



Client User Guide

Version 1.0

User Guide to the Lima Project Client

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Preface

The factorisation of composite numbers into its prime factors has intrigued man for thousands of years. It is a trivial problem to state. Given a number n (eg 15 which is the product of 3 and 5), how does one find the unique set of primes for which their product is equal to n ? Despite some of the best mathematicians in the world having studied this problem for thousands of years, we still have no deterministic method other than trial division by primes up to the square root of the composite. This is slow and cumbersome and makes factoring large composite numbers computationally infeasible.

However, with the rise of cryptography taking advantage of this fact to provide security from the military down to your average person, there has been an increased interest in finding a means to obtain the factors of a large composite integer in order to break such encryption and decrypt confidential and secret information that has been intercepted. This has led to the development of various probabilistic methods and their hybrids which give a good chance of finding the factors within a reasonable time span. When this is combined with using modern fast computers and harnessing the power of a network of computers to solve one problem, solutions can be found within a time-span in which they remain useful.

It is in this context that the Lima system has been developed to enable these techniques to be used in practice.

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Introduction

Lima is an advanced system for factoring large composite numbers into their prime factors over a network, using the computing power of several computers to speed up the process. By adding a client to the system, you assist in the process of finding such prime factors at very little cost to yourself. It provides a service to the individual or organisation running the server, generally scientific researchers who are furthering the bounds of our knowledge and understanding. Thank you for your contribution to this!

System Requirements and Installation

To run the Lima client, you will need a modern computer with a good network connection and Java installed. The requirements for Lima are no more than for Java:

Pentium 166MHz or faster processor
32Mb or more of physical RAM (48Mb recommended)
40Mb of free disk space

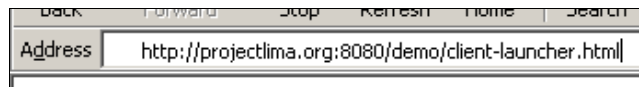
The client has been tested in Windows® and Linux™ operating systems.




If you do not have Java installed, then you need to install it first. If you do not know if you have Java installed, go to <http://java.sun.com/getjava/> and choose Download Now. If Java is not installed, it will be installed. If it is installed, you will be told so. Instructions are provided at the same site if you need them.

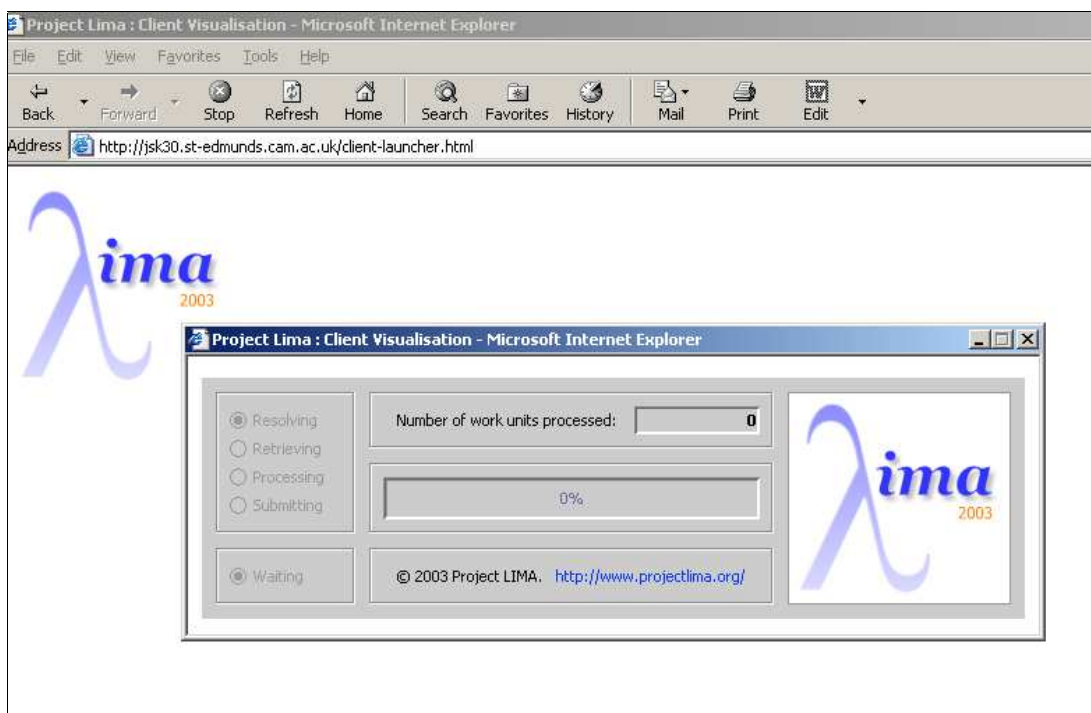
Running a client

Starting a client is very easy, once you have a very important piece of information from the person running the server. You will need from them the client "URL" or address. Once you have this, start Internet Explorer™ or another web browser and type this into the Address Bar. eg.



You need the URL from the server administrator

Click on the 'Go' button  and the client should load and run. Alternatively, the server administrator may tell you to click on a link on a website.



The client having just been launched from a web browser

Frequently Asked Questions

- **Do I have to start or stop it at any particular time?**
 - No. Clients can be started before or during the factorisation process and the distribution server will give it work units for as long as it is running, until it is stopped. You can stop it at any time by closing the window, even whilst it is still processing and this will not cause any problems for the main server.
- **What happens if I turn my computer off whilst it is still running?**
 - Clients can be terminated at any time, and so closing the client by any means, including powering off the computer, is fine.
- **What is the 'Work Units Done' number?**
 - The server provides things for the client to do in chunks of a given size. These are known as work units. The client obtains a work unit from the server (retrieving), executes it (processing) and then gives it back completed (submitting). The work units done counter is an indication of how many of these pieces the client has processed so far.
- **Are there any security implications of running the Lima client on my computer?**
 - No, Java implements strict security policies so there is no threat to your machine. The Lima applet does not and cannot invade your privacy (it is not "spyware") and does not and cannot cause any damage to your system.
- **Will it slow my computer down?**
 - There is a small amount of overhead involved in running any Java process but on a modern PC, the performance should still be perfectly adequate. The benefit comes from the fact that a PC is most of the time not using most of its resources.
- **Where can I get more information on Lima?**
 - The server manual contains more detailed information on Lima. See the links page at <http://www.projectlima.org> for further reading on prime factorisation and distributed computing.