

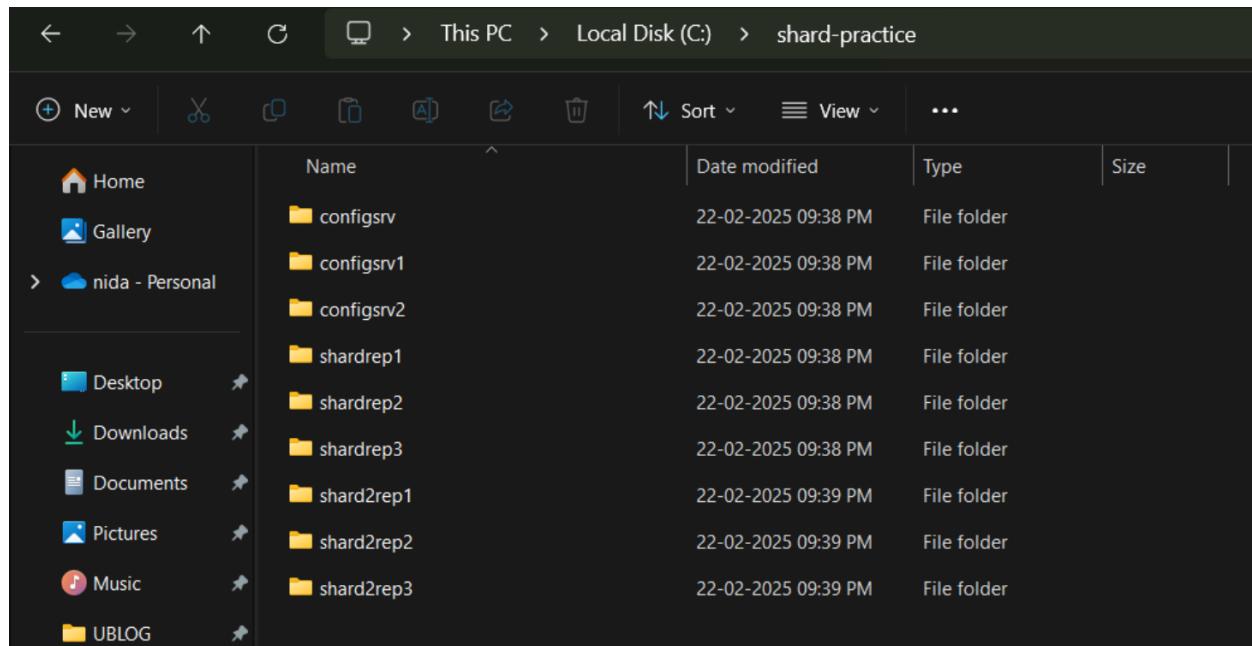
Practical 7

Sharding

L030

Steps:

Step1:create respective folders for config server, shard (replica set)



	Name	Date modified	Type	Size
Home				
Gallery				
nida - Personal				
Desktop				
Downloads				
Documents				
Pictures				
Music				
UBLOG				
configsrv	22-02-2025 09:38 PM	File folder		
configsrv1	22-02-2025 09:38 PM	File folder		
configsrv2	22-02-2025 09:38 PM	File folder		
shardrep1	22-02-2025 09:38 PM	File folder		
shardrep2	22-02-2025 09:38 PM	File folder		
shardrep3	22-02-2025 09:38 PM	File folder		
shard2rep1	22-02-2025 09:39 PM	File folder		
shard2rep2	22-02-2025 09:39 PM	File folder		
shard2rep3	22-02-2025 09:39 PM	File folder		

STEP 2: Initialize MongoDB Config Servers with configsvr and replSet options to form a Replica Set of Config Servers

```
mongod --configsvr --port=1030 --replSet="config-repl"  
--dbpath="C:\shard-practice\configsrv"
```

	Name	Date modified	Type	Size
	diagnostic.data	22-02-2025 10:44 PM	File folder	
	journal	22-02-2025 10:33 PM	File folder	
	_mdb_catalog.wt	22-02-2025 10:40 PM	WT File	40 KB
	collection-0--2774652490167648602.wt	22-02-2025 10:34 PM	WT File	20 KB
	collection-2--2774652490167648602.wt	22-02-2025 10:44 PM	WT File	36 KB
	collection-4--2774652490167648602.wt	22-02-2025 10:34 PM	WT File	20 KB
	collection-6--2774652490167648602.wt	22-02-2025 10:40 PM	WT File	36 KB
	collection-8--2774652490167648602.wt	22-02-2025 10:34 PM	WT File	20 KB
	collection-10--2774652490167648602.wt	22-02-2025 10:34 PM	WT File	20 KB
	collection-12--2774652490167648602.wt	22-02-2025 10:40 PM	WT File	36 KB
	collection-14--2774652490167648602.wt	22-02-2025 10:44 PM	WT File	48 KB
	collection-15--2774652490167648602.wt	22-02-2025 10:40 PM	WT File	36 KB
	collection-17--2774652490167648602.wt	22-02-2025 10:40 PM	WT File	20 KB
	collection-19--2774652490167648602.wt	22-02-2025 10:39 PM	WT File	4 KB
	collection-22--2774652490167648602.wt	22-02-2025 10:39 PM	WT File	4 KB
	collection-24--2774652490167648602.wt	22-02-2025 10:39 PM	WT File	4 KB
	collection-26--2774652490167648602.wt	22-02-2025 10:39 PM	WT File	4 KB
	collection-32--2774652490167648602.wt	22-02-2025 10:39 PM	WT File	4 KB
	collection-35--2774652490167648602.wt	22-02-2025 10:39 PM	WT File	4 KB
	collection-39--2774652490167648602.wt	22-02-2025 10:39 PM	WT File	4 KB
	collection-42--2774652490167648602.wt	22-02-2025 10:39 PM	WT File	4 KB
		
		

