

mongoDB®

MongoDB Community Edition 7.0.8 설치 (w. webMethods MongoDB Adapter)

References

- [MongoDB Documentation](#)
- [MongoDB 계정 생성](#)
- [MongoDB Compass 다운로드 링크](#)
- [MongoDB Database/Collection/Document 개념 정리](#)
- [MongoDB Java Driver 다운로드](#)

STEP 1. Yum Repository 설정

```
# ROOT 계정으로 실행
$ su root

# 방화벽 설정
$ systemctl stop firewalld && systemctl disable firewalld

# YUM Repository 설정
$ vi /etc/yum.repos.d/mongodb-org-7.0.repo

[mongodb-org-7.0]
name=MongoDB Repository
baseurl=https://repo.mongodb.org/yum/redhat/7/mongodb-org/7.0/x86_64/
gpgcheck=1
enabled=1
gpgkey=https://pgp.mongodb.com/server-7.0.asc
```

```
:wq
```

STEP 2. MongoDB 패키지 설치

```
$ sudo yum install -y mongodb-org
```

```
... (중략)
```

```
Dependencies Resolved
```

=====		
Package	Arch	Version
=====		
Installing:		
mongodb-org	x86_64	7.0.8-1.el7
Installing for dependencies:		
mongodb-database-tools	x86_64	100.9.4-1
mongodb-mongosh	x86_64	2.2.3-1.el8
mongodb-org-database	x86_64	7.0.8-1.el7
mongodb-org-database-tools-extra	x86_64	7.0.8-1.el7
mongodb-org-mongos	x86_64	7.0.8-1.el7
mongodb-org-server	x86_64	7.0.8-1.el7
mongodb-org-tools	x86_64	7.0.8-1.el7

```
Transaction Summary
```

```
=====
```

```
Install 1 Package (+7 Dependent packages)
```

```
...
```

```
# 설치 후 mongod 유저 확인 (MongoDB 리눅스 계정 생성 확인)
```

```
$ cat /etc/group
```

```
... (중략)
```

```
stapsys:x:157:
```

```
stapdev:x:158:
```

```
tcpdump:x:72:
```

```
avahi:x:70:
```

```
slocate:x:21:
```

```
mongod:x:981:
```

- 주요 설치 목록
 - mongodb-org-server - mongod 데몬, init 설정 파일 포함 (/etc/mongod.conf)
 - mongodb-org-mongos - mongos 데몬

- mongodb-mongosh - MongoDB Shell

STEP 3. ulimit 설정 (ulimit 값 64000 이상 권장)

```
# 프로세스 시스템 리소스를 수정 (nproc)

$ vi /etc/security/limits.conf

...(중략)

# End of file

mongod soft memlock unlimited
mongod hard memlock unlimited
mongod soft nproc 200000
mongod hard nproc 200000
mongod soft nofile 200000
mongod hard nofile 200000

:wq
```

STEP 4. MongoDB 설정파일 확인 (/etc/mongod.conf)

```
$ vi /etc/mongod.conf

# mongod.conf

# for documentation of all options, see:
#   http://docs.mongodb.org/manual/reference/configuration-options/

# where to write logging data.
systemLog:
  destination: file
  logAppend: true
  path: /var/log/mongodb/mongod.log # 변경 불가 - SELinux 사용자 정의 설정 필요

# Where and how to store data.
storage:
  dbPath: /var/lib/mongo # 변경 불가 - SELinux 사용자 정의 설정 필요

# how the process runs
processManagement:
  fork: false
  timeZoneInfo: /usr/share/zoneinfo

# network interfaces
```

```
net:
  port: 27017
  # bindIp: 127.0.0.1 # Enter 0.0.0.0,:: to bind to all IPv4 and IPv6 address
  bindIp: 0.0.0.0
```

STEP 5. SELinux 정책 설치 (기본 설정)

```
# SELinux 정책 설정을 위한 관련 패키지 설치
$ sudo yum install -y git make checkpolicy policycoreutils selinux-policy-dev

# 정책 저장소 다운로드
$ git clone https://github.com/mongodb/mongodb-selinux

# 정책 적용
$ cd /mongodb-selinux
$ make
$ sudo make install

# 참고 정책 제거
$ cd /mongodb-selinux
$ sudo make uninstall
```

- [\[참고\] SELinux 사용자 정의 정책 설정](#)

STEP 6. Systemd 를 사용한 MongoDB 관리 커맨드

→ 실행 시 반드시 mongod 유저를 사용하여 실행한다.

```
$ sudo systemctl daemon-reload

# Mongo DB 시작
$ sudo systemctl start mongod

# Mongo DB 데몬 확인
$ sudo systemctl status mongod
```

- mongod.service - MongoDB Database Server

```
Loaded: loaded (/usr/lib/systemd/system/mongod.service; enabled; vendor preset: enabled)
Active: active (running) since 화 2024-04-09 11:20:21 KST; 4s ago
Docs: https://docs.mongodb.org/manual
Main PID: 4542 (mongod)
Tasks: 33
CGroup: /system.slice/mongod.service
└─4542 /usr/bin/mongod -f /etc/mongod.conf
```

```
4월 09 11:20:21 localhost.localdomain systemd[1]: Started MongoDB Database S
4월 09 11:20:21 localhost.localdomain mongod[4542]: {"t":{"$date":"2024-04-09
Hint: Some lines were ellipsized, use -l to show in full.
```

```
# Mongo DB 중지
$ sudo systemctl stop mongod

# Mongo DB 재시작
sudo systemctl restart mongod
```

