

# Virtuoso OpenLink

RDF store

Sparql endpoint

# Virtuoso: principali comandi

- Avviare il sistema:

\$ virtuoso-t -f

(portarsi nella cartella che contiene il file virtuoso.ini)

I file contenenti i dati devono trovarsi in questa cartella per il caricamento

- Entrare nel prompt sql:

\$ isql

- L'interfaccia web è alla porta 8890 (<http://localhost:8890>)

# Virtuoso: pagina principale



The screenshot shows the OpenLink Virtuoso main page in a web browser. The browser's address bar displays "localhost:8890". The page header features the OpenLink Virtuoso logo and a navigation menu with the following items: Conductor (highlighted with a red bracket), Documentation (web), Tutorials (web), Virtuoso Web Site, and OpenLink Software. The main content area is titled "Welcome" and contains a paragraph describing OpenLink Virtuoso as a next-generation Universal Server. To the right of the text is a vertical list of links with icons: Product Documentation, Help Tutorials, Virtuoso Blog, Software Download, and Technical Support. The footer of the page displays the version "07.20.3217" and the build date "Sep 23 2017".

localhost:8890

OPENLINK VIRTUOSO

XML SOAP EII WebDAV SQL WSDL SOA UDDI BPEL ESB

Conductor

Documentation (web)

Tutorials (web)

Virtuoso Web Site

OpenLink Software

Version: 07.20.3217  
Build: Sep 23 2017

## Welcome

OpenLink Virtuoso is a next-generation Universal Server that facilitates the development and deployment of a new generation of Enterprise-wide, Internet, Intranet, and Extranet-based solutions, transcending prevalent enterprise challenge areas such as Disparate Databases and Data Sources, Web Service Composition, and Business Process Management.

- Product Documentation
- Help Tutorials
- Virtuoso Blog
- Software Download
- Technical Support

# Conductor

**VIRTUOSO CONDUCTOR**

**Login into Database**

**Account**  
dba

**Password**  
...

☐ Remember me

Login

[Interactive SQL \(ISQL\)](#)  
[Virtuoso Start Menu](#)

[Documentation \(web\)](#)  
[Tutorials \(web\)](#)

[Virtuoso Web Site](#)  
[OpenLink Software](#)

Version: 07.20.3217  
Build: Sep 23 2017

**Home** **System Admin** **Database** **Replication** **Web Application Server** **XML** **Web Services** **Linked Data** **NNTP**

**Enterprise Data Management** **Enterprise Information Integration** **Web Services Platform**

**Business Process Integration** **Enterprise Collaboration**

Interfaccia web di gestione di Virtuoso  
Username: dba Password: dba

# Caricamento dei dati

Home System Admin Database Replication Web Application Server XML Web Services Linked Data NN\*

SPARQL Sponger Statistics Graphs Schemas Namespaces Views Quad Store Upload

## Quad Store Upload

☒ File\* Scegli file Nessun file selezionato

☐ Resource URL\*

☐ Create graph explicitly

Named Graph IRI\*

Cancel Upload

Per creare un nuovo grafo occorre indicare un IRI, altrimenti le triple caricate saranno riversate nel default graph (<http://localhost:8890/DAV>)

Il caricamento dei dati può essere fatto mediante l'interfaccia grafica (si può caricare un file .rdf, .ttl o .nt),

*oppure tramite linea di comando (isql):*

```
DB.DBA.RDF_LOAD_RDFXML_MT (file_to_string_output ('./about.rdf'), '', 'http://prova.com');  
(esiste un metodo specifico per il formato Turtle)
```

# Prefissi persistenti

The screenshot displays the 'Persistent Namespaces & Prefixes' management interface. The top navigation bar includes links for Home, System Admin, Database, Replication, Web Application Server, XML, Web Services, and Linked D. Below this, a secondary bar contains links for SPARQL, Sponger, Statistics, Graphs, Schemas, Namespaces, Views, and Quad Store Upload. The main title 'Persistent Namespaces & Prefixes' is prominently displayed. An 'Add' button is located on the left, and 'Show' and 'Exact' buttons are on the right. A table lists existing prefixes: 'bif' and 'cinema'. A red arrow points from the 'Add' button to the 'cinema' row. A modal dialog is open, showing the 'Add' form for the 'cinema' prefix. The dialog has two input fields: 'Prefix' with the value 'cinema' and 'URI' with the value 'http://www.semanticweb.org/rossana/ontologies/2017/10/cinema#'. At the bottom of the dialog are 'Cancel' and 'Add' buttons.

