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# MySQL Workbench 6.1 デモ

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# MySQL Workbenchとは？

## New! MySQL Workbench 6.1

Design, Develop, Administer, Migrate  
Windows, Linux, Mac OS X

- MySQLの公式GUIツール
- MySQL Databaseの統合開発環境
- Windows, OS X, Linux 対応



# MySQL Workbenchで出来ること

- 管理
  - Server起動/停止、システム変数確認、ステータス変数確認、ログ確認、ユーザ管理、セッション管理、など
- 開発
  - SQLエディタ、SQL Snippets(ステートメント再利用)、ビジュアルExplain、など
- 設計
  - E-R図作成、フォワードエンジニアリング、リバースエンジニアリング、など

# 管理：例)MySQLサーバーの状態確認

The screenshot displays the MySQL Workbench interface with the 'Server Status' window open. The window is titled 'dev\_server' and shows the following information:

- Connection Name:** dev\_server
- Host:** PFRAME-05
- Sockets:** MySQL
- Port:** 3306
- Version:** 5.6.12-enterprise-commercial-advanced
- Compiled For:** Win64 (x86\_64)

**Available Server Features:**

Performance Schema	<input checked="" type="checkbox"/> On	SSL Availability	<input type="checkbox"/> Off
Thread Pool	<input type="checkbox"/> n/a	Windows Authentication	<input type="checkbox"/> Off
Memory Pools	<input type="checkbox"/> n/a	Row-based Replication	<input type="checkbox"/> n/a
Semi-sync Replication Plugin	<input type="checkbox"/> n/a	Audit Log	<input type="checkbox"/> n/a

**Server Directories:**

- Base Directory: C:\Program Files\MySQL\MySQL Server 5.6\
- Data Directory: C:\ProgramData\MySQL\MySQL Server 5.6\data\
- Dot Space in Data Dir: 150.00 GB of 320.00 GB available
- Plugins Directory: C:\Program Files\MySQL\MySQL Server 5.6\plugin\
- Temp Directory: C:\Windows\SERVICES\2\NETWORK-1\ApplData\local\Temp\
- Error Log:  On \_MYSQL\_ERROR.log
- General Log:  Off
- Slow Query Log:  Off

**Replication Slave:**  
This server is not a slave in a replication setup.

**Authentication:**

- SHA256 password private key: private\_key.pem
- SHA256 password public key: public\_key.pem

**Performance Metrics (Right Panel):**

- Server Status: **Running**
- CPU: **25%**
- Connections: **4**
- Traffic: **21.80 KB/s**
- Idle Efficiency: **76.6%**
- Queries per Second: **963**
- InnoDB Buffer Usage: **3.7%**
- InnoDB Reads per Second: **0**
- InnoDB Writes per Second: **989**

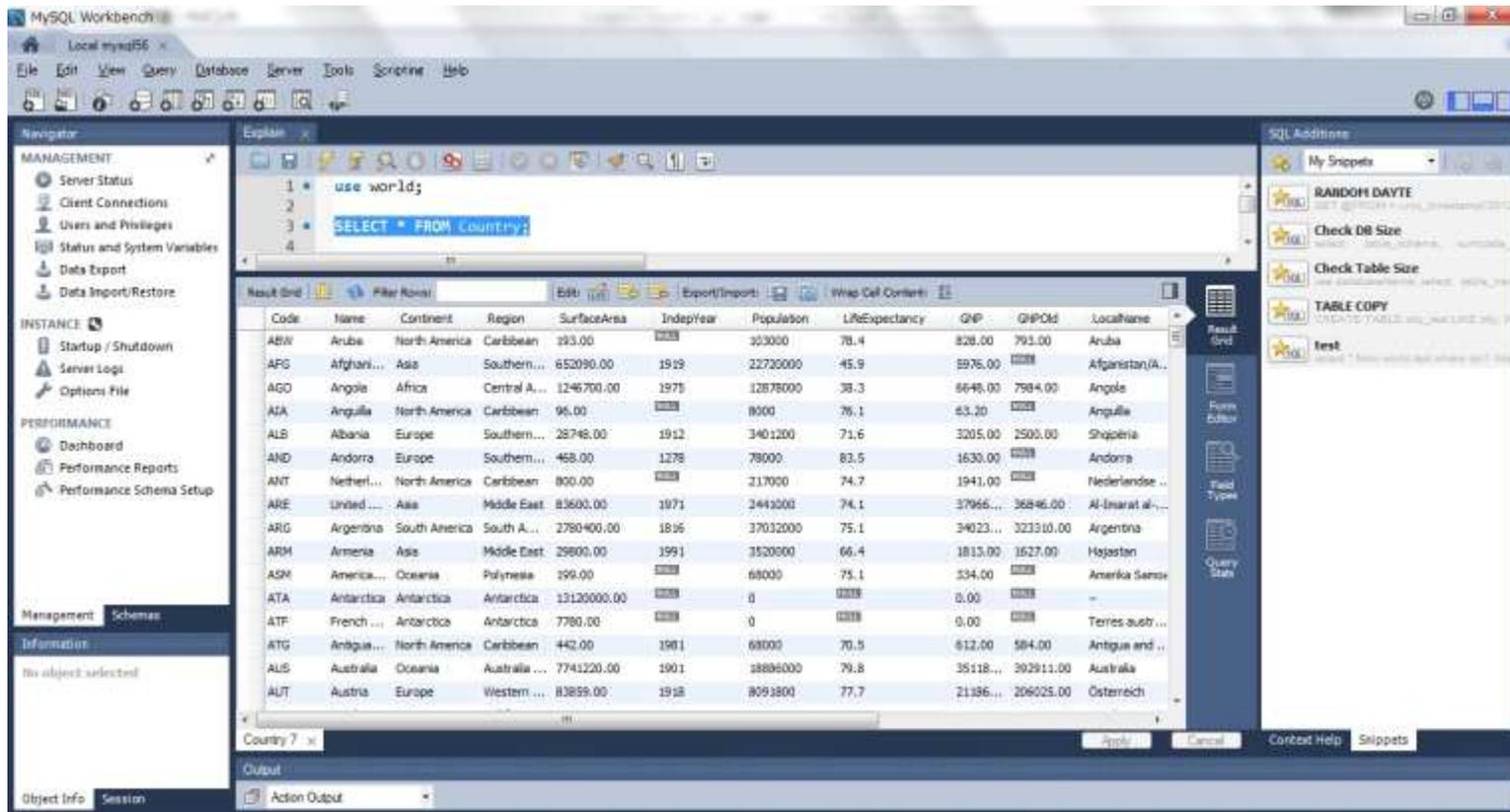
**Left Panel (Schemas):**

- information\_schema
- mysql
- performance\_schema
- sales
- test
  - Tables
  - city
  - country