STEP 7. MongoDB CLI 접속 및 admin 계정 변경 & 일반 계정 생성 (참고).

```
$ su - mongod

$ mongosh
...(중략)
Deprecation warnings:
  - Using mongosh on the current operating system is deprecated, and support
See https://www.mongodb.com/docs/mongodb-shell/install/#supported-operating-s

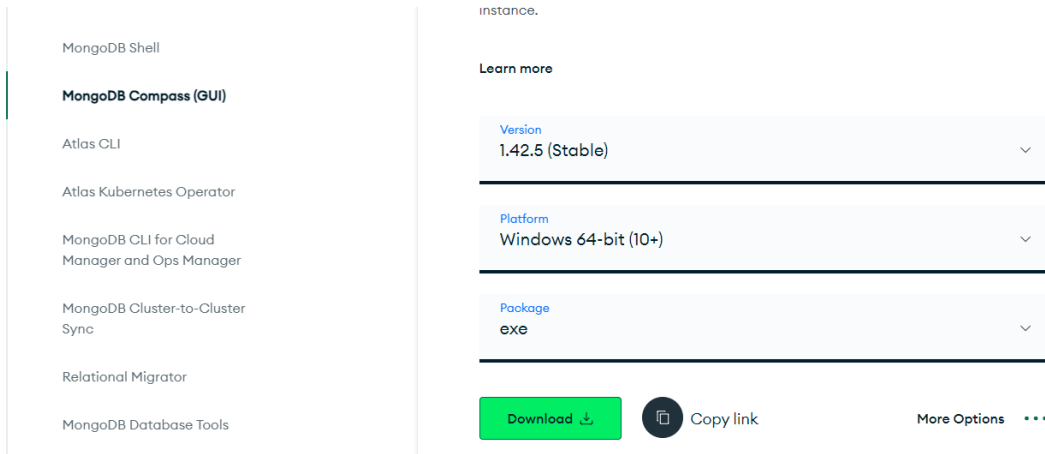
test> use admin

switched to db admin

# admin 계정 변경
admin> db.createUser(
  {
    user: "admin", # 원하는 사용자 이름으로 변경
    pwd: "dhfQoal3883", # 원하는 비밀번호로 변경
    roles: [ { role: "userAdminAnyDatabase", db: "admin" }, "readWriteAnyData
  }
)

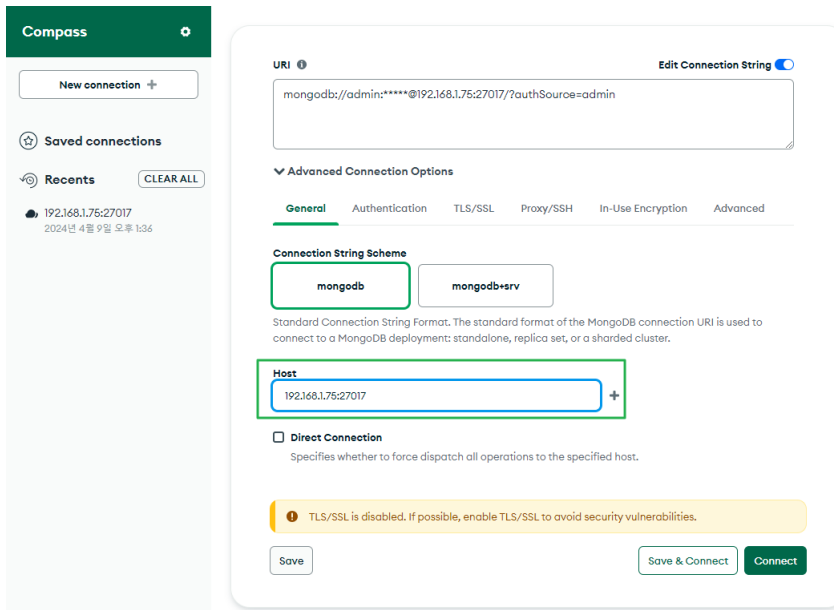
# 일반 유저 생성
admin > db.createUser(
  {
    user: "sol",
    pwd: "dhfQoal3883",
    roles: [ role: "readWrite" ]
  }
)
```

STEP 8. MongoDB Client (MongoDB Compass - GUI) 다운로드 및 연결 방법 (admin 계정 사용)



MongoDB Compass 다운로드 링크 에서 Compass 다운로드 및 설치

[Advanced Connection Options]



호스트 명 변경

New Connection

Connect to a MongoDB deployment

URI Edit Connection String

mongodb://admin:*****@192.168.1.75:27017/?authSource=admin&tls=false

▼ Advanced Connection Options

General Authentication TLS/SSL Proxy/SSH In-Use Encryption Advanced

Authentication Method

Username/Password ☐ OIDC (Preview) ☐ X.509 ☐ Kerberos ☐ LDAP ☐ AWS IAM ☐

Username Optional

Password Optional

Authentication Database Optional

Authentication Mechanism

Default ☐ SCRAM-SHA-1 ☐ SCRAM-SHA-256 ☐

TLS/SSL is disabled. If possible, enable TLS/SSL to avoid security vulnerabilities.

