



## Classroom Training



*Lucid Imagination offers comprehensive Lucene and Solr training for developers, system administrators, managers, and search application users.*

*As the world's leading supplier of Lucene/Solr expertise, Lucid Imagination is uniquely qualified to help search application developers master Lucene and Solr. Based on real-world experience, our portfolio of education offerings covers development and deployment to prepare you to tackle real-world search application requirements.*

*Training is available in a variety of formats:*

- *Live, interactive web-based instructor-led short courses*
- *Classroom training*
- *On-Site training*
- *Custom training*

## Solr 201: Intermediate Public Developing Search Applications With Solr

### Course Overview

Developing Search Applications With Solr is a 3-day instructor-led, hands-on classroom training course designed and developed by the engineers that helped write the Lucene/Solr code, and delivered in a shared classroom setting by instructors certified by Lucid Imagination.

The objective of this course is to provide you with the in-depth information to implement Solr search engine technologies. Through a combination of lectures, hands-on lab exercises and example tutorials you will learn to apply best practices to develop scalable, high availability and high performance search applications. There will be time for questions and discussion to enhance your learning experience.

At the end of the course you will understand how to set up and use Solr to index and search, how to analyze and solve common problems, and how to use optional Solr modules such as facets, spell check, and highlighting.



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### The Course Covers

- Principles of search application development
- Common search use cases and their application
- How to make content searchable
- Key Solr and Lucene concepts
- Basics of indexing and searching using Solr
- How to design and run a Solr application
- Best practices for indexing, searching and performance
- Techniques to analyze and resolve common search problems
- Leveraging Solr's optional modules including spell checking, highlighting, Data Import Handler, and Tika
- Advanced topics in designing Solr apps and running a site
- Solr operations and deployment tools and strategies
- How to customize and extend Solr

### Who Should Attend?

- Developers needing a deep understanding of Solr and how to develop Solr search applications
- Existing Solr users looking to fill-out their skill set
- IT managers and architects that are implementing search or e-commerce applications
- Technical and business users needing thorough understanding of Solr
- System administrators

### Prerequisites

Some programming skill and experience with a modern programming language such as Java, PHP, Perl, Ruby, .NET, or any language that supports HTTP and/or XML.



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### Duration

The class is three days, 9AM-5PM daily with a 1 hour break for lunch.

### Format

Instructor-led lectures accompanied by hands-on lab exercises, examples, and tutorials.

### Course Materials

Participants receive copies of all slides and handouts, as well as links to other resources and code downloads.

### Pricing

\$2,200 per person in North America (\$2,400 per person in Europe, \$2,800 per person in Japan). Travel and accommodations are not included. Morning coffee, light snacks and lunches are *typically* provided.

### How to Register for a Class

Contact Lucid Imagination by calling +1.650.353.4057 (then press #1), or by email to [sales@lucidimagination.com](mailto:sales@lucidimagination.com) or visit our registration page at <http://www.lucidimagination.com/services/training/solr-201-intermediate-public-developing-search-applications-solr>.

### Cancellation Policy

Registration for a class can be cancelled up to 14 calendar days in advance of the class date for either a full refund, or credit towards another class. No credit or refund can be given for no-shows, or class registrations cancelled less than 14 calendar days prior to a class date. If a registered participant is unable to attend the course, a substitute is welcome to take their place.

## Detailed Course Schedule & Topics Covered Day 1

Topic	Description
Principles of Search	Sample search applications and use cases
Solr Terminology	Key terms and definitions
A First Look at Solr Search	Request handlers and response writers; sample searches, Solr's Admin application, survey of what happens in a running Solr application, and also a look at the VelocityResponseWriter to see an example of one of the many ways that Solr can return results
Solr Features Overview	Main Solr features and characteristics
Going Further with Solr Search	An overview of search parameters, Solr query syntax, filter and range queries, result sets  Executing searches using the SolrJ API to query the Solr server from within a Java application  Dismax Query Parser
Lucene as the Underlying Search Library	Lucene internals, Nutch and Mahoot, the Luke utility: understanding the internals of a Lucene index
Basic Solr Architecture	Details of the file system structure of the Solr home directory, update handlers, admin console, and replication
Designing Solr Applications	Project definition, data model, data sources, application requirements, designing Solr schema, and using qualifiers to create controlled entry points for searching
Solr Configuration	Using Solr config files and schema.xml files, how to use the admin console's Schema Browser Tool

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**Day 2**

Topic	Description
Introduction to Analysis	Solr's analysis process; how to use analyzers and token filters; use of admin analysis tool to see how analysis stack created to tokenize content affects a query
	Findability: How configuration files and decisions will impact the findability and relevancy of your search results; filters used in the analysis stack and the direct impact on relevance of search results
Understanding Relevance	Determining relevance quality, using scoring models, payloads, and debugging relevance issues
	How to use a query-time field boost to improve relevance
Findability and Domain Knowledge	How to plan and implement for best findability
	Compare text and string field types for facets: designing a field for faceting to provide a way to navigate the index
	Building a query filter that returns only Word documents as results
	Using and configuring synonyms to improve findability
Solr Indexing	Indexing document files into the Solr index; how Solr XML documents are POSTed to Solr, and the details of the XML structure
	Batch Indexing - using a simple command-line indexing application
Using Solr's Data Import Handler	Use of the DataImportHandler as a workflow engine for fetching and indexing data, applying the Data Import Handler it to import an RSS feed into an index

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**Day 3**

Topic	Description
Faceted Searching with Solr	<p>Faceted Search - how to implement faceting in Solr, using SolrJ</p> <p>Planning for Faceting - evaluating your domain-specific needs for faceted search; configuring index fields in schema.xml so they are available for faceted searches</p>
Other Search Features and Solr Contrib	<p>Enable and configure highlighting, processing highlighted fragments returned</p> <p>Query elevation and boosting</p> <p>Clustering content dynamically to organize collections of documents into thematic categories</p> <p>Build a Spell Checking Index, adding fields and field type to the schema to use the SpellCheckComponent</p>
Introduction to Solr Administration and Operations	<p>Index maintenance and back-up</p> <p>Replication, monitoring, and scaling Solr</p> <p>Using JConsole to monitor the JVM for a running indexing job and the Solr server</p>
Troubleshooting Your Search Application	<p>Diagnosing and fixing common problems, performance and user search result issues</p>
Open Source Community	<p>How it works, how to participate, and how to leverage resources</p>