**Table: city**

Columns:	Types
ID	INT(11) AI PK
Name	CHAR(50)
CountryCode	CHAR(2)
District	CHAR(20)
Population	INT(11)

# 開発：例)SQL実行画面



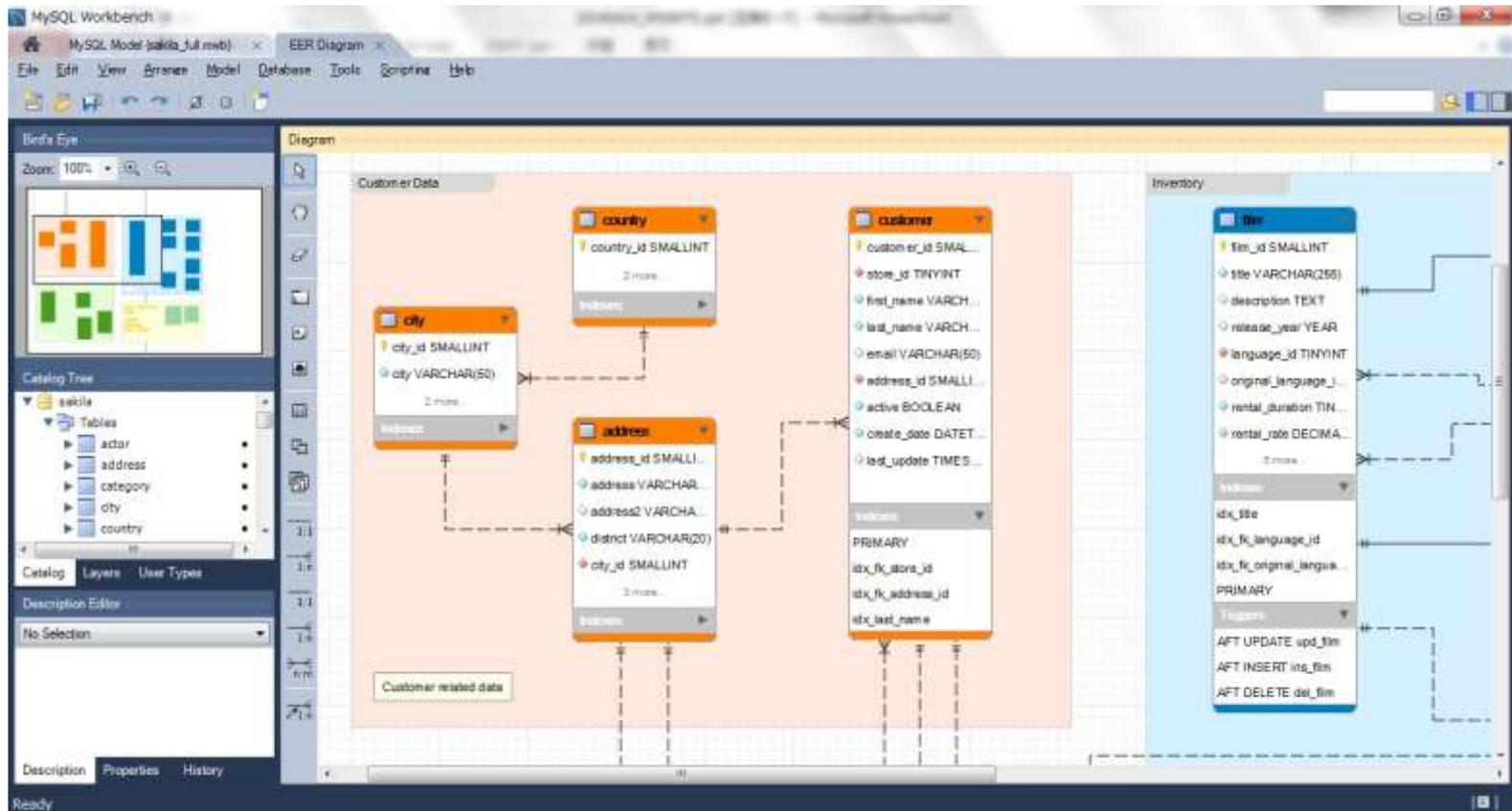
The screenshot shows the MySQL Workbench interface. The SQL editor contains the following code:

```
1 use world;  
2  
3 SELECT * FROM Country;  
4
```

The result set is displayed in a table with the following columns and data:

Code	Name	Continent	Region	SurfaceArea	IndepYear	Population	LifeExpectancy	GDP	GDPPerCap	LocalName
ABW	Aruba	North America	Caribbean	293.00	1986	303000	78.4	828.00	793.00	Aruba
AFG	Afghanistan	Asia	Southern Asia	652090.00	1919	22720000	45.9	5976.00	262.00	Afghanistan(Afghanistan)
AGO	Angola	Africa	Central Africa	1246700.00	1975	12878000	38.3	8648.00	790.00	Angola
ATA	Antigua and Barbuda	North America	Caribbean	96.00	1981	8000	76.1	63.20	78.00	Antigua
ALB	Albania	Europe	Southern Europe	28748.00	1912	3401200	71.6	3205.00	2500.00	Shqipëria
AND	Andorra	Europe	Southern Europe	468.00	1278	78000	83.5	1630.00	2000.00	Andorra
ANT	Netherlands Antilles	North America	Caribbean	800.00	1954	217000	74.7	1941.00	895.00	Nederlandse Antillen
ARE	United Arab Emirates	Asia	Middle East	83600.00	1971	2443000	74.1	37966.00	36846.00	Al-Imarat al-Arabiyya al-Muttahida
ARG	Argentina	South America	South America	2780400.00	1816	37032000	75.1	34023.00	323310.00	Argentina
ARM	Armenia	Asia	Middle East	29800.00	1991	3520000	66.4	1813.00	1627.00	Hajastan
ASM	American Samoa	Oceania	Polynesia	199.00	1900	68000	75.1	534.00	770.00	Amerika Samoa
ATA	Antarctica	Antarctica	Antarctica	13120000.00	1956	0	0.00	0.00	0.00	Antarctica
ATF	French Southern Territories	Antarctica	Antarctica	7780.00	1956	0	0.00	0.00	0.00	Terres australes françaises
ATG	Antigua and Barbuda	North America	Caribbean	442.00	1981	8000	70.5	612.00	584.00	Antigua and Barbuda
AUS	Australia	Oceania	Australia	7741220.00	1901	18896000	79.8	35118.00	302911.00	Australia
AUT	Austria	Europe	Western Europe	83859.00	1955	8093800	77.7	21386.00	206025.00	Österreich

# 設計：例) E-R図作成画面



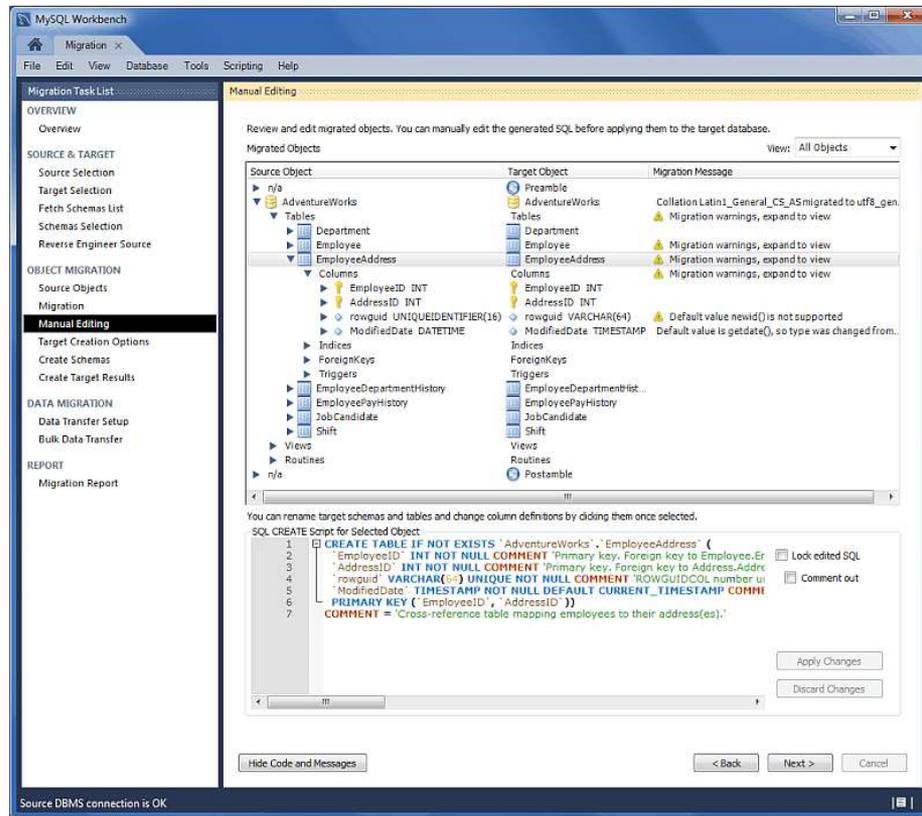
# MySQL Workbenchで出来ること

- マイグレーション
  - 他DBからMySQLへの移行を支援できるマイグレーションウィザード
- DBドキュメント出力(※)
  - データベーススキーマの情報をドキュメント化
- データモデルの検証(※)
  - DB設計上やってしまいがちな間違いを自動的にチェック
- MySQL Enterprise BackupのためのGUI(※)
  - バックアップジョブの作成/実行/スケジュール、クイック・リカバリ
- MySQL Enterprise AuditのためのGUI(※)
  - 監査ログの確認