Save Save & Connect Connect

New to Compass and don't have a cluster?
If you don't already have a cluster, you can create one for free using [MongoDB Atlas](#).
[CREATE FREE CLUSTER](#)

How do I find my connection string in Atlas?
If you have an Atlas cluster, go to the Cluster view. Click the 'Connect' button for the cluster to which you wish to connect.
[See example](#)

How do I format my connection string?
[See example](#)

admin 계정 정보 와 db : admin 입력

New Connection

Connect to a MongoDB deployment

URI Edit Connection String

mongodb://admin:dhfQoal3883@192.168.1.75:27017/?tls=false&authSource=admin

▼ Advanced Connection Options

General Authentication **TLS/SSL** Proxy/SSH In-Use Encryption Advanced

SSL/TLS Connection

Default ☐ On ☐ **Off ☒**

Certificate Authority (pem) Select a file...
[Learn More](#)

☐ Use System Certificate Authority
Use the operating system's Certificate Authority stores.

Client Certificate and Key (pem) Select a file...
[Learn More](#)

Client Key Password

TLS/SSL is disabled. If possible, enable TLS/SSL to avoid security vulnerabilities.

Save Save & Connect Connect

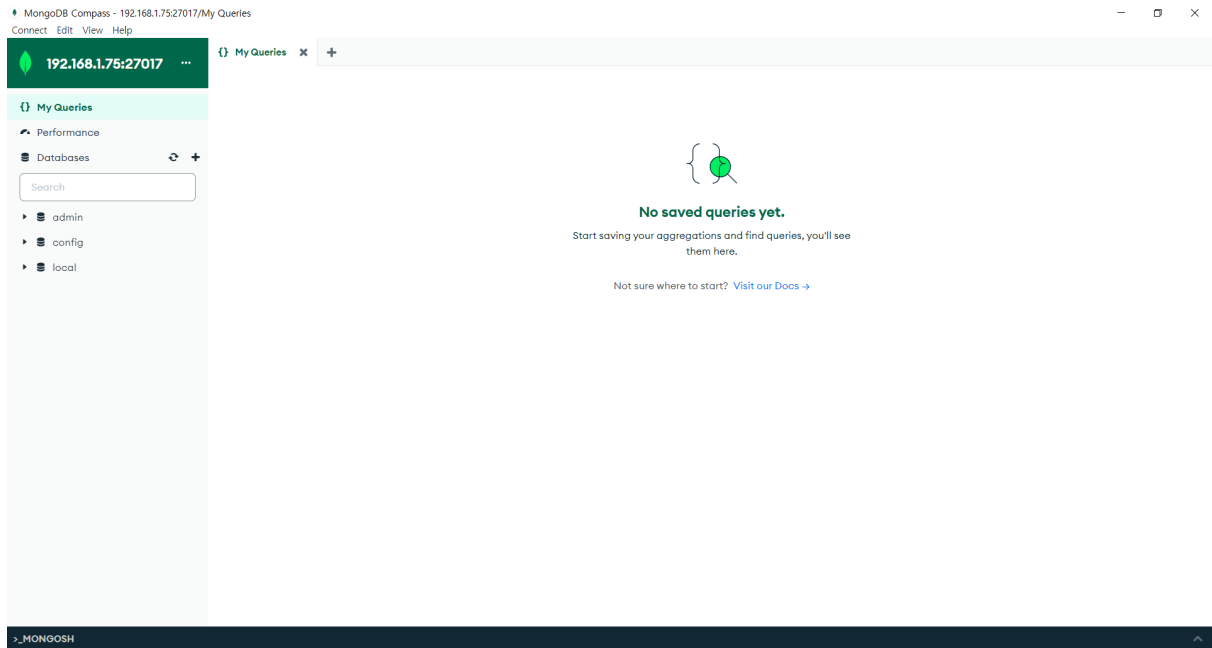
New to Compass and don't have a cluster?
If you don't already have a cluster, you can create one for free using [MongoDB Atlas](#).
[CREATE FREE CLUSTER](#)

How do I find my connection string in Atlas?
If you have an Atlas cluster, go to the Cluster view. Click the 'Connect' button for the cluster to which you wish to connect.
[See example](#)

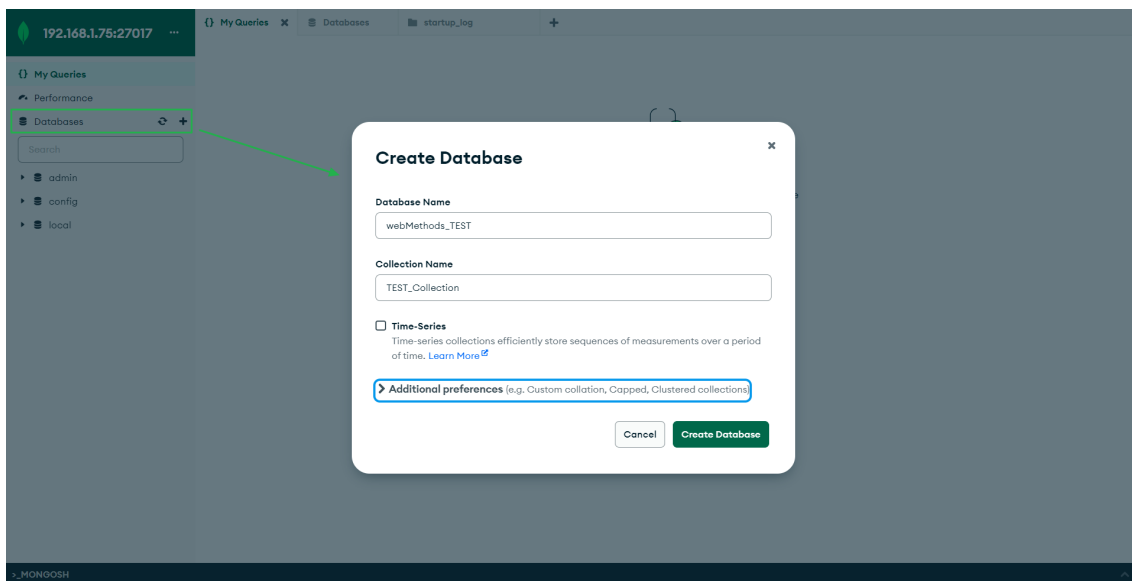
How do I format my connection string?
[See example](#)