Prefix	URI
bif	bif:
cinema	http://www.semanticweb.org/rossana/ontologies/2017/10/cinema#

**Persistent Namespaces & Prefixes**


Prefix: cinema

URI: http://www.semanticweb.org/rossana/ontologies/2017/10/cinema#

Cancel Add

Il sistema contiene per default un insieme di prefissi (per esempio, rdf e owl), ma è possibile aggiungere altri prefissi per nuovi URI  
(in questo modo non è necessario aggiungere i prefissi alle query)

# Interrogare i dati



- Interactive SQL (ISQL)
- WebDAV Browser
- Virtuoso Start Menu
- Documentation (web)
- Tutorials (web)
- Virtuoso Web Site
- OpenLink Software

Version: 07.20.3217  
Build: Sep 23 2017

HomeSystem AdminDatabaseReplicationWeb Application ServerXMLWeb ServicesLinked DataNNTP

SPARQLSpongerStatisticsGraphsSchemasNamespacesViewsQuad Store Upload

## SPARQL Execution

QuerySaved Queries

Default Graph IRI

Query

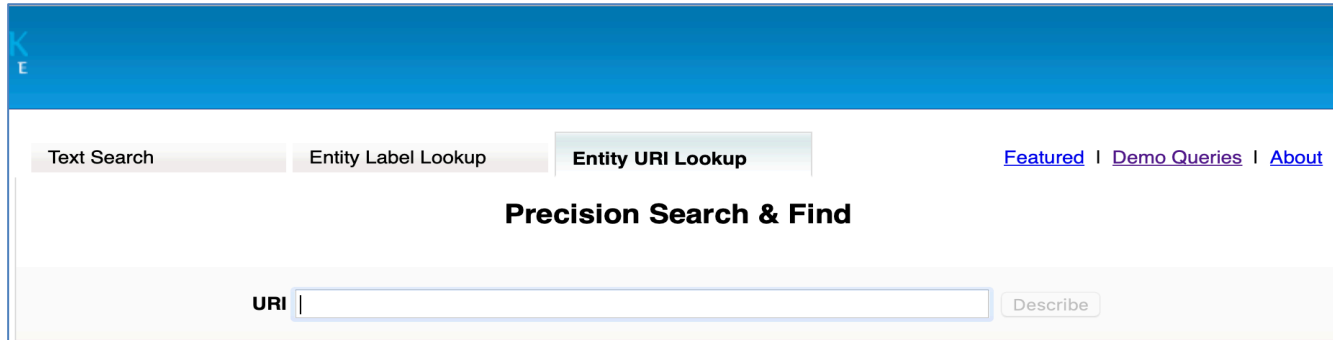
PREFIX cinema:  
<http://www.semanticweb.org/rossana/ontologies/2017/10/cinema#>  
  
SELECT ?p ?f  
WHERE {  
 ?p rdf:type cinema:Persona;  
 cinema:haRuolo ?r.  
 ?r rdf:type cinema:Regista;  
 cinema:ruoloInFilm ?f.  
}

ExecuteSaveLoadClear

p	f
<a href="http://www.semanticweb.org/rossana/ontologies/2017/10/cinema#StevenSpielberg">http://www.semanticweb.org/rossana/ontologies/2017/10/cinema#StevenSpielberg</a>	<a href="http://www.semanticweb.org/rossana/ontologies/2017/10/cinema#StevenSpielberg">http://www.semanticweb.org/rossana/ontologies/2017/10/cinema#StevenSpielberg</a>
<a href="http://www.semanticweb.org/rossana/ontologies/2017/10/cinema#StevenSpielberg">http://www.semanticweb.org/rossana/ontologies/2017/10/cinema#StevenSpielberg</a>	<a href="http://www.semanticweb.org/rossana/ontologies/2017/10/cinema#StevenSpielberg">http://www.semanticweb.org/rossana/ontologies/2017/10/cinema#StevenSpielberg</a>