※商用版のみの機能

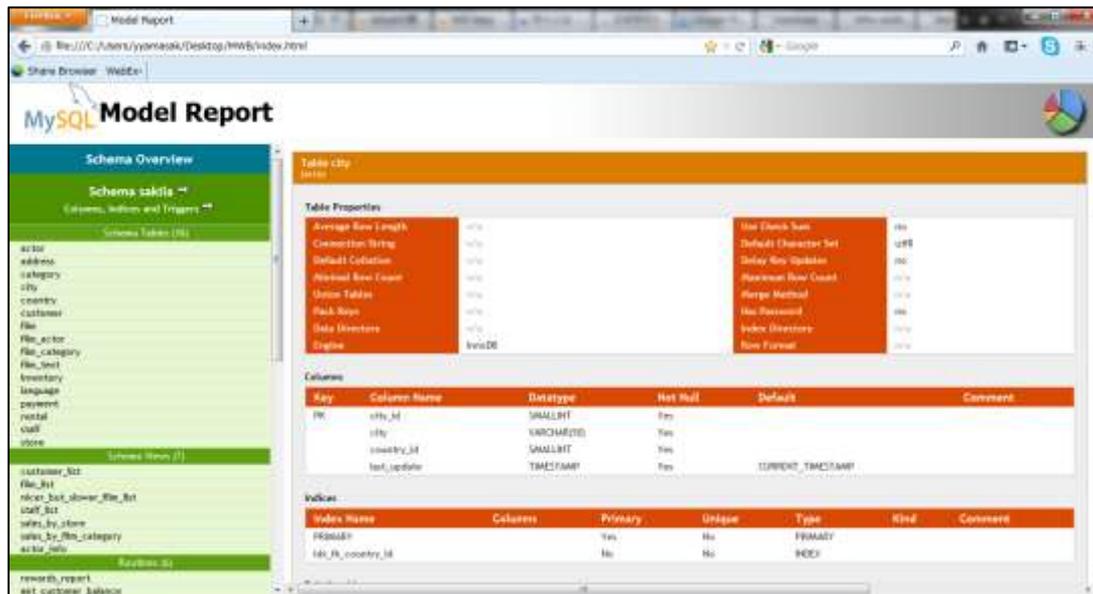
# マイグレーション

- ウィザードに従って選択/指定するだけで、他データベースからMySQLへテーブルやビュー、実データを移行可能
- サポート対象データベース
  - ソースデータベース
    - Microsoft SQL Server 2000/2005/2008/2012
    - PostgreSQL 8.0 以上
    - Sybase Adaptive Server Enterprise 15.x 以上
    - Sybase SQL Anywhere
    - SQLite
    - MySQL Server 4.1 以上
    - ODBC接続
  - ターゲットデータベース
    - MySQL Server 5.1 以上



# DBドキュメント出力(商用版のみ)

- データベーススキーマの情報をドキュメント化
  - テーブル定義書を自動作成
  - フォーマットは4種類から選択可能



The screenshot displays the MySQL Model Report web interface. The left sidebar shows a 'Schema Overview' for the 'sakila' schema, listing various tables and views. The main content area is titled 'Table: city' and shows 'Table Properties' and 'Columns'.

**Table Properties**

Average Row Length	170	Use Check Sum	170
Comment: String	170	Default Character Set	utf8
Default Collation	170	Delay Key Rotation	160
Maximal Row Count	170	Maximal Row Count	170
Source Tables	170	Range Method	170
Pack Size	170	Row Password	160
Data Directories	170	Index Directives	170
Engine	InnoDB	Row Format	170

**Columns**

Key	Column Name	Datatype	Not Null	Default	Comment
PK	city_id	SMALLINT	Yes		
	city	VARCHAR(255)	Yes		
	country_id	SMALLINT	Yes		
	last_update	TIMESTAMP	Yes	CURRENT_TIMESTAMP	

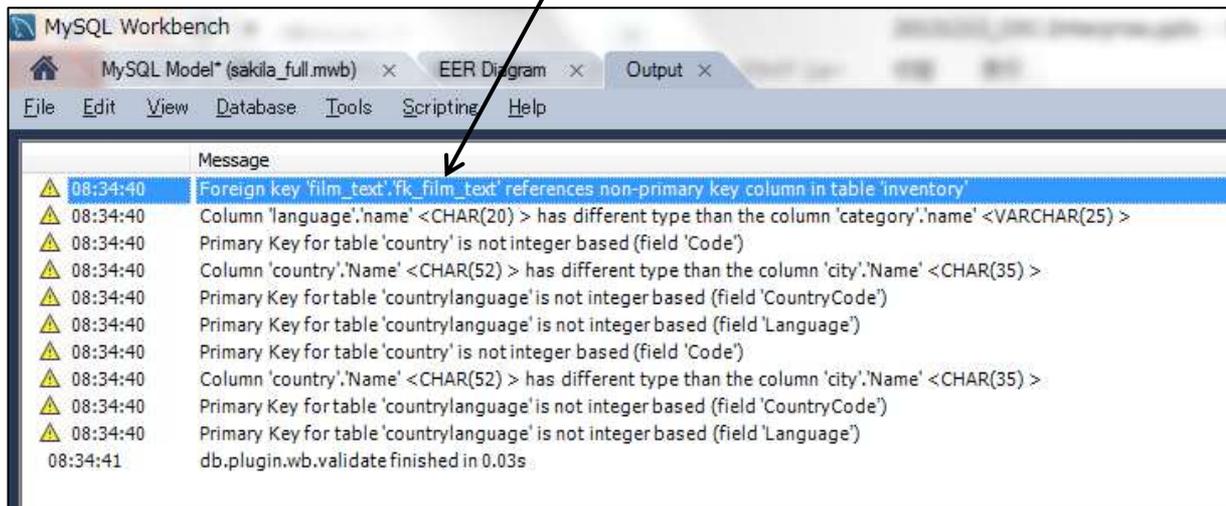
**Indexes**

Index Name	Columns	Primary	Unique	Type	Kind	Comment
PRIMARY	city_id	Yes	No	PRIMARY		
idx_fk_country_id	country_id	No	No	INDEX		

# データモデルの検証(商用版のみ)

- DB設計上の間違いや懸念事項を提示

例) film\_textテーブルについている外部キーfk\_film\_textが、inventoryテーブルの主キー以外の列を参照している



検証結果の例

# MySQL Enterprise BackupのためのGUI(商用版のみ)

- GUIからバックアップジョブを作成/実行
- GUIからリストア
- バックアップジョブの実行状況も確認可能

MySQL Workbench

Localhost >>

File Edit View Query Database Server Tools Scripting Help

Navigator Query 1 MySQL Enterprise Backup - Ov... >>

MANAGEMENT

- Server Status
- Client Connections
- Users and Privileges
- Status and System Variables
- Data Export
- Data Import/Restore

PERFORMANCE

- Dashboard
- Performance Reports
- Instrumentation

INSTANCE

- Startup / Shutdown
- Server Logs
- Options File

MySQL ENTERPRISE

- Audit Inspector
- Online Backup
- Backup Recovery

Management Schemas

Information

No object selected

Object Info Session

MySQL Enterprise

MySQL Enterprise Backup

Settings...