SSL 설정 Off

→ mongodb://admin:dhfQoal3883@192.168.1.75:27017/?tls=false&authSource=admin



Save & Connect → 접속 완료 화면 예시

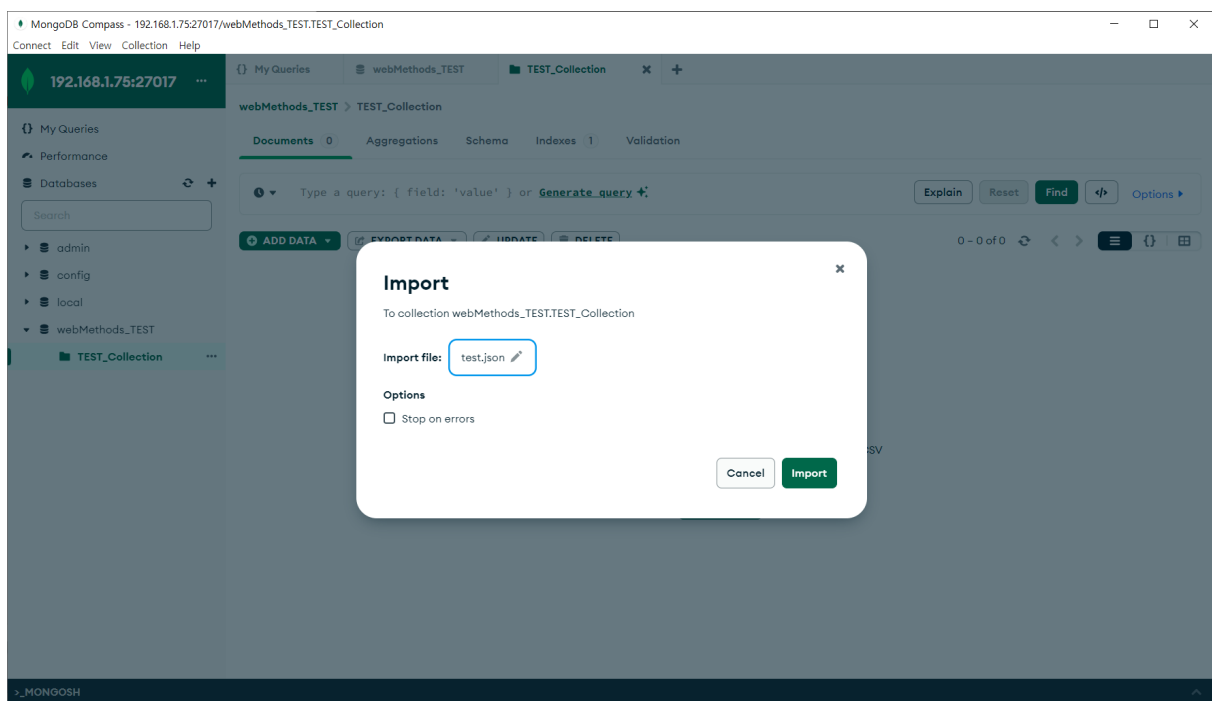


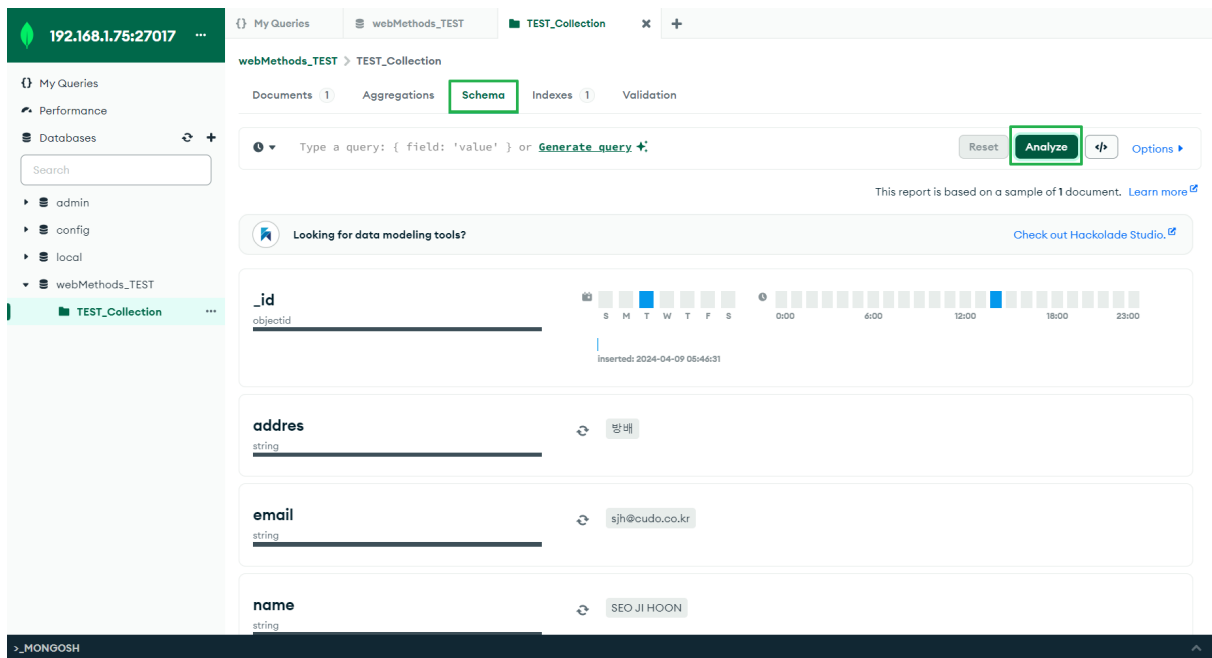
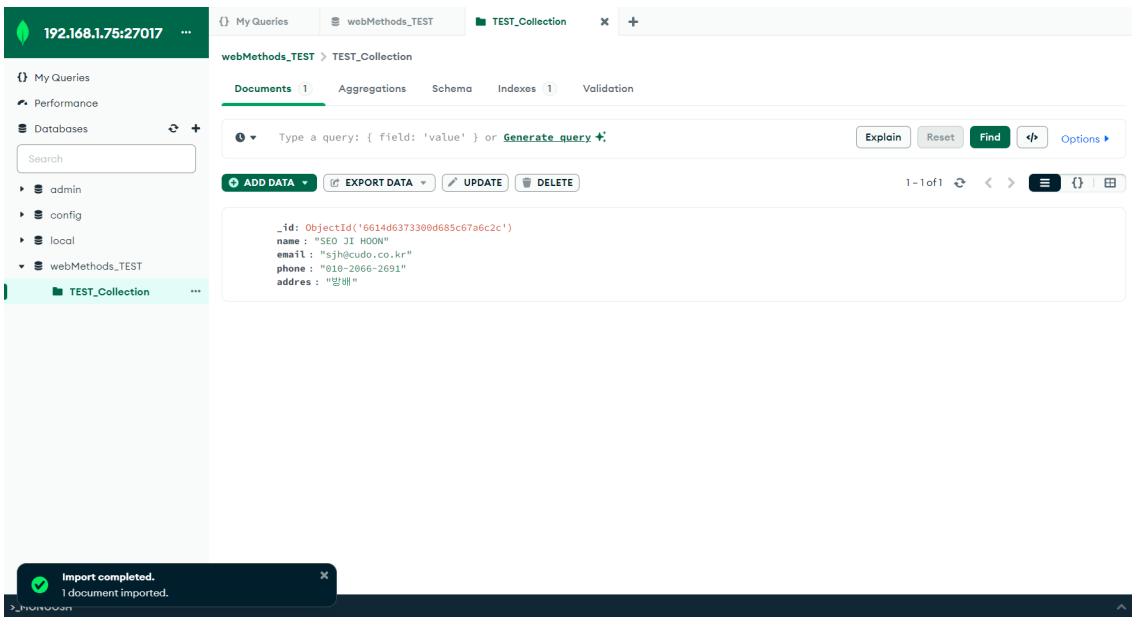
webMethods 테스트 용 Database 및 Collection 생성

- Collection 은 일종의 RDBMS의 Table 개념과 동일
- 컬렉션은 단일 데이터베이스에 존재
- 컬렉션은 스키마를 강요하지 않음
- 컬렉션 내부의 도큐먼트는 서로 다른 필드를 가질수 있음
- 컬렉션 안 Document 는 서로 유사하거나 관련된 목적을 갖음 (=데이터의 그룹화)

[JSON Document 업로드]


```
1 {  
2     "name" : "SEO JI HOON",  
3     "email" : "sjh@cudo.co.kr",  
4     "phone" : "010-2066-2691",  
5     "address" : "방배"  
6 }
```





Import 한 데이터를 Schema 탭에서 Analyze 를 통해 Document 스키마 확인 가능

※ MongoDB Adapter 설치 및 연결 테스트

webMethods Adapter 9.12 for MongoDB

IS Versions	Database support:	Driver support:	Notes
9.12 10.1 10.3 10.5 10.7 10.11 10.15	MongoDB 3.6 and MongoDB 4.2	mongo-java-driver-3.11.0.jar	
	MongoDB Atlas 4.4.9	mongo-java-driver-3.12.7.jar	
	MongoDB 6.0.0	mongo-java-driver-3.12.11.jar	
	MongoDB Atlas 5.0.10		