Now use the following command for config server 2:

```
mongod --configsvr --port=1040 --replicaSet="config-repl"
--dbpath="C:\shard-practice\configsrv1"
```

```
PS C:\Users\khan> mongod --configsvr --port=1040 --repSet="config-repl" --dbpath="C:\shard-practice\configsvr1"
{"t":1,"$date":"2025-02-22T22:34:28.632+05:30","s":"I","c":"NETWORK","id":4915701,"ctx":"thread1","msg":"Initialized wire specification","attr":{"spec":{"incomingExternalClient":true,"minWireVersion":0,"maxWireVersion":21,"incomingInternalClient":{"minWireVersion":0,"maxWireVersion":21}, "outgoing":{"minWireVersion":6,"maxWireVersion":21}},"isInternalClient":true}}
{"t":2,"$date":"2025-02-22T22:34:28.633+05:30","s":"I","c":"CONTROL","id":23285,"ctx":"thread1","msg":"Automatically disabling TLS 1.0, to force-enable TLS 1.3 only - specify --sslDisabledProtocols \"none\""}
{"t":3,"$date":"2025-02-22T22:34:28.636+05:30","s":"I","c":"NETWORK","id":4648602,"ctx":"thread1","msg":"Implicit TCP FastOpen in use."}
{"t":4,"$date":"2025-02-22T22:34:28.638+05:30","s":"I","c":"REPL","id":5123008,"ctx":"thread1","msg":"Successfully registered PrimaryOnlyService","attr":{"service":"ReshardingCoordinatorService","namespace":"config.reshardingOperations"}}
{"t":5,"$date":"2025-02-22T22:34:28.638+05:30","s":"I","c":"REPL","id":5123008,"ctx":"thread1","msg":"Successfully registered PrimaryOnlyService","attr":{"service":"ConfigFrsCoordinatorService","namespace":"config.shardingConfigFrs_coordinators"}}
{"t":6,"$date":"2025-02-22T22:34:28.638+05:30","s":"I","c":"REPL","id":5123008,"ctx":"thread1","msg":"Successfully registered PrimaryOnlyService","attr":{"service":"RenamCollectionParticipantService","namespace":"config.localRenameParticipants"}}
 {"t":7,"$date":"2025-02-22T22:34:28.638+05:30","s":"I","c":"REPL","id":5123008,"ctx":"thread1","msg":"Successfully registered PrimaryOnlyService","attr":{"service":"ShardingDDLCordinatorService","namespace":"config.system.sharding_ddl_coordinators"}}
 {"t":8,"$date":"2025-02-22T22:34:28.638+05:30","s":"I","c":"REPL","id":5123008,"ctx":"thread1","msg":"Successfully registered PrimaryOnlyService","attr":{"service":"ReshardingDonorService","namespace":"config.localReshardingOperations.donor"}}
 {"t":9,"$date":"2025-02-22T22:34:28.638+05:30","s":"I","c":"REPL","id":5123008,"ctx":"thread1","msg":"Successfully registered PrimaryOnlyService","attr":{"service":"ReshardingRecipientService","namespace":"config.localReshardingOperations.recipient"}}
 {"t":10,"$date":"2025-02-22T22:34:28.638+05:30","s":"I","c":"REPL","id":5123008,"ctx":"thread1","msg":"Successfully registered PrimaryOnlyService","attr":{"service":"TenantMigrationDonorService","namespace":"config.tenantMigrationDonors"}}
 {"t":11,"$date":"2025-02-22T22:34:28.638+05:30","s":"I","c":"REPL","id":5123008,"ctx":"thread1","msg":"Successfully registered PrimaryOnlyService","attr":{"service":"TenantMigrationRecipientService","namespace":"config.tenantMigrationRecipients"}}
 {"t":12,"$date":"2025-02-22T22:34:28.639+05:30","s":"I","c":"CONTROL","id":51945608,"ctx":"thread1","msg":"Multi threading initialized"}
 {"t":13,"$date":"2025-02-22T22:34:28.639+05:30","s":"I","c":"TENANT_M","id":7091600,"ctx":"thread1","msg":"Starting TenantMigrationAccessBlockerRegistry"}
}
{"t":14,"$date":"2025-02-22T22:34:28.641+05:30","s":"I","c":"CONTROL","id":4615611,"ctx":"initandlisten","msg":"MongoDB starting","attr":{"pid":2112,"port":1040,"dbPath":"C:/shard-practice/configsvr1","architecture":"64-bit","host":"LAPTOP-KPJW609R"}}
 {"t":15,"$date":"2025-02-22T22:34:28.641+05:30","s":"I","c":"CONTROL","id":23398,"ctx":"initandlisten","msg":"Target operating system minimum version","attr":{"targetMinOS":"Windows 7/Windows Server 2008 R2"}}
 {"t":16,"$date":"2025-02-22T22:34:28.641+05:30","s":"I","c":"CONTROL","id":23403,"ctx":"initandlisten","msg":"Build Info","attr":{"buildInfo":{"version":"7.0.16","gitVersion":"18b94944fcda8e30b0e10243bc18268251clf","modules":[],"allocator":"tcmalloc","environment":{"distmod":"windows","distarch":"x86_64","target_arch":"x86_64"}}}}
 {"t":17,"$date":"2025-02-22T22:34:28.641+05:30","s":"I","c":"CONTROL","id":51765,"ctx":"initandlisten","msg":"Operating System","attr":{"os":{"name":"Microsoft Windows 10","version":"10.0 (build 26100)"}}
 {"t":18,"$date":"2025-02-22T22:34:28.641+05:30","s":"I","c":"CONTROL","id":21951,"ctx":"initandlisten","msg":"Options set by command line","attr":{"op
```

```
mongod --configsvr --port=1050 --replicaSet="config-repl"  
--dbpath="C:\shard-practice\configsrv2"
```

```
PS C:\Users\khann> mongod --configsvr --port=1050 --repSet="config-repl" --dbpath="C:\shard-practice\configsvr2"
{"t":1,"$date":"2025-02-22T22:35:16.810+05:30","s":"I","c":"NETWORK","id":4915701,"ctx":"thread1","msg":"Initialized wire specification","attr":{"spec":{"incomingExternalClient":{"minWireVersion":0,"maxWireVersion":21}, "incomingInternalClient":{"minWireVersion":0,"maxWireVersion":21}, "outgoing":{"minWireVersion":6,"maxWireVersion":21}, "isInternalClient":true}}}
[{"t":1,"$date":"2025-02-22T22:35:16.817+05:30","s":"I","c":"CONTROL","id":23285,"ctx":"thread1","msg":"Automatically disabling TLS 1.0, to force-enable TLS 1.0 specify --sslDisabledProtocols 'none'"}]
[{"t":1,"$date":"2025-02-22T22:35:18.572+05:30","s":"I","c":"NETWORK","id":4648602,"ctx":"thread1","msg":"Implicit TCP FastOpen in use."}]
[{"t":1,"$date":"2025-02-22T22:35:18.575+05:30","s":"I","c":"REPL","id":5123008,"ctx":"thread1","msg":"Successfully registered PrimaryOnlyService","attr":{"service":"ReshardingCoordinatorService","namespace":"config.reshardingOperations"}}
[{"t":1,"$date":"2025-02-22T22:35:18.575+05:30","s":"I","c":"REPL","id":5123008,"ctx":"thread1","msg":"Successfully registered PrimaryOnlyService","attr":{"service":"ConfigsvrCoordinatorService","namespace":"config.sharding.configsvr_coordinators"}}
[{"t":1,"$date":"2025-02-22T22:35:18.575+05:30","s":"I","c":"REPL","id":5123008,"ctx":"thread1","msg":"Successfully registered PrimaryOnlyService","attr":{"service":"RenameCollectionParticipantService","namespace":"config.localRenameParticipants"}}
[{"t":1,"$date":"2025-02-22T22:35:18.576+05:30","s":"I","c":"REPL","id":5123008,"ctx":"thread1","msg":"Successfully registered PrimaryOnlyService","attr":{"service":"ShardingDDLCoordinator","namespace":"config.system.sharding_ddl_coordinators"}}
[{"t":1,"$date":"2025-02-22T22:35:18.576+05:30","s":"I","c":"REPL","id":5123008,"ctx":"thread1","msg":"Successfully registered PrimaryOnlyService","attr":{"service":"ReshardingDonorService","namespace":"config.localReshardingOperations.donor"}}
[{"t":1,"$date":"2025-02-22T22:35:18.576+05:30","s":"I","c":"REPL","id":5123008,"ctx":"thread1","msg":"Successfully registered PrimaryOnlyService","attr":{"service":"ReshardingRecipientService","namespace":"config.localReshardingOperations.recipient"}}
[{"t":1,"$date":"2025-02-22T22:35:18.576+05:30","s":"I","c":"REPL","id":5123008,"ctx":"thread1","msg":"Successfully registered PrimaryOnlyService","attr":{"service":"TenantMigrationDonorService","namespace":"config.tenantMigrationDonors"}}
[{"t":1,"$date":"2025-02-22T22:35:18.576+05:30","s":"I","c":"REPL","id":5123008,"ctx":"thread1","msg":"Successfully registered PrimaryOnlyService","attr":{"service":"TenantMigrationRecipientService","namespace":"config.tenantMigrationRecipients"}}
[{"t":1,"$date":"2025-02-22T22:35:18.576+05:30","s":"I","c":"CONTROL","id":5945603,"ctx":"thread1","msg":"Multi threading initialized"]
[{"t":1,"$date":"2025-02-22T22:35:18.576+05:30","s":"I","c":"TENANT_M","id":7091600,"ctx":"thread1","msg":"Starting TenantMigrationAccessBlockerRegistry"}]
[{"t":1,"$date":"2025-02-22T22:35:18.578+05:30","s":"I","c":"CONTROL","id":1615611,"ctx":"initandlisten","msg":"MongoDB starting","attr":{"pid":15936,"pport":1050,"dbPath":"C:/shard-practice/configsvr2","architecture":"64-bit","host":"LAPTOP-KPJH609R"}}
[{"t":1,"$date":"2025-02-22T22:35:18.578+05:30","s":"I","c":"CONTROL","id":23398,"ctx":"initandlisten","msg":"Target operating system minimum version","attr":{"targetMinOS":"Windows 7/Windows Server 2008 R2"}}
[{"t":1,"$date":"2025-02-22T22:35:18.578+05:30","s":"I","c":"CONTROL","id":23403,"ctx":"initandlisten","msg":"Build Info","attr":{"buildInfo":{"version":"10.0.16","gitVersion":"18694944fcfad8e30b0e10243bc18268251cf","modules":[],"allocator":"tcmalloc","environment":{"distmod":"windows","distarch":"x86_64","target_arch":"x86_64"}}}}
[{"t":1,"$date":"2025-02-22T22:35:18.578+05:30","s":"I","c":"CONTROL","id":51765,"ctx":"initandlisten","msg":"Operating System","attr":{"os":{"name":"Microsoft Windows 10","version":"10.0 (build 26100)"}}
[{"t":1,"$date":"2025-02-22T22:35:18.578+05:30","s":"I","c":"CONTROL","id":21951,"ctx":"initandlisten","msg":"Options set by command line","attr":{"op
```