Backup Jobs configured for this MySQL Instance

Backup Job	Latest Backup	Next Full Backup	Next Incr. Backup	Configuration Status
Full (Full data)	in the last hour	2014-01-09 17:24:00	not scheduled	✓
backupsinc (full data)	in the last hour	not scheduled	2014-01-09 18:00:00	✓
TestingWorld (partia...	in the last hour	not scheduled	not scheduled	✓

Backup Job Details

Target Host: PHILIP-US:3306  
MEB Version: 3.6.2  
MySQL Data Directory: C:\ProgramData\MySQL\MySQL Server 5.6\data\  
Storage Directory: C:\MySQLBackupHome\Full  
232.00 GB of 326.00 GB available  
Latest Full Backup: 2014-01-09 17:11:38  
Latest Incr. Backup: Never  
Next Full Backup: 2014-01-09 17:24:00  
Next Incr. Backup: Not scheduled

New Job Configure Job

Execute Now Execute Now (Incremental)

A full backup operation is in progress for profile Full View Log...

Only displayed when a backup job is currently being executed

Immediately execute a backup job

Recent Activity Recent MEB activity

Job	Type	Format	Status	Start Time	End Time	Total Time
Full	FULL	DIRECTORY	✓ SUCCESS	2014-01-09 17:10:52	2014-01-09 17:11:38	1m 26s
Full	FULL	DIRECTORY	✓ SUCCESS	2014-01-09 17:09:49	2014-01-09 17:10:36	1m 29s
TestingWorld	INCREMENTAL	DIRECTORY	✓ SUCCESS	2014-01-09 17:09:56	2014-01-09 17:09:12	56s
TestingWorld	PARTIAL	DIRECTORY	✓ SUCCESS	2014-01-09 17:08:06	2014-01-09 17:08:28	22s
Full	FULL	DIRECTORY	✓ SUCCESS	2014-01-09 17:07:23	2014-01-09 17:07:46	21s
backupsinc	INCREMENTAL	DIRECTORY	✓ SUCCESS	2014-01-09 17:00:01	2014-01-09 17:00:21	20s
backupsinc	FULL	DIRECTORY	✓ SUCCESS	2014-01-09 16:25:12	2014-01-09 16:25:47	35s

# MySQL Enterprise AuditのためのGUI(商用版のみ)

- 監査ログをGUIから確認/調査可能

MySQL Workbench Administration - Audit Inspector

Show all events containing info text: Refresh

Record ID	Timestamp	Type	ConnID	User	Host/IP	Status	Command Class	Info
8863_2014-01-08T16:20:05	2014-01-08 20:40:22	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8862_2014-01-08T16:20:05	2014-01-08 20:40:18	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8861_2014-01-08T16:20:05	2014-01-08 20:40:15	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8860_2014-01-08T16:20:05	2014-01-08 20:40:12	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8859_2014-01-08T16:20:05	2014-01-08 20:40:09	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8858_2014-01-08T16:20:05	2014-01-08 20:40:05	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8857_2014-01-08T16:20:05	2014-01-08 20:40:02	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8856_2014-01-08T16:20:05	2014-01-08 20:39:59	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8855_2014-01-08T16:20:05	2014-01-08 20:39:56	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8854_2014-01-08T16:20:05	2014-01-08 20:39:52	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8853_2014-01-08T16:20:05	2014-01-08 20:39:49	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8852_2014-01-08T16:20:05	2014-01-08 20:39:46	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8851_2014-01-08T16:20:05	2014-01-08 20:39:42	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8850_2014-01-08T16:20:05	2014-01-08 20:39:39	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8849_2014-01-08T16:20:05	2014-01-08 20:39:37	U C	Ping	5 root[root]@lo...	127.0.0.1	0		
8848_2014-01-08T16:20:05	2014-01-08 20:39:37	U C	Ping	4 root[root]@lo...	127.0.0.1	0		
8847_2014-01-08T16:20:05	2014-01-08 20:39:36	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8846_2014-01-08T16:20:05	2014-01-08 20:39:33	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8845_2014-01-08T16:20:05	2014-01-08 20:39:29	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8844_2014-01-08T16:20:05	2014-01-08 20:39:26	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8843_2014-01-08T16:20:05	2014-01-08 20:39:23	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8842_2014-01-08T16:20:05	2014-01-08 20:39:19	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8841_2014-01-08T16:20:05	2014-01-08 20:39:16	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8840_2014-01-08T16:20:05	2014-01-08 20:39:13	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8839_2014-01-08T16:20:05	2014-01-08 20:39:10	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8838_2014-01-08T16:20:05	2014-01-08 20:39:06	U C	Query	2 root[root]@lo...	127.0.0.1	0	show_status	show global status
8837_2014-01-08T16:20:05	2014-01-08 20:39:03	U C	Query	7 root[root]@lo...	127.0.0.1	0	show_status	show global status