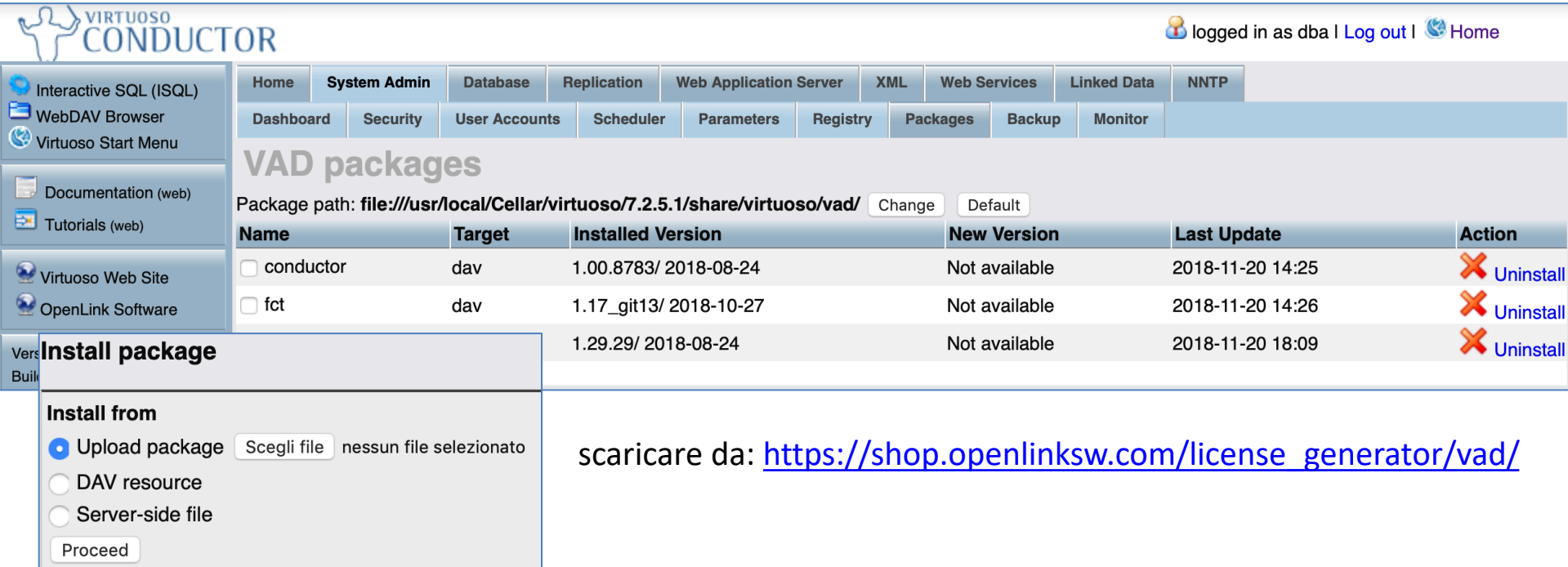
Se il prefisso è stato dichiarato, si può omettere

# Faceted browser



The screenshot shows the 'Faceted browser' interface. At the top, there are three tabs: 'Text Search', 'Entity Label Lookup', and 'Entity URI Lookup'. To the right of these tabs are links for 'Featured', 'Demo Queries', and 'About'. Below the tabs is the heading 'Precision Search & Find'. At the bottom, there is a text input field labeled 'URI' and a 'Describe' button.




## Installazione:



The screenshot shows the 'Virtuoso Conductor' installation interface. The top navigation bar includes links for 'Home', 'System Admin', 'Database', 'Replication', 'Web Application Server', 'XML', 'Web Services', 'Linked Data', and 'NNTP'. Below this is a secondary navigation bar with 'Dashboard', 'Security', 'User Accounts', 'Scheduler', 'Parameters', 'Registry', 'Packages', 'Backup', and 'Monitor'. The main content area is titled 'VAD packages' and shows a table of installed and available packages. The 'Package path' is set to 'file:///usr/local/Cellar/virtuoso/7.2.5.1/share/virtuoso/vad/'. The table lists three packages: 'conductor', 'fct', and '1.29.29/ 2018-08-24'. Each package has a 'Name', 'Target', 'Installed Version', 'New Version', 'Last Update', and 'Action' column. The 'Action' column shows 'Uninstall' links for each package. On the left side, there is a sidebar with links for 'Interactive SQL (ISQL)', 'WebDAV Browser', 'Virtuoso Start Menu', 'Documentation (web)', 'Tutorials (web)', 'Virtuoso Web Site', and 'OpenLink Software'. At the bottom, there is a section for 'Install package' with options to 'Upload package', 'DAV resource', or 'Server-side file'. The 'Upload package' option is selected, and a 'Proceed' button is visible.