Step3:Connect to anyone of them using mongosh and Initiate Replica Set
>mongosh --host="localhost:1030"

```
Command Prompt - mongod  Windows PowerShell  Windows PowerShell  mongosh mongodb://localhost
Windows PowerShell
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\khann> mongosh --host="localhost:1030"
Current Mongosh Log ID: 67ba0403cb204eaf5f2a7e0
Connecting to:      mongodb://localhost:1030/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+2.1.3
Using MongoDB:     7.0.16
Using Mongosh:     2.1.3
mongosh 2.4.0 is available for download: https://www.mongodb.com/try/download/shell

For mongosh info see: https://docs.mongodb.com/mongodb-shell/

-----
The server generated these startup warnings when booting
2025-02-22T22:33:34.153+05:30: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
2025-02-22T22:33:34.154+05:30: This server is bound to localhost. Remote systems will be unable to connect to this server. Start the server with --bind_ip <address> to specify which IP addresses it should serve responses from, or with --bind_ip_all to bind to all interfaces. If this behavior is desired, start the server with --bind_ip 127.0.0.1 to disable this warning
-----
test>
```

```
rs.initiate({ _id: "config-repl", configsvr: true, members: [ { _id: 0, host: "localhost:1030" }, { _id: 1, host: "localhost:1040" }, { _id: 2, host: "localhost:1050" } ] });
```

```
test> rs.initiate({ _id: "config-repl", configsvr: true, members: [ { _id: 0, host: "localhost:1030" }, { _id: 1, host: "localhost:1040" }, { _id: 2, host: "localhost:1050" } ] });
{ ok: 1 }
```

Step4: Check the status

```
rs.status();
```

```

members: [
  {
    _id: 0,
    name: 'localhost:1030',
    health: 1,
    state: 1,
    stateStr: 'PRIMARY',
    uptime: 530,
    optime: { ts: Timestamp({ t: 1740244341, i: 1 }), t: Long('1') },
    optimeDate: ISODate('2025-02-22T17:12:21.000Z'),
    lastAppliedWallTime: ISODate('2025-02-22T17:12:21.805Z'),
    lastDurableWallTime: ISODate('2025-02-22T17:12:21.805Z'),
    syncSourceHost: '',
    syncSourceId: -1,
    infoMessage: '',
    electionTime: Timestamp({ t: 1740244184, i: 1 }),
    electionDate: ISODate('2025-02-22T17:09:44.000Z'),
    configVersion: 1,
    configTerm: 1,
    self: true,
    lastHeartbeatMessage: ''
  },
  {
    _id: 1,
    name: 'localhost:1040',
    health: 1,
    state: 2,
    stateStr: 'SECONDARY',
    uptime: 169,
    optime: { ts: Timestamp({ t: 1740244341, i: 1 }), t: Long('1') },
    optimeDurable: { ts: Timestamp({ t: 1740244341, i: 1 }), t: Long('1') },
    optimeDate: ISODate('2025-02-22T17:12:21.000Z'),
    optimeDurableDate: ISODate('2025-02-22T17:12:21.000Z'),
    lastAppliedWallTime: ISODate('2025-02-22T17:12:21.805Z'),
    lastDurableWallTime: ISODate('2025-02-22T17:12:21.805Z'),
    lastHeartbeat: ISODate('2025-02-22T17:12:22.168Z')
  }
]

```

Step 5 : Now we will create the shard servers. Initialize MongoDB Shards using shardsvr and replSet options to form a Replica Set of Shards

```
>mongod --shardsvr --port=1130 --dbpath="C:\shard-practice\shardrep1"
--replSet="shard_repl"
```

```
Command Prompt - mongod  Windows PowerShell  Windows PowerShell  mongosh mongoDB/localhost  Windows PowerShell
Windows PowerShell
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PS C:\Users\khann> mongod --shardsvr --port=1130 --dbpath="C:\shard-practice\shardrep1" --replSet="shard_repl"
{"t": {"$date": "2025-02-22T22:46:34.353+05:30"}, "s": "I", "c": "CONTROL", "id": 23285, "ctx": "thread1", "msg": "Automatically disabling TLS 1.0, to force-enable TLS 1.0 specify --sslDisabledProtocols 'none'"}
{"t": {"$date": "2025-02-22T22:46:34.356+05:30"}, "s": "I", "c": "NETWORK", "id": 4915701, "ctx": "thread1", "msg": "Initialized wire specification", "attr": {"spec": "incomingExternalClient": {"minWireVersion": 0, "maxWireVersion": 21}, "incomingInternalClient": {"minWireVersion": 0, "maxWireVersion": 21}, "outgoing": {"minWireVersion": 6, "maxWireVersion": 21}, "isInternalClient": true}}
{"t": {"$date": "2025-02-22T22:46:34.356+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Implicit TCP FastOpen in use."}
{"t": {"$date": "2025-02-22T22:46:36.170+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "RenameCollectionParticipantService", "namespace": "config.localRenameParticipants"}}
{"t": {"$date": "2025-02-22T22:46:36.170+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "ShardingDDLCoordinator", "namespace": "config.system.sharding_ddl_coordinators"}}
{"t": {"$date": "2025-02-22T22:46:36.170+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "ReshardingDonorService", "namespace": "config.localReshardingOperations.donor"}}
{"t": {"$date": "2025-02-22T22:46:36.170+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "ReshardingRecipientService", "namespace": "config.localReshardingOperations.recipient"}}
{"t": {"$date": "2025-02-22T22:46:36.170+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "TenantMigrationDonorService", "namespace": "config.tenantMigrationDonors"}}
{"t": {"$date": "2025-02-22T22:46:36.170+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "TenantMigrationRecipientService", "namespace": "config.tenantMigrationRecipients"}}
{"t": {"$date": "2025-02-22T22:46:36.171+05:30"}, "s": "I", "c": "CONTROL", "id": 5945603, "ctx": "thread1", "msg": "Multi threading initialized"}
{"t": {"$date": "2025-02-22T22:46:36.171+05:30"}, "s": "I", "c": "TENANT_M", "id": 7091600, "ctx": "thread1", "msg": "Starting TenantMigrationAccessBlockerRegistry"}
{"t": {"$date": "2025-02-22T22:46:36.172+05:30"}, "s": "I", "c": "CONTROL", "id": 4615611, "ctx": "initandlisten", "msg": "MongoDB starting", "attr": {"pid": 1372, "port": 1130, "dbPath": "C:/shard-practice/shardrep1", "architecture": "64-bit", "host": "LAPTOP-KPJK69R9"}}
{"t": {"$date": "2025-02-22T22:46:36.172+05:30"}, "s": "I", "c": "CONTROL", "id": 23398, "ctx": "initandlisten", "msg": "Target operating system minimum version", "attr": {"targetMinOS": "Windows 7/Windows Server 2008 R2"}}
{"t": {"$date": "2025-02-22T22:46:36.172+05:30"}, "s": "I", "c": "CONTROL", "id": 23403, "ctx": "initandlisten", "msg": "Build Info", "attr": {"buildInfo": {"version": "7.0.16", "gitVersion": "18b94944cfdaa88e30b0e10243bc18268251c1f", "modules": [], "allocator": "tcmalloc", "environment": {"distmod": "windows", "distarch": "x86_64", "target_arch": "x86_64"}}}}
{"t": {"$date": "2025-02-22T22:46:36.172+05:30"}, "s": "I", "c": "CONTROL", "id": 51765, "ctx": "initandlisten", "msg": "Operating System", "attr": {"os": {"name": "Microsoft Windows 10", "version": "10.0 (build 26100)"}}, "attr": {"options": {"net": {"port": 1130}, "replication": {"replicaSet": "shard_repl"}, "sharding": {"clusterRole": "shardsvr"}, "storage": {"dbPath": "C:/shard-practice\\shardrep1"}}}}
{"t": {"$date": "2025-02-22T22:46:36.174+05:30"}, "s": "I", "c": "STORAGE", "id": 22315, "ctx": "initandlisten", "msg": "Opening WiredTiger", "attr": {"config": "create,cache_size=3402M,session_max=33000,eviction=(threads_min=4,threads_max=4),config_base=false,statistics=(fast),log=(enabled=true,remove=true,path=journa
```