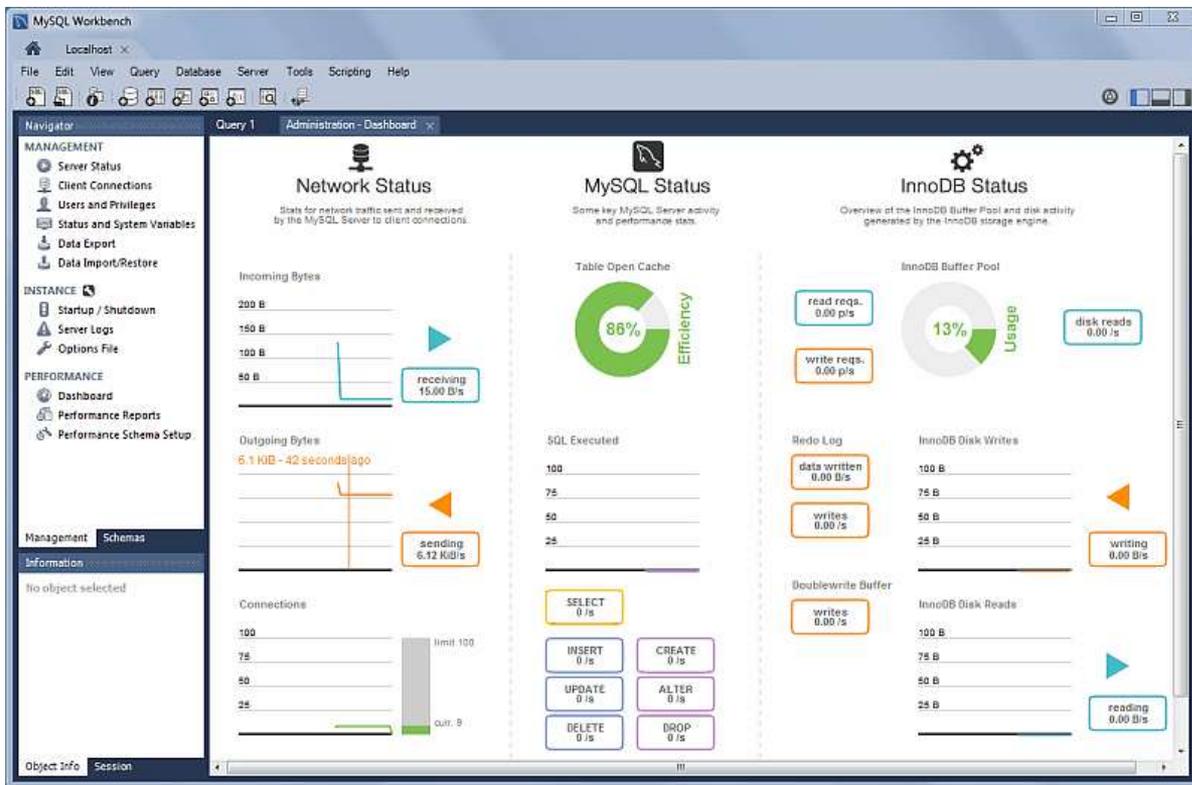
Showing records 0 to 10000 from 10486 total matched entries from cache

The currently audit\_log policy is set to log all events.

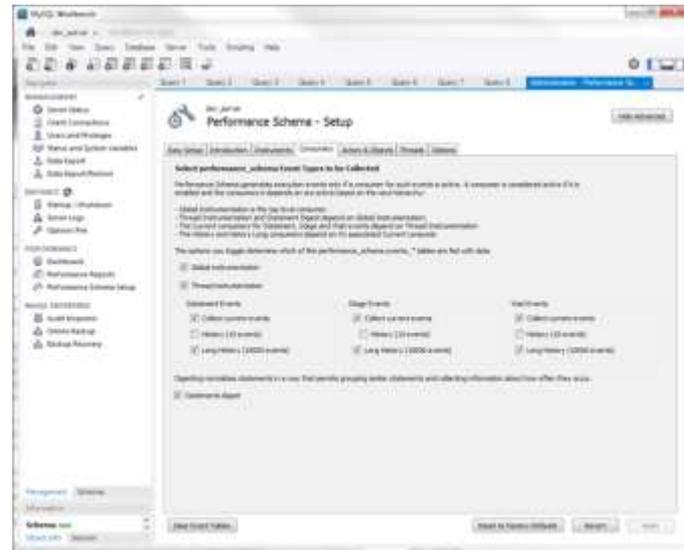
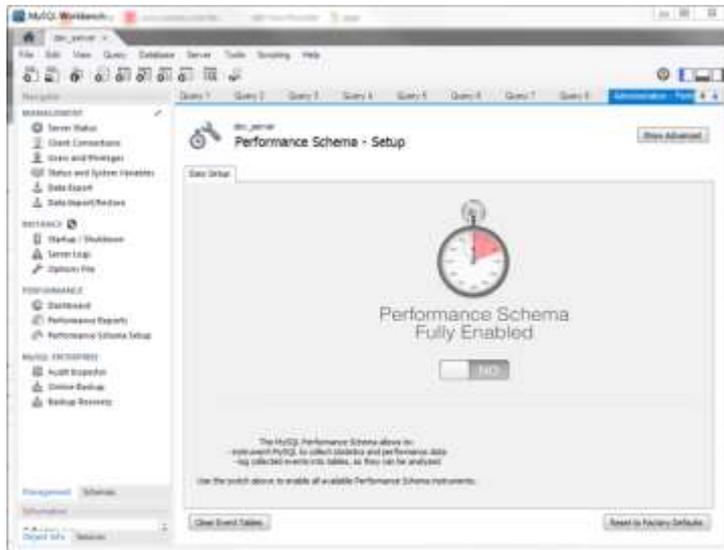
< Previous Page Next Page > Delete Cache Add Files to Cache...