**VAD packages**

Package path: <file:///usr/local/Cellar/virtuoso/7.2.5.1/share/virtuoso/vad/> [Change](#) [Default](#)

Name	Target	Installed Version	New Version	Last Update	Action
<input type="checkbox"/> conductor	dav	1.00.8783/ 2018-08-24	Not available	2018-11-20 14:25	 <a href="#">Uninstall</a>
<input type="checkbox"/> fct	dav	1.17_git13/ 2018-10-27	Not available	2018-11-20 14:26	 <a href="#">Uninstall</a>
		1.29.29/ 2018-08-24	Not available	2018-11-20 18:09	 <a href="#">Uninstall</a>

**Install package**

**Install from**

- ☒ Upload package [Scegli file](#) nessun file selezionato
- ☐ DAV resource
- ☐ Server-side file

[Proceed](#)

scaricare da: [https://shop.openlinksw.com/license\\_generator/vad/](https://shop.openlinksw.com/license_generator/vad/)



# Faceted browser

<http://localhost:8890/fct/> (Entity URI Lookup)

**About: [cinema:Persona](#)** [Goto](#) [Sponge](#) [NotDistinct](#) [Permalink](#)  
An Entity of Type : [owl:Class](#), within Data Space : [localhost:8890](#) associated with source [document\(s\)](#)  
Command:

---

Attributes	Values
<a href="#">rdf:type</a>	<a href="#">Class</a> <a href="#">rdfs:Class</a>
<a href="#">equivalentClass</a>	<a href="#">foaf:Person</a>
<a href="#">rdfs:subClassOf</a>	<a href="#">foaf:Person</a>
is <a href="#">rdf:type</a> of	<a href="#">cinema:JJAbrams</a> <a href="#">cinema:HarrisonFord</a> <a href="#">cinema:StevenSpielberg</a>
is <a href="#">rdfs:domain</a> of	<a href="#">cinema:haRuolo</a> <a href="#">cinema:recitaln</a>

Occorre eseguire preliminarmente la configurazione:

<http://vos.openlinksw.com/owiki/wiki/VOS/VirtFacetBrowserInstallConfig>

# Interrogare i dati dal client

- È possibile effettuare una query sparql per via programmatica da un client
  - Per esempio, tramite Javascript
- Parametri:
  - url
  - query
  - key
  - format
- Esempio (Jquery):

```
var url = "http://localhost:8890/sparql";  
var query = " SELECT ?p ?f WHERE ... ";  
var key = "dba";  
var queryUrl = encodeURIComponent( url+"?query="+query+"&wskey="+key+"&format=json");  
$.ajax({  
    dataType: "jsonp",  
    url: queryUrl,  
    success: function( _data ) { ... }, })
```

# Esempio: collegamento tra grafi

**About:** [cinema2:IPredatoriDellArcaPerduta](#) [Goto](#) [Sponge](#) [NotDistinct](#) [Permalink](#)  
An Entity of Type : [cinema2:Avventura](#), within Data Space : [localhost:8890](#) associated with source [document\(s\)](#)

Type:  Command:

## Attributes

## Values

[rdf:type](#)

[owl:NamedIndividual](#)  
[cinema2:Avventura](#)

[cinema2:ambientatoIn](#)

[citta2:Londra](#)

Riferimento a un individuo in un diverso namespace

[cinema2:haPersonaggio](#)

[cinema2:IndianaJones](#)

is [cinema2:ruoloInFilm](#) of [cinema2:attoreIndiana](#)  
[cinema2:regiaIndiana](#)

Utilizzo di query  
annidate per collegare  
due grafi  
(vedi esempi)



```
SELECT ?f ?c ?co
FROM <http://localhost:8890/DAV/cinema2>
WHERE {
  ?f <http://www.modsem.org/cinema2#haPersonaggio> ?p ;
    <http://www.modsem.org/cinema2#ambientatoIn> ?c .

  {SELECT ?c ?co
   FROM <http://localhost:8890/DAV/citta2>
   WHERE {
     ?c <http://www.modsem.org/citta2#situatoInContinente> ?co.}
  }
}
```