shardrep1					
This PC > Local Disk (C:) > shard-practice > shardrep1 >					
New		Sort	View	...	
Name	Date modified	Type	Size		
diagnostic.data	22-02-2025 10:47 PM	File folder			
journal	22-02-2025 10:46 PM	File folder			
_mdb_catalog.wt	22-02-2025 10:46 PM	WT File	4 KB		
collection-0-8316086217267282227.wt	22-02-2025 10:46 PM	WT File	4 KB		
collection-2-8316086217267282227.wt	22-02-2025 10:46 PM	WT File	4 KB		
collection-4-8316086217267282227.wt	22-02-2025 10:46 PM	WT File	4 KB		
collection-6-8316086217267282227.wt	22-02-2025 10:46 PM	WT File	4 KB		
collection-8-8316086217267282227.wt	22-02-2025 10:46 PM	WT File	4 KB		
collection-10-8316086217267282227.wt	22-02-2025 10:46 PM	WT File	4 KB		
index-1-8316086217267282227.wt	22-02-2025 10:46 PM	WT File	4 KB		
index-3-8316086217267282227.wt	22-02-2025 10:46 PM	WT File	4 KB		
index-5-8316086217267282227.wt	22-02-2025 10:46 PM	WT File	4 KB		
index-7-8316086217267282227.wt	22-02-2025 10:46 PM	WT File	4 KB		
index-9-8316086217267282227.wt	22-02-2025 10:46 PM	WT File	4 KB		
index-11-8316086217267282227.wt	22-02-2025 10:46 PM	WT File	4 KB		
mongod.lock	22-02-2025 10:46 PM	LOCK File	1 KB		
sizeStorer.wt	22-02-2025 10:46 PM	WT File	4 KB		
storage.bson	22-02-2025 10:46 PM	BSON File	1 KB		
WiredTiger	22-02-2025 10:46 PM	File	1 KB		

Repeat for all the Shards

```
mongod --shardsvr --port=1140 --dbpath="C:\shard-practice\shardrep2"
--replSet="shard_repl"
```

```

PS C:\Users\khanh> mongod --shardsvr --port=1140 --dbpath="C:\shard-practice\shardrep2" --replSet="shard_repl"
{"t": {"$date": "2025-02-22T22:48:29.425+05:30"}, "s": "I", "c": "NETWORK", "id": 4915701, "ctx": "thread1", "msg": "Initialized wire specification", "attr": {"spec": {"incomingExternalClient": {"minWireVersion": 0, "maxWireVersion": 21}, "incomingInternalClient": {"minWireVersion": 0, "maxWireVersion": 21}, "outgoing": {"minWireVersion": 6, "maxWireVersion": 21}, "isInternalClient": true}}, {"t": {"$date": "2025-02-22T22:48:29.426+05:30"}, "s": "I", "c": "CONTROL", "id": 23285, "ctx": "thread1", "msg": "Automatically disabling TLS 1.0, to force-enable TLS 1.0 specify --sslDisabledProtocols 'none'"}, {"t": {"$date": "2025-02-22T22:48:29.428+05:30"}, "s": "I", "c": "NETWORK", "id": 4648602, "ctx": "thread1", "msg": "Implicit TCP FastOpen in use."}, {"t": {"$date": "2025-02-22T22:48:29.433+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "RenameCollectionParticipantService", "namespace": "config.localRenameParticipants"}}, {"t": {"$date": "2025-02-22T22:48:29.433+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "ShardingDDLCoordinator", "namespace": "config.system.sharding_ddl_coordinators"}}, {"t": {"$date": "2025-02-22T22:48:29.433+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "ReshardingDonorService", "namespace": "config.localReshardingOperations.donor"}}, {"t": {"$date": "2025-02-22T22:48:29.433+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "ReshardingRecipientService", "namespace": "config.localReshardingOperations.recipient"}}, {"t": {"$date": "2025-02-22T22:48:29.433+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "TenantMigrationDonorService", "namespace": "config.tenantMigrationDonors"}}, {"t": {"$date": "2025-02-22T22:48:29.433+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "TenantMigrationRecipientService", "namespace": "config.tenantMigrationRecipients"}}, {"t": {"$date": "2025-02-22T22:48:29.433+05:30"}, "s": "I", "c": "CONTROL", "id": 5945603, "ctx": "thread1", "msg": "Multi threading initialized"}, {"t": {"$date": "2025-02-22T22:48:29.433+05:30"}, "s": "I", "c": "TENANT_M", "id": 7091600, "ctx": "thread1", "msg": "Starting TenantMigrationAccessBlockerRegistry"}, {"t": {"$date": "2025-02-22T22:48:29.435+05:30"}, "s": "I", "c": "CONTROL", "id": 4615611, "ctx": "initandlisten", "msg": "MongoDB starting", "attr": {"pid": 12980, "port": 1140, "dbPath": "C:\shard-practice\shardrep2", "architecture": "64-bit", "host": "LAPTOP-KPJKE69R"}, {"t": {"$date": "2025-02-22T22:48:29.435+05:30"}, "s": "I", "c": "CONTROL", "id": 23298, "ctx": "initandlisten", "msg": "Target operating system minimum version", "attr": {"targetMinOS": "Windows 7/Windows Server 2008 R2"}}, {"t": {"$date": "2025-02-22T22:48:29.435+05:30"}, "s": "I", "c": "CONTROL", "id": 23403, "ctx": "initandlisten", "msg": "Build Info", "attr": {"buildInfo": {"version": "7.0.16", "gitVersion": "18b949444cfdaa8e30bbe10243bc18268251c1f", "modules": [], "allocator": "tcmalloc", "environment": {"distmod": "windows", "distarch": "x86_64", "target_arch": "x86_64"}}, {"t": {"$date": "2025-02-22T22:48:29.435+05:30"}, "s": "I", "c": "CONTROL", "id": 51765, "ctx": "initandlisten", "msg": "Operating System", "attr": {"os": {"name": "Microsoft Windows 10", "version": "10.0 (build 26100)"}}, {"t": {"$date": "2025-02-22T22:48:29.435+05:30"}, "s": "I", "c": "CONTROL", "id": 21951, "ctx": "initandlisten", "msg": "Options set by command line", "attr": {"options": {"net": {"port": 1140}, "replication": {"repSet": "shard_repl"}, "sharding": {"clusterRole": "shardsvr"}, "storage": {"dbPath": "C:\shard-practice\shardrep2"}}, {"t": {"$date": "2025-02-22T22:48:29.439+05:30"}, "s": "I", "c": "STORAGE", "id": 22315, "ctx": "initandlisten", "msg": "Opening WiredTiger", "attr": {"config": "create,cache_size=3402M,session_max=33000,eviction=(threads_min=4,threads_max=4),config_base=false,statistics=(fast),log=(enabled=true,remove=true,path=journa