# MySQL Workbench 6.1の新機能

# パフォーマンスダッシュボード



# パフォーマンス・スキーマの設定



# パフォーマンスレポート

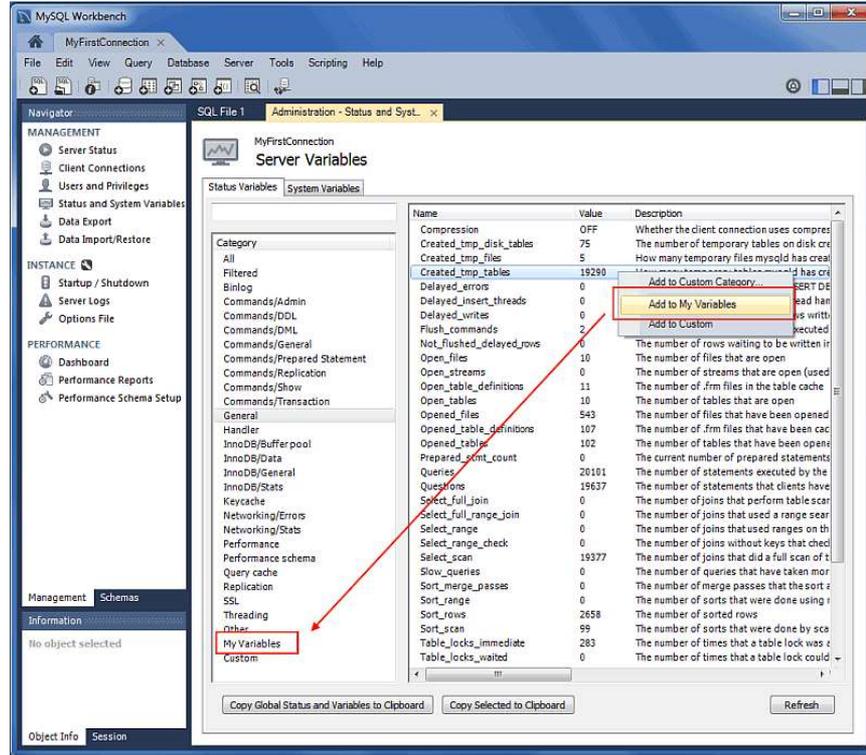
The screenshot displays the MySQL Workbench Performance Reports window. The left sidebar contains navigation menus for MANAGEMENT, INSTANCE, PERFORMANCE, and Object Info. The main area is titled 'Performance Reports' and shows a tree view of report categories. The 'Statement Analysis' report is selected, displaying a table of SQL statements with their execution statistics.

### Statement Analysis

Lists statements with various aggregated statistics

Query	Full Scan (%)	Executed (#)	Errors (#)	Warnings (#)	Total Time (ms)	Max Time (ms)	Avg Time (ms)
INSERT INTO t1 VALUES (...)		6990	0	0	127628242...	229426.909	18298.408
SELECT INTO1, charcol1 FROM t1	*	40685	0	0	100960775...	184662.6634	20177.8196
INSERT INTO `City` VALUES (...)		4079	0	0	2185065.45...	10874.86688	535.4208
CREATE TABLE `t1` ( `intcol1` INTEGER (7), charcol1 V...		100	0	0	1819625.49...	25670.2900	38186.086
DROP SCHEMA IF EXISTS `mysqlslap`		100	0	0	1256556.63...	24439.05603	12565.2916
CREATE SCHEMA `mysqlslap`		100	0	0	587522.73208	12533.06	5874.923
INSERT INTO `CountryLanguage` VALUES (...)		984	0	0	520433.87828	3365.34672	528.8594
SHOW FULL TABLES FROM `sys` WHERE `Table_type` = ...	*	1	0	0	375679.5008	375679.5008	375679.500
SHOW GLOBAL STATUS	*	91	0	0	179389.1806	4669.402	1971.183
INSERT INTO `Country` VALUES (...)		236	0	0	135518.95048	3318.82196	574.059
SHOW FULL TABLES FROM `sakila`	*	1	0	0	134410.28832	134410.28832	134410.288
SHOW PROCEDURE STATUS WHERE `Db` = ?	*	6	0	0	131738.07056	39834.17388	21956.277
SHOW FUNCTION STATUS WHERE `Db` = ?	*	6	0	0	120429.55718	27105.51596	20071.38
SELECT LANGUAGE, COUNT (*) FROM `CountryLangu...	*	1	0	0	96502.09648	96502.09648	96502.096
SHOW FULL TABLES FROM `performance_schema`	*	3	0	0	77901.94912	33971.9368	25933.963
SHOW FIELDS FROM `performance_schema`.`accou...	*	3	0	0	51581.14392	19597.18572	17163.7194
SHOW FIELDS FROM `performance_schema`.`event...	*	3	0	0	48490.62512	17081.12256	16133.5416
SHOW FIELDS FROM `performance_schema`.`cond...	*	3	0	0	47969.50804	16792.79798	19869.7194
SHOW FIELDS FROM `performance_schema`.`event...	*	3	0	0	47064.7222	16367.35452	16688.101
SHOW FIELDS FROM `performance_schema`.`table...	*	3	0	0	46458.84796	16654.8876	15486.3402
SHOW FIELDS FROM `performance_schema`.`table...	*	3	0	0	46385.61788	10006.15584	15428.403
SHOW FIELDS FROM `performance_schema`.`event...	*	3	0	0	45476.30548	15239.37912	15158.4078
SHOW FIELDS FROM `performance_schema`.`event...	*	3	0	0	45401.13804	16323.797	15133.7728
SHOW FIELDS FROM `performance_schema`.`perfor...	*	3	0	0	44929.9628	17289.86992	14976.3901

# システム変数/ステータス変数の確認画面に、 カスタム項目を追加



# より見やすいクライアントコネクション

The screenshot shows the MySQL Workbench interface with the 'Client Connections' window open. The window displays a summary of connection statistics and a table of active connections.

**Summary Statistics:**

- Threads Connected: 4
- Threads Running: 1
- Threads Created: 6
- Threads Cached: 2
- Rejected (over limit): 0
- Total Connections: 50
- Connection Limit: 100
- Aborted Clients: 11
- Aborted Connections: 9
- Errors: 0

**Active Connections Table:**

Id	User	Host	DB	Command	Time	State	Thread Id	Type	Name	Parent Thread	Instrumented	Info
46	root	localhost	sakila	Sleep	3	None	67	BACKGROUND	thread/sql/one_c...	0	YES	NULL
47	root	localhost	sakila	Sleep	3	None	68	BACKGROUND	thread/sql/one_c...	0	YES	NULL
48	root	localhost	None	Query	0	Sending data	69	BACKGROUND	thread/sql/one_c...	0	YES	SELECT PRO...
49	root	localhost	None	Sleep	0	None	70	BACKGROUND	thread/sql/one_c...	0	YES	NULL

**Filters:**

- Hide sleeping connections
- Hide background threads
- Don't load full thread info