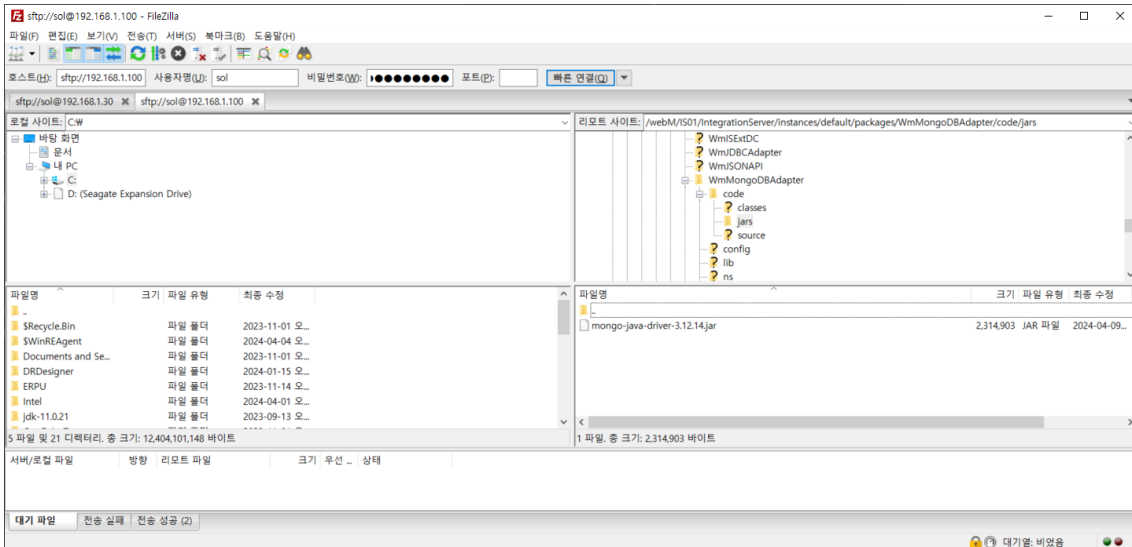
System Requirement 문서 - MongoDB Adapter Java Driver 관련

[참고] Jar 파일 다운로드 (링크) - 3.12.14.jar 파일 사용

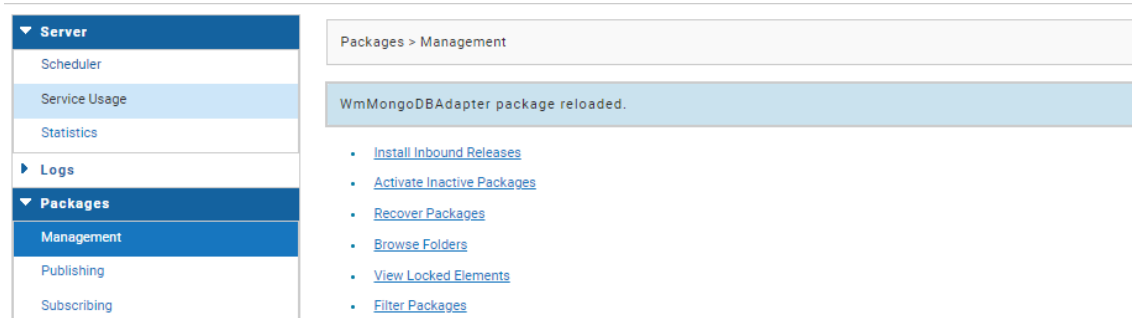
```
sol@192:/webM/IS01/IntegrationServer/instances/default/packages/WmMongoDBAdapter

합 계 0
drwxrwxr-x. 11 sol sol 156 2월 14 15:12 CUDO_Conn
drwxrwxr-x. 11 sol sol 156 2월 14 14:58 DEMO
drwxrwxr-x. 9 sol sol 117 2월 13 14:12 Default
drwxrwxr-x. 11 sol sol 156 3월 12 09:35 GMC
drwxrwxr-x. 11 sol sol 156 3월 27 10:03 OAUTH
drwxrwxr-x. 11 sol sol 139 2월 14 17:59 POC
drwxrwxr-x. 9 sol sol 171 3월 25 10:48 PSUtilities
drwxrwxr-x. 11 sol sol 156 2월 26 10:46 SAP_CO
drwxrwxr-x. 11 sol sol 156 2월 26 09:27 SAP_FI
drwxrwxr-x. 11 sol sol 156 2월 26 09:28 SAP_HR
drwxrwxr-x. 11 sol sol 156 2월 26 09:27 SAP_MM
drwxrwxr-x. 11 sol sol 159 2월 14 13:39 WeasyM
drwxrwxr-x. 8 sol sol 120 2월 14 13:38 WeasyMAgent
drwxrwxr-x. 8 sol sol 100 2월 13 14:12 WmART
drwxrwxr-x. 8 sol sol 100 2월 13 14:12 WmARTExtDC
drwxrwxr-x. 3 sol sol 20 2월 13 14:12 WmAS400
drwxrwxr-x. 8 sol sol 100 2월 13 14:12 WmAdmin
drwxrwxr-x. 8 sol sol 100 2월 13 14:12 WmCloud
drwxrwxr-x. 8 sol sol 100 2월 13 14:12 WmFlatFile
drwxrwxr-x. 8 sol sol 100 2월 13 14:12 WmISExtDC
drwxrwxr-x. 8 sol sol 100 2월 13 14:12 WmJDBCAdapter
drwxrwxr-x. 8 sol sol 100 2월 13 14:12 WmJSONAPI
drwxrwxr-x. 6 sol sol 72 4월 9 13:58 WmMongoDBAdapter
drwxrwxr-x. 10 sol sol 132 2월 13 14:12 WmMonitor
drwxrwxr-x. 9 sol sol 117 2월 13 14:05 WmPublic
drwxrwxr-x. 9 sol sol 117 2월 13 14:12 WmRoot
drwxrwxr-x. 8 sol sol 100 2월 13 14:12 WmWin32
drwxrwxr-x. 8 sol sol 100 2월 13 14:12 WmXSLT
```