```

mongod --shardsvr --port=1150 --dbpath="C:\shard-practice\shardrep3" --replSet="shard_repl"

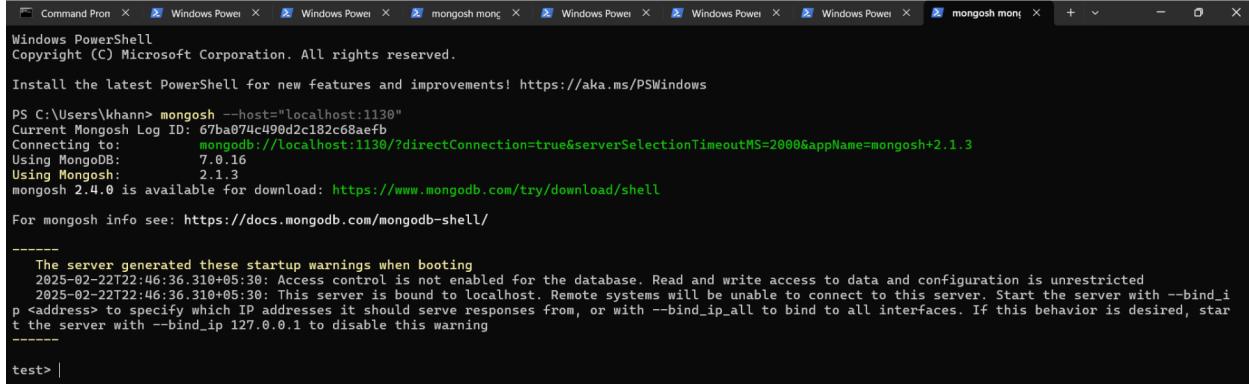
```

PS C:\Users\khanh> mongod --shardsvr --port=1150 --dbpath="C:\shard-practice\shardrep3" --replSet="shard_repl"
{"t": {"$date": "2025-02-22T22:49:12.872+05:30"}, "s": "I", "c": "CONTROL", "id": 23285, "ctx": "thread1", "msg": "Automatically disabling TLS 1.0, to force-enable TLS 1.0 specify --sslDisabledProtocols 'none'"}, {"t": {"$date": "2025-02-22T22:49:12.876+05:30"}, "s": "I", "c": "NETWORK", "id": 4915701, "ctx": "thread1", "msg": "Initialized wire specification", "attr": {"spec": {"incomingExternalClient": {"minWireVersion": 0, "maxWireVersion": 21}, "incomingInternalClient": {"minWireVersion": 0, "maxWireVersion": 21}, "outgoing": {"minWireVersion": 6, "maxWireVersion": 21}, "isInternalClient": true}}, {"t": {"$date": "2025-02-22T22:49:14.610+05:30"}, "s": "I", "c": "NETWORK", "id": 4648602, "ctx": "thread1", "msg": "Implicit TCP FastOpen in use."}, {"t": {"$date": "2025-02-22T22:49:14.620+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "RenameCollectionParticipantService", "namespace": "config.localRenameParticipants"}}, {"t": {"$date": "2025-02-22T22:49:14.620+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "ShardingDDLCoordinator", "namespace": "config.system.sharding_ddl_coordinators"}}, {"t": {"$date": "2025-02-22T22:49:14.620+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "ReshardingDonorService", "namespace": "config.localReshardingOperations.donor"}}, {"t": {"$date": "2025-02-22T22:49:14.620+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "ReshardingRecipientService", "namespace": "config.localReshardingOperations.recipient"}}, {"t": {"$date": "2025-02-22T22:49:14.620+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "TenantMigrationDonorService", "namespace": "config.tenantMigrationDonors"}}, {"t": {"$date": "2025-02-22T22:49:14.620+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "TenantMigrationRecipientService", "namespace": "config.tenantMigrationRecipients"}}, {"t": {"$date": "2025-02-22T22:49:14.620+05:30"}, "s": "I", "c": "CONTROL", "id": 5945603, "ctx": "thread1", "msg": "Multi threading initialized"}, {"t": {"$date": "2025-02-22T22:49:14.620+05:30"}, "s": "I", "c": "TENANT_M", "id": 7091600, "ctx": "thread1", "msg": "Starting TenantMigrationAccessBlockerRegistry"}, {"t": {"$date": "2025-02-22T22:49:14.622+05:30"}, "s": "I", "c": "CONTROL", "id": 4615611, "ctx": "initandlisten", "msg": "MongoDB starting", "attr": {"pid": 11704, "port": 1150, "dbPath": "C:\shard-practice\shardrep3", "architecture": "64-bit", "host": "LAPTOP-KPJKE69R"}, {"t": {"$date": "2025-02-22T22:49:14.622+05:30"}, "s": "I", "c": "CONTROL", "id": 23298, "ctx": "initandlisten", "msg": "Target operating system minimum version", "attr": {"targetMinOS": "Windows 7/Windows Server 2008 R2"}}, {"t": {"$date": "2025-02-22T22:49:14.622+05:30"}, "s": "I", "c": "CONTROL", "id": 23403, "ctx": "initandlisten", "msg": "Build Info", "attr": {"buildInfo": {"version": "7.0.16", "gitVersion": "18b949444cfdaa8e30bbe10243bc18268251c1f", "modules": [], "allocator": "tcmalloc", "environment": {"distmod": "windows", "distarch": "x86_64", "target_arch": "x86_64"}}, {"t": {"$date": "2025-02-22T22:49:14.622+05:30"}, "s": "I", "c": "CONTROL", "id": 51765, "ctx": "initandlisten", "msg": "Operating System", "attr": {"os": {"name": "Microsoft Windows 10", "version": "10.0 (build 26100)"}}, {"t": {"$date": "2025-02-22T22:49:14.622+05:30"}, "s": "I", "c": "CONTROL", "id": 21951, "ctx": "initandlisten", "msg": "Options set by command line", "attr": {"options": {"net": {"port": 1150}, "replication": {"repSet": "shard_repl"}, "sharding": {"clusterRole": "shardsvr"}, "storage": {"dbPath": "C:\shard-practice\shardrep3"}}, {"t": {"$date": "2025-02-22T22:49:14.628+05:30"}, "s": "I", "c": "STORAGE", "id": 22315, "ctx": "initandlisten", "msg": "Opening WiredTiger", "attr": {"config": "create,cache_size=3402M,session_max=33000,eviction=(threads_min=4,threads_max=4),config_base=false,statistics=(fast),log=(enabled=true,remove=true,path=journa

