Extending ASPIDE with User-defined Plugins

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**Context**

- **Answer Set Programming (ASP)**
  - declarative programming paradigm
  - non-monotonic reasoning and logic programming
  - Real-world applications in several fields: AI, KR&R, etc..

- **The advantage:**
  - solve complex problems at a lower (implementation) price
    → the exploitation in industry has started

- **Integrated Development Environments**
  - simplify programming and maintenance tasks
  - **ASPIDE**: one of the most comprehensive

**Contribution: a further extension of ASPIDE**
- The SDK for developing custom plugins
The Idea of ASP:

problem → program → solver → answer sets → solutions

...but in practice:

1. Input data is not encoded in ASP
   - needs to be translated

2. Rules might need “refactorings”
   - performance, input languages etc.

3. Specific output formats
   - solver result as set of ASP facts

Let the users extend ASPIDE by plugins:

- new input formats, program rewritings, and output formats
  → Full support to the development from sources to results
Motivation

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The Idea of ASP:

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...but in practice:

1. Input data is not encoded in ASP → **Input Plugin**
   - needs to be translated
2. Rules might need “refactorings” → **Rewriting Plugin**
   - performance, input languages etc.
3. Specific output formats → **Output Plugin**
   - solver result as set of ASP facts

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DEMO

- An Input Plugin for ASP RuleML
- A Rewriting Plugin for shifting ASP rules
- An Output Plugin for formatting solver output in XML
Conclusion

- **ASPIDE**: comprehensive IDE for ASP
  - since LPNMR’11 has improved in several aspects
    → continuous improvements: one release per month

- A further extension of **ASPIDE**:
  - An SDK for writing user-defined plugins
  - ...Writing ASP applications with no need for external tools

- The Aspide Plugin Kit is distributed under LGPL
  → The community is encouraged to provide extensions...