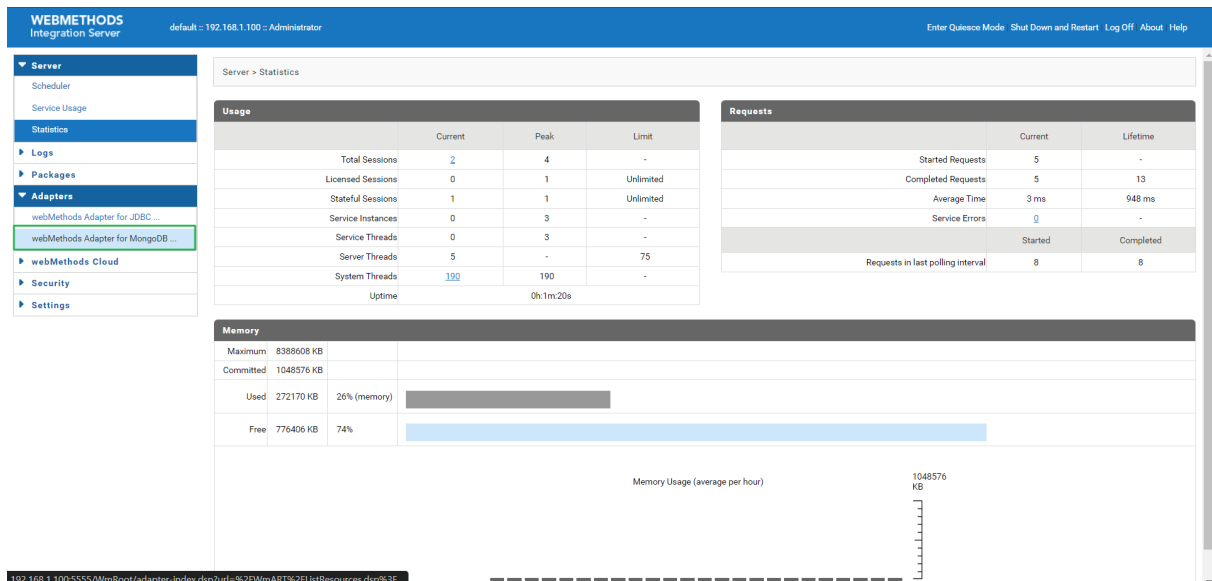
→ webMethods Adapter 9.12 for MongoDB 사전 설치 필요



다운로드 받은 Jar 파일 ...packages/WmMongoDBAdapter/code/jars 안에 Java Driver 업로드
mongo-java-driver-3.12.14.jar 파일로 테스트



Package Reload



MongoDB Adapter 설치 후 Admin 화면

WEBMETHODS

Integration Server

default : 192.168.1.100 - Administrator

Close Window

▼ webMethods Adapter for MongoDB

Connections

Polling Notifications

Listeners

Listener Notifications

About

Adapters > webMethods Adapter for MongoDB > Connections

Configure New Connection

Filter Connections

Disable Suspended Connections

No Records Found

Connections

Connection Name ▲ ▼	Package Name ▲ ▼	Connection Type ▲ ▼	Enabled ▲ ▼	Edit	View	Copy	Delete
No connections found							

192.168.1.100:5555/WmART/ListAdapterConnTypes.dsp?adapterTypeName=WmMongoAd...

Create New Connection

WEBMETHODS

Integration Server

default : 192.168.1.100 - Administrator

Close Window

▼ webMethods Adapter for MongoDB

Connections

Polling Notifications

Listeners

Listener Notifications

About

Adapters > webMethods Adapter for MongoDB > Connection Types

Return to webMethods Adapter for MongoDB Connections

Connection Types

Connection Type	Description
webMethods Adapter for MongoDB Connection	Adapter Connection for accessing database using MongoDB

192.168.1.100:5555/WmART/GetConnProperties.dsp?adapterTypeName=WmMongoAdapt...

WEBMETHODS Integration Server default: 192.168.1.100 - Administrator

Adapters > webMethods Adapter for MongoDB > Edit Connection

Return to webMethods Adapter for MongoDB Connections

MongoDB-MongoDB_75_Conn Details

Connection Type: webMethods Adapter for MongoDB Connection
Package Name: CUDO_Conn

Connection Properties

Connection URL: mongodb://192.168.1.75:27017
Database Name: webMethods_TEST
Authentication Mechanism: None

Read Preference: primary
Read Concern: local
Write Concern: {w:1, true, writeout:1000}

Server Selection Timeout (msec): 30000
Socket Connection Timeout (msec): 10000
Socket Read Timeout (msec): 10000

Enable SSL: false
Required Replica Set:
Compression Set:

Connection Management Properties

Enable Connection Pooling: true
Minimum Pool Size: 0
Maximum Pool Size: 10
Pool Increment Size: 1
Block Timeout (msec): 1000
Expire Timeout (msec): 1000
Startup Retry Count: 0
Startup Backoff Timeout (sec): 10

Save Changes Test Connection

Database - webMethods_TEST 연결 예시

WEBMETHODS Integration Server default: 192.168.1.100 - Administrator

Adapters > webMethods Adapter for MongoDB > Connections

Configure New Connection
Filter Connections
Disable Suspended Connections

1:1 of 1

Connection Name	Package Name	Connection Type	Enabled	Edit	View	Copy	Delete
MongoDB-MongoDB_75_Conn	CUDO_Conn	webMethods Adapter for MongoDB Connection	Yes				

Connection Enable

Package Navigator Package Explorer test_service

Database: webMethods_TEST
Collection: TEST_Collection
Sampling Limit: 100
Acknowledgement: 1
Journal: ☒
Timeout (ms): 1000
Bypass Document Validation: ☐

Collection | Insert | Adapter Settings | Input/Output | Comments

Pipeline Results Swagger UI Search Progress

☐ Mapping predictions

Designer 에서 Adapter Service 생성 예시 (Insert)

Package Navigator Package Explorer test_service

Document Fields	Field Type	Input Field	Input Field Type
name	STRING	name	java.lang.String
email	STRING	email	java.lang.String
phone	STRING	phone	java.lang.String
address	STRING	address	java.lang.String

Collection | Insert | Adapter Settings | Input/Output | Comments

Pipeline Results Swagger UI Search Progress

Designer 에서 Adapter Service 생성 예시 (Insert)

실행

Insert 확인

※ Mongo DB 기본 포트

기본포트	설명
27017	<code>mongod</code> 및 <code>mongos</code> 인스턴스의 기본 포트입니다. 이 포트를 <code>port</code> 또는 <code>--port</code>
27018	<code>--shardsvr</code> 명령줄 옵션을 사용하여 실행할 때 <code>mongod</code> 에 대한 기본 포트 또는 구성 파일의 <code>shardsvr</code> 설정에 대한 <code>clusterRole</code> 값입니다.
27019	<code>--configsvr</code> 명령줄 옵션을 사용하여 실행할 때 <code>mongod</code> 에 대한 기본 포트 또는 구성 파일의 <code>configsvr</code> 설정에 대한 <code>clusterRole</code> 값입니다.
27020	<code>mongocryptd</code> 메시지를 수신하는 기본 포트입니다. <u>MongoDB Enterprise Server(버전 4.2 이상)</u> , <code>mongocryptd</code> 와 함께 설치되며 자동 암호화 작업을 지원합니다.

※ Trouble Shooting

- 재 기동 `mongod.service: main process exited, code=exited, status=14/n/a` 에러 시
 - restart 시 lock 파일과 파일 권한 때문에 발생하는 에러
 - 관련 파일을 모두 `mongod` 로 권한을 변경 & lock 파일 삭제 후 재기동

```
$ cd /var/lib/mongo
$ ll
... (중략)
-rw-----. 1 mongod mongod    50  4월  9 11:20 WiredTiger
-rw-----. 1 mongod mongod    21  4월  9 13:24 WiredTiger.lock
-rw-----. 1 mongod mongod  1472  4월  9 13:26 WiredTiger.turtle
-rw-----. 1 mongod mongod 77824  4월  9 13:26 WiredTiger.wt
-rw-----. 1 mongod mongod  4096  4월  9 13:24 WiredTigerHS.wt
-rw-----. 1 mongod mongod 36864  4월  9 13:24 _mdb_catalog.wt
-rw-----. 1 mongod mongod 36864  4월  9 13:24 collection-0-8256049204533557898.wt
-rw-----. 1 mongod mongod 36864  4월  9 13:25 collection-2-8256049204533557898.wt
-rw-----. 1 mongod mongod 20480  4월  9 13:01 collection-4-8256049204533557898.wt
-rw-----. 1 mongod mongod 20480  4월  9 13:01 collection-7-8256049204533557898.wt
drwx-----. 2 mongod mongod    71  4월  9 13:27 diagnostic.data
-rw-----. 1 mongod mongod 36864  4월  9 13:24 index-1-8256049204533557898.wt
-rw-----. 1 mongod mongod 36864  4월  9 13:25 index-3-8256049204533557898.wt
-rw-----. 1 mongod mongod 20480  4월  9 13:01 index-5-8256049204533557898.wt
-rw-----. 1 mongod mongod 20480  4월  9 13:25 index-6-8256049204533557898.wt
-rw-----. 1 mongod mongod 20480  4월  9 13:01 index-8-8256049204533557898.wt
-rw-----. 1 mongod mongod 20480  4월  9 13:01 index-9-8256049204533557898.wt
drwx-----. 2 mongod mongod   110  4월  9 13:24 journal
-rw-----. 1 mongod mongod     6  4월  9 13:24 mongod.lock
-rw-----. 1 mongod mongod 36864  4월  9 13:26 sizeStorer.wt
-rw-----. 1 mongod mongod   114  4월  9 11:20 storage.bson
```



```
$ rm -rf WiredTiger.lock mongod.lock  
  
$ chown -R mongod.mongod /var/lib/mongo  
  
$ systemctl restart mongod
```