```

Step 6: Initiate that Replica Set by connecting it to mongosh
mongosh --host="localhost:1130"

```
rs.initiate({_id:"shard_repl", members:[{_id:0, host:"localhost:1130"}, {_id:1,host:"localhost:1140"}, {_id:2, host:"localhost:1150"}]});
```

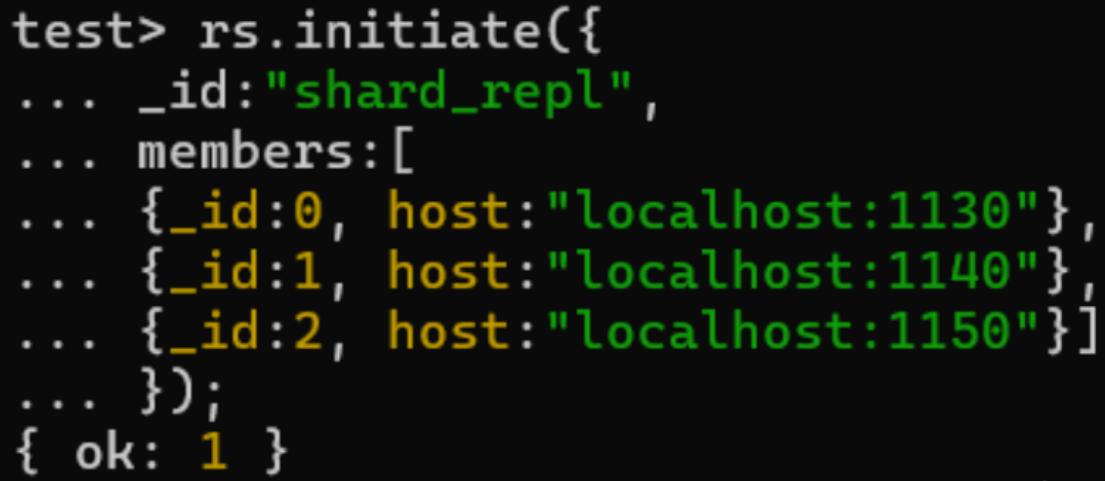


```
Windows PowerShell
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PS C:\Users\vkannan> mongosh --host="localhost:1130"
Current Mongosh Log ID: 67ba074c499d2c182cb8ae0b
Connecting to: mongodb://localhost:1130/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+2.1.3
Using MongoDB: 7.0.16
Using Mongosh: 2.1.3
mongosh 2.4.0 is available for download: https://www.mongodb.com/try/download/shell

For mongosh info see: https://docs.mongodb.com/mongodb-shell/
-----
The server generated these startup warnings when booting
2025-02-22T22:46:36.310+05:30: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
2025-02-22T22:46:36.310+05:30: This server is bound to localhost. Remote systems will be unable to connect to this server. Start the server with --bind_ip <address> to specify which IP addresses it should serve responses from, or with --bind_ip_all to bind to all interfaces. If this behavior is desired, start the server with --bind_ip 127.0.0.1 to disable this warning
-----
test> |
```



```
test> rs.initiate({
...   _id:"shard_repl",
...   members:[
...     {_id:0, host:"localhost:1130"},
...     {_id:1, host:"localhost:1140"},
...     {_id:2, host:"localhost:1150"}]
... });
{ ok: 1 }
```

Check the status

```
comMember@script: Command Prompt - mongod --  
configsvr --port=1030 --replicaSet="config-repl" --  
dbpath="C:\shard-practice\configsrv"  
{  
  "_id": 0, //ttd+alt+1  
  "name": "localhost:1130",  
  "health": 1,  
  "state": 1,  
  "stateStr": "PRIMARY",  
  "uptime": 457,  
  "optime": { "ts": Timestamp({ t: 1740245042, i: 1 }), "t": Long('1') },  
  "optimeDate": ISODate('2025-02-22T17:24:02.000Z'),  
  "lastAppliedWallTime": ISODate('2025-02-22T17:24:02.845Z'),  
  "lastDurableWallTime": ISODate('2025-02-22T17:24:02.845Z'),  
  "syncSourceHost": "",  
  "syncSourceId": -1,  
  "infoMessage": "Could not find member to sync from",  
  "electionTime": Timestamp({ t: 1740244932, i: 1 }),  
  "electionDate": ISODate('2025-02-22T17:22:12.000Z'),  
  "configVersion": 1,  
  "configTerm": 1,  
  "self": true,  
  "lastHeartbeatMessage": ""  
},  
{  
  "_id": 1,  
  "name": "localhost:1140",  
  "health": 1,  
  "state": 2,  
  "stateStr": "SECONDARY",  
  "uptime": 129,  
  "optime": { "ts": Timestamp({ t: 1740245042, i: 1 }), "t": Long('1') },  
  "optimeDurable": { "ts": Timestamp({ t: 1740245042, i: 1 }), "t": Long('1') },  
  "optimeDate": ISODate('2025-02-22T17:24:02.000Z'),  
  "optimeDurableDate": ISODate('2025-02-22T17:24:02.000Z'),  
  "lastAppliedWallTime": ISODate('2025-02-22T17:24:02.845Z'),  
  "lastDurableWallTime": ISODate('2025-02-22T17:24:02.845Z'),  
  "lastHeartbeat": ISODate('2025-02-22T17:24:10.739Z'),  
  "lastHeartbeatRecv": ISODate('2025-02-22T17:24:11.269Z'),  
  "pingMs": Long('0'),  
  "lastHeartbeatMessage": "",  
  "syncSourceHost": "localhost:1130",  
}
```

```
{
  "_id": 2,
  "name": "localhost:1150",
  "health": 1,
  "state": 2,
  "stateStr": "SECONDARY",
  "uptime": 129,
  "optime": { ts: Timestamp({ t: 1740245042, i: 1 }), t: Long('1') },
  "optimeDurable": { ts: Timestamp({ t: 1740245042, i: 1 }), t: Long('1') },
  "optimeDate": ISODate('2025-02-22T17:24:02.000Z'),
  "optimeDurableDate": ISODate('2025-02-22T17:24:02.000Z'),
  "lastAppliedWallTime": ISODate('2025-02-22T17:24:02.845Z'),
  "lastDurableWallTime": ISODate('2025-02-22T17:24:02.845Z'),
  "lastHeartbeat": ISODate('2025-02-22T17:24:10.758Z'),
  "lastHeartbeatRecv": ISODate('2025-02-22T17:24:11.249Z'),
  "pingMs": Long('0'),
  "lastHeartbeatMessage": '',
  "syncSourceHost": "localhost:1130",
  "syncSourceId": 0,
  "infoMessage": '',
  "configVersion": 1,
  "configTerm": 1
}
],
ok: 1,
```

