Generic KNIME Nodes:
Integrating command line tools into KNIME and beyond

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Command line interface tools

as versatile as the Internet
together we stand, divided we fall
Command line interface tools

170+ tools

ToolNodeModel.java
ToolNodeDialog.java
ToolNodeFactory.java
ToolNodeFactory.xml

60+ tools

40+ tools

ain’t nobody got time for that!
Common tool descriptor

whatcha doin’?

input_0 → param_0 → output_0

input_1 → output_1

output_2
Common tool descriptor

$ MagicSauce -i in.pdb -o out.pdb -ph 7.2 -alg greedy

my_first_tool.ctd

<tool name="MagicSauce">
  <ITEM name="i" type="input-file" value="in.pdb" />
  <ITEM name="o" type="output-file" value="out.pdb" />
  <ITEM name="ph" type="float" value="7.2" />
  <ITEM name="alg" type="string" value="greedy" />
</tool>

$ MagicSauce --par my_first_tool.ctd

I see what you did there
Command line tool integration

KNIME: silent “K”, loud success
Command line tool integration

will it blend?
Command line tool integration

my_first_tool.ctd

Generic KNIME Nodes
node_generator

MagicSauceNodeModel.java
MagicSauceNodeDialog.java
MagicSauceNodeFactory.java
MagicSauceNodeFactory.xml

yes we can!
Command line tool integration

I want more power!!!
Execution of distributed workflows

running almost anything almost anywhere
Execution of distributed workflows

stop, drop and roll instead of drag and drop
**Side-to-side comparison**

<table>
<thead>
<tr>
<th></th>
<th>Free distributed execution</th>
<th>Intuitive GUI</th>
<th>Smells good</th>
</tr>
</thead>
<tbody>
<tr>
<td>gUSE</td>
<td>✓</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>KNIME</td>
<td>✗</td>
<td>✓</td>
<td>✗</td>
</tr>
<tr>
<td>Coffee</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
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The challenge

any command line tool into KNIME, any KNIME workflow on the cluster
Our vision: The best of both worlds

**design**

**conversion**

**execution**

having your cake and eating it too
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