**Refresh Rate:** Don't Refresh

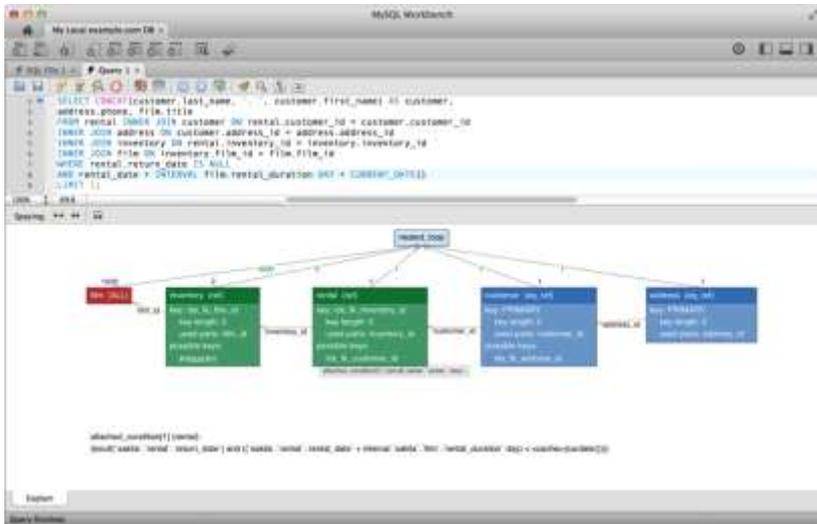
**Buttons:** Kill Query(s), Kill Connection(s), Refresh

# SQL実行時の詳細情報

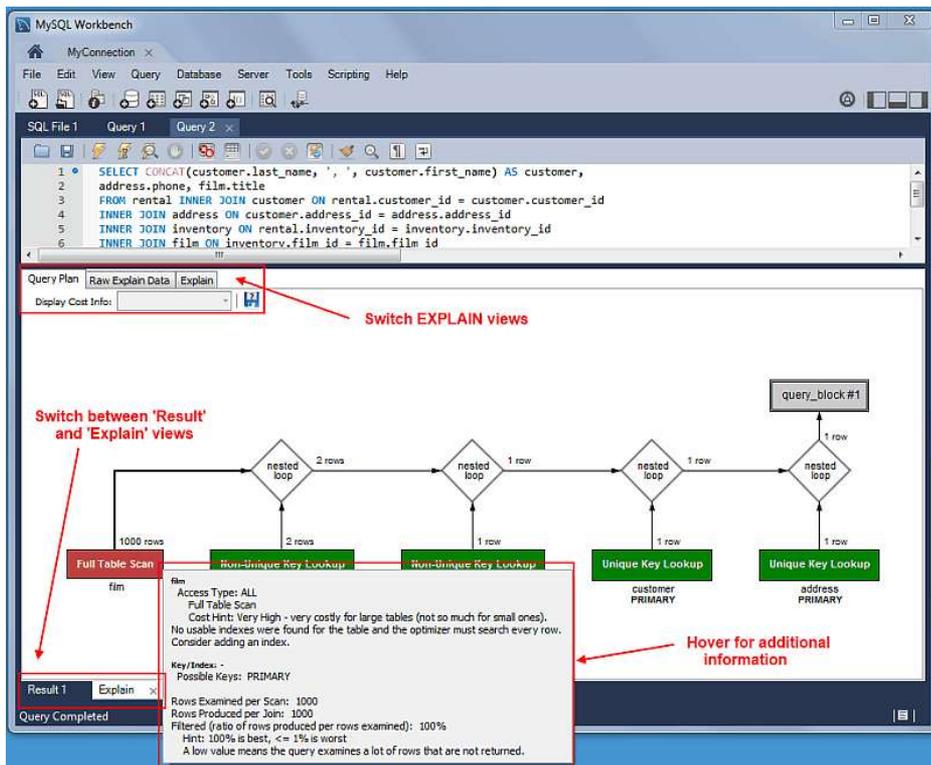
The screenshot displays the MySQL Workbench interface with the following components:

- Navigator:** Shows the database structure for 'sakila', including tables like actor, address, category, city, country, and customer.
- Query Editor:** Contains the SQL query: `SELECT * FROM sakila.actor;`
- Query Statistics:** Provides detailed performance metrics:
  - Timing (as measured at client side):** Execution time: 0:00:0.00000000
  - Timing (as measured by the server):** Execution time: 0:00:0.00043600, Table lock wait time: 0:00:0.00000000
  - Errors:** Had Errors: NO, Warnings: 0
  - Rows Processed:** Rows affected: 0, Rows sent to client: 200, Rows examined: 200
  - Temporary Tables:** Temporary dsk tables created: 0, Temporary tables created: 0
  - Joins per Type:** Full table scans (Select\_scan): 1, Joins using table scans (Select\_full\_join): 0, Joins using range search (Select\_full\_range\_join): 0, Joins with range checks (Select\_range\_check): 0, Joins using range (Select\_range): 0
  - Sorting:** Sorted rows (Sort\_rows): 0, Sort merge passes (Sort\_merge\_passes): 0, Sorts with ranges (Sort\_range): 0, Sorts with table scans (Sort\_scan): 0
  - Index Usage:** No Index used: YES, No good index used: NO
- Table Information:** Shows details for the 'actor' table, including columns: actor\_id (smallint(5) UNSIGNED, AI, PK), first\_name (varchar(45)), last\_name (varchar(45)), and last\_update (timestamp).

# Visual EXPLAIN v2



Visual EXPLAIN v1



Visual EXPLAIN v2

などなど、盛りだくさん

是非試してフィードバックを下さい！！

# 参考情報

- ダウンロード先

<http://dev.mysql.com/downloads/tools/workbench/>

- MySQL Workbench の紹介記事

モデリングツールから管理・開発統合環境に進化した  
MySQL Workbench 6.0

<http://thinkit.co.jp/book/2013/10/21/4571>

- MySQL Workbench チームのブログ

<http://mysqlworkbench.org/>

# 参考情報

- フィードバック先(バグ報告/機能追加リクエスト)  
<http://bugs.mysql.com/>

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