Step7: Repeat the same steps for all the shards

```
>mongod --shardsvr --port=1230 --dbpath="C:\shard-practice\shard2rep1"
--replSet="shard2_repl"
```

```
PS C:\Users\khann> mongod --shardsvr --port=1230 --dbpath="C:\shard-practice\shard2rep1" --replSet="shard2_repl"
{"t": {"$date": "2025-02-22T22:56:35.261+05:30"}, "s": "I", "c": "CONTROL", "id": 23285, "ctx": "thread1", "msg": "Automatically disabling TLS 1.0, to force-enable TLS 1.0 specify --sslDisabledProtocols 'none'"}
{"t": {"$date": "2025-02-22T22:56:35.263+05:30"}, "s": "I", "c": "NETWORK", "id": 4915701, "ctx": "thread1", "msg": "Initialized wire specification", "attr": {"spec": {"incomingExternalClient": {"minWireVersion": 0, "maxWireVersion": 21}, "incomingInternalClient": {"minWireVersion": 0, "maxWireVersion": 21}, "outgoing": {"minWireVersion": 6, "maxWireVersion": 21}, "isInternalClient": true}}}
{"t": {"$date": "2025-02-22T22:56:35.263+05:30"}, "s": "I", "c": "NETWORK", "id": 4648602, "ctx": "thread1", "msg": "Implicit TCP FastOpen in use."}
{"t": {"$date": "2025-02-22T22:56:35.267+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "RenameCollectionParticipantService", "namespace": "config.localRenameParticipants"}}
{"t": {"$date": "2025-02-22T22:56:35.267+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "ShardingDDLCoordinator", "namespace": "config.system.sharding_ddl.coordinators"}}
{"t": {"$date": "2025-02-22T22:56:35.267+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "ReshardingDoorService", "namespace": "config.localReshardingOperations.donors"}}
{"t": {"$date": "2025-02-22T22:56:35.267+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "ReshardingRecipientService", "namespace": "config.localReshardingOperations.recipient"}}
{"t": {"$date": "2025-02-22T22:56:35.267+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "TenantMigrationDonorService", "namespace": "config.tenantMigrationDonors"}}
{"t": {"$date": "2025-02-22T22:56:35.267+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "TenantMigrationRecipientService", "namespace": "config.tenantMigrationRecipients"}}
{"t": {"$date": "2025-02-22T22:56:35.268+05:30"}, "s": "I", "c": "CONTROL", "id": 5945603, "ctx": "thread1", "msg": "Multi threading initialized"}
{"t": {"$date": "2025-02-22T22:56:35.268+05:30"}, "s": "I", "c": "TENANT_M", "id": 7091600, "ctx": "thread1", "msg": "Starting TenantMigrationAccessBlockerRegistry" }
{"t": {"$date": "2025-02-22T22:56:35.269+05:30"}, "s": "I", "c": "CONTROL", "id": 4615611, "ctx": "initandlisten", "msg": "MongoDB starting", "attr": {"pid": 10372, "port": 1230, "dbPath": "C:/shard-practice/shard2rep1", "architecture": "64-bit", "host": "LAPTOP-KPJ69R9R"} }
{"t": {"$date": "2025-02-22T22:56:35.269+05:30"}, "s": "I", "c": "CONTROL", "id": 23398, "ctx": "initandlisten", "msg": "Target operating system minimum version", "attr": {"targetMinOS": "Windows 7/Windows Server 2008 R2"} }
{"t": {"$date": "2025-02-22T22:56:35.269+05:30"}, "s": "I", "c": "CONTROL", "id": 23403, "ctx": "initandlisten", "msg": "Build Info", "attr": {"buildInfo": {"version": "7.0.16", "gitVersion": "18949444cfdaa8e30be10243bc18268251cf", "modules": [], "allocator": "tcmalloc", "environment": {"distmod": "windows", "distarch": "x86_64", "target_arch": "x86_64"}}}
{"t": {"$date": "2025-02-22T22:56:35.269+05:30"}, "s": "I", "c": "CONTROL", "id": 51765, "ctx": "initandlisten", "msg": "Operating System", "attr": {"os": {"name": "Microsoft Windows 10", "version": "10.0 (build 26100)"} } }
{"t": {"$date": "2025-02-22T22:56:35.269+05:30"}, "s": "I", "c": "CONTROL", "id": 21951, "ctx": "initandlisten", "msg": "Options set by command line", "attr": {"options": {"net": {"port": 1230}, "replication": {"replSet": "shard2_repl"}, "sharding": {"clusterRole": "shardsvr"}, "storage": {"dbPath": "C:\\shard-practice\\shardrep1"} } }
{"t": {"$date": "2025-02-22T22:56:35.272+05:30"}, "s": "I", "c": "STORAGE", "id": 22315, "ctx": "initandlisten", "msg": "Opening WiredTiger", "attr": {"config": "create,cache_size=3402M,session_max=330800,eviction=(threads_min=4,threads_max=4),config_base=false,statistics=(fast),log=(enabled=true,remove=true,path=journal,compress_level=1,close_compression=(enabled=false,method=none))"} }
```

