

Practical Test for System and Network Hacking

Master's Degree in Computer Engineering

5 February 2024

1. (15 points) Our remote object oriented framework allows you to define, use and retrieve any number of arguments for the objects' virtual functions.

Available commands (one per line of input):

- `oa` followed by number: create an array of that many variables; prints the id of the array;
- `oe` followed by an object type letter and a *variable reference*: create an executable object and choose the variable used as the argument to its virtual function; only two types are available for now, but expect more in the future: 'c' creates a counter object and 'g' creates a search object; the command prints the id of the new object;
- `s` followed by a *variable reference*, an equal sign and a string: assign the string the referenced variable;
- `r` followed by a *variable reference*: if the referenced object is an argument, just print it; otherwise run its virtual method.

Note: a "variable reference" consists of an id and, optionally, a comma followed by an index. The "comma" part is only meaningful when addressing an array of variables (as created by 'oa'). All numbers are in base ten.

Hints

1. Analysis of the bug (2 points);
2. Attack plan (3 points).