integrate, first of all NodeList.prepare is called.
  2. For each time step, analyzers.analyze(double t), Reactors.calculate(double t), Variables.update(double t) are called. (Note: by specifying Variable class in the xml, the calculation sequence can be changed.)
  3. In Variables, the time step which fulfils the dy/y settings is used, and every Variable is updated. The time step is returned to Conductor.
  4. Calculations are only carried out for the time which has been set in duration.
  5. Finally, NodeList.end() is called.
5. In conductor, when the Thread ends NodeList.quit() is called.