shard2rep1				
This PC > Local Disk (C:) > shard-practice > shard2rep1 >				
New Cut Copy Paste Delete Sort View ...				
Name	Date modified	Type	Size	
diagnostic.data	22-02-2025 10:57 PM	File folder		
journal	22-02-2025 10:56 PM	File folder		
_mdb_catalog.wt	22-02-2025 10:56 PM	WT File	4 KB	
collection-0-3858296880805799560.wt	22-02-2025 10:56 PM	WT File	4 KB	
collection-2-3858296880805799560.wt	22-02-2025 10:56 PM	WT File	4 KB	
collection-4-3858296880805799560.wt	22-02-2025 10:56 PM	WT File	4 KB	
collection-6-3858296880805799560.wt	22-02-2025 10:56 PM	WT File	4 KB	
collection-8-3858296880805799560.wt	22-02-2025 10:56 PM	WT File	4 KB	
collection-10-3858296880805799560.wt	22-02-2025 10:56 PM	WT File	4 KB	
index-1-3858296880805799560.wt	22-02-2025 10:56 PM	WT File	4 KB	
index-3-3858296880805799560.wt	22-02-2025 10:56 PM	WT File	4 KB	
index-5-3858296880805799560.wt	22-02-2025 10:56 PM	WT File	4 KB	
index-7-3858296880805799560.wt	22-02-2025 10:56 PM	WT File	4 KB	
index-9-3858296880805799560.wt	22-02-2025 10:56 PM	WT File	4 KB	
index-11-3858296880805799560.wt	22-02-2025 10:56 PM	WT File	4 KB	
mongod.lock	22-02-2025 10:56 PM	LOCK File	1 KB	
sizeStorer.wt	22-02-2025 10:56 PM	WT File	4 KB	
storage.bson	22-02-2025 10:56 PM	BSON File	1 KB	
WiredTiger	22-02-2025 10:56 PM	File	1 KB	
WiredTiger.lock	22-02-2025 10:56 PM	LOCK File	0 KB	
WiredTiger.turtle	22-02-2025 10:56 PM	TURTLE File	2 KB	
23 items				

```
>mongod --shardsvr --port=1240 --dbpath="C:\shard-practice\shard2rep2"
--replicaSet="shard2_rep1"
```

```

Command x Windows x Windows x mongosh x Windows x Windows x mongosh x Windows x + - x
Windows PowerShell
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PS C:\Users\khanh> mongod --shardsvr --port=1240 --dbpath="C:\shard-practice\shard2rep2" --replicaSet="shard2_repl"
{"t": {"$date": "2025-02-22T22:58:00.495+05:30"}, "s": "I", "c": "NETWORK", "id": 4915701, "ctx": "thread1", "msg": "Initialized wire specification", "attr": {"spec": {"incomingExternalClient": {"minWireVersion": 0, "maxWireVersion": 21}, "incomingInternalClient": {"minWireVersion": 0, "maxWireVersion": 21}, "outgoing": {"minWireVersion": 6, "maxWireVersion": 21}, "isInternalClient": true}}}
{"t": {"$date": "2025-02-22T22:58:00.496+05:30"}, "s": "I", "c": "CONTROL", "id": 23285, "ctx": "thread1", "msg": "Automatically disabling TLS 1.0, to force-enable TLS 1.0 specify --sslDisabledProtocols 'none'"}
{"t": {"$date": "2025-02-22T22:58:02.462+05:30"}, "s": "I", "c": "NETWORK", "id": 4648602, "ctx": "thread1", "msg": "Implicit TCP FastOpen in use."}
{"t": {"$date": "2025-02-22T22:58:02.465+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "RenameCollectionParticipantService", "namespace": "config.localRenameParticipants"}}
{"t": {"$date": "2025-02-22T22:58:02.465+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "RenameCollectionParticipantService", "namespace": "config.localRenameParticipants"}}
{"t": {"$date": "2025-02-22T22:58:02.465+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "ShardingDDLCoordinator", "namespace": "config.system.sharding_ddl_coordinators"}}
{"t": {"$date": "2025-02-22T22:58:02.465+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "ReshardingDonorService", "namespace": "config.localReshardingOperations.donor"}}
{"t": {"$date": "2025-02-22T22:58:02.465+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "ReshardingRecipientService", "namespace": "config.localReshardingOperations.recipient"}}
{"t": {"$date": "2025-02-22T22:58:02.465+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "ReshardingRecipientService", "namespace": "config.localReshardingOperations.recipient"}}
{"t": {"$date": "2025-02-22T22:58:02.465+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "TenantMigrationDonorService", "namespace": "config.tenantMigrationDonors"}}
{"t": {"$date": "2025-02-22T22:58:02.465+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "TenantMigrationRecipientService", "namespace": "config.tenantMigrationRecipients"}}
{"t": {"$date": "2025-02-22T22:58:02.465+05:30"}, "s": "I", "c": "CONTROL", "id": 5945683, "ctx": "thread1", "msg": "Multi threading initialized"}
{"t": {"$date": "2025-02-22T22:58:02.465+05:30"}, "s": "I", "c": "TENANT_M", "id": 7091600, "ctx": "thread1", "msg": "Starting TenantMigrationAccessBlockerRegistry"}
{"t": {"$date": "2025-02-22T22:58:02.465+05:30"}, "s": "I", "c": "CONTROL", "id": 4615611, "ctx": "initandlisten", "msg": "MongoDB starting", "attr": {"pid": 17968, "port": 1240, "dbPath": "C:/shard-practice/shard2rep2", "architecture": "64-bit", "host": "LAPTOP-KPJ609R"}}
{"t": {"$date": "2025-02-22T22:58:02.467+05:30"}, "s": "I", "c": "CONTROL", "id": 23398, "ctx": "initandlisten", "msg": "Target operating system minimum version", "attr": {"targetMinOS": "Windows 7/Windows Server 2008 R2"}}
{"t": {"$date": "2025-02-22T22:58:02.467+05:30"}, "s": "I", "c": "CONTROL", "id": 23403, "ctx": "initandlisten", "msg": "Build Info", "attr": {"buildInfo": {"version": "10.0_16", "gitVersion": "18b94944fcfd8a8e30b0e10243bc18268251clf", "modules": [], "allocator": "tcmalloc", "environment": {"distmod": "windows", "distarch": "x86_64", "target_arch": "x86_64"}}}}
{"t": {"$date": "2025-02-22T22:58:02.467+05:30"}, "s": "I", "c": "CONTROL", "id": 51765, "ctx": "initandlisten", "msg": "Operating System", "attr": {"os": {"name": "Microsoft Windows 10", "version": "10.0 (build 26100)"}}, "options": {"net": {"port": 1240}, "replication": {"replicaSet": "shard2_repl"}, "sharding": {"clusterRole": "shardsvr"}, "storage": {"dbPath": "C:\\shard-practice\\shard2rep2"}}}
{"t": {"$date": "2025-02-22T22:58:02.470+05:30"}, "s": "I", "c": "STORAGE", "id": 22315, "ctx": "initandlisten", "msg": "Opening WiredTiger", "attr": {"config": {"create, cache_size=3402M, session_max=33000, eviction=(threads_min=4, threads_max=4), config_base=false, statistics=(fast), log=(enabled=true, remove=true, path=journ

```

mongod --shardsvr --port=1250 --dbpath="C:\shard-practice\shard2rep3" --replicaSet="shard2_repl"

```

Command x Window x Window x mongo x Window x Window x mongo x Window x Window x mongo x Window x Window x + - x
Windows PowerShell
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PS C:\Users\khanh> mongod --shardsvr --port=1250 --dbpath="C:\shard-practice\shard2rep3" --replicaSet="shard2_repl"
{"t": {"$date": "2025-02-22T22:58:02.482+05:30"}, "s": "I", "c": "NETWORK", "id": 4915701, "ctx": "thread1", "msg": "Initialized wire specification", "attr": {"spec": {"incomingExternalClient": {"minWireVersion": 0, "maxWireVersion": 21}, "incomingInternalClient": {"minWireVersion": 0, "maxWireVersion": 21}, "outgoing": {"minWireVersion": 6, "maxWireVersion": 21}, "isInternalClient": true}}}
{"t": {"$date": "2025-02-22T22:58:03.473+05:30"}, "s": "I", "c": "CONTROL", "id": 23285, "ctx": "thread1", "msg": "Automatically disabling TLS 1.0, to force-enable TLS 1.0 specify --sslDisabledProtocols 'none'"}
{"t": {"$date": "2025-02-22T22:58:03.477+05:30"}, "s": "I", "c": "NETWORK", "id": 4648602, "ctx": "thread1", "msg": "Implicit TCP FastOpen in use."}
{"t": {"$date": "2025-02-22T22:58:03.477+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "RenameCollectionParticipantService", "namespace": "config.localRenameParticipants"}}
{"t": {"$date": "2025-02-22T22:58:03.477+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "ShardingDDLCoordinator", "namespace": "config.system.sharding_ddl_coordinators"}}
{"t": {"$date": "2025-02-22T22:58:03.477+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "ReshardingDonorService", "namespace": "config.localReshardingOperations.donor"}}
{"t": {"$date": "2025-02-22T22:58:03.477+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "ReshardingRecipientService", "namespace": "config.localReshardingOperations.recipient"}}
{"t": {"$date": "2025-02-22T22:58:03.477+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "ReshardingRecipientService", "namespace": "config.localReshardingOperations.recipient"}}
{"t": {"$date": "2025-02-22T22:58:03.477+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "TenantMigrationDonorService", "namespace": "config.tenantMigrationDonors"}}
{"t": {"$date": "2025-02-22T22:58:03.477+05:30"}, "s": "I", "c": "REPL", "id": 5123008, "ctx": "thread1", "msg": "Successfully registered PrimaryOnlyService", "attr": {"service": "TenantMigrationRecipientService", "namespace": "config.tenantMigrationRecipients"}}
{"t": {"$date": "2025-02-22T22:58:03.477+05:30"}, "s": "I", "c": "CONTROL", "id": 5945603, "ctx": "thread1", "msg": "Multi threading initialized"}
{"t": {"$date": "2025-02-22T22:58:03.477+05:30"}, "s": "I", "c": "TENANT_M", "id": 7091600, "ctx": "thread1", "msg": "Starting TenantMigrationAccessBlockerRegistry"}
{"t": {"$date": "2025-02-22T22:58:04.477+05:30"}, "s": "I", "c": "CONTROL", "id": 4615611, "ctx": "initandlisten", "msg": "MongoDB starting", "attr": {"pid": 16900, "port": 1250, "dbPath": "C:/shard-practice/shard2rep3", "architecture": "64-bit", "host": "LAPTOP-KPJ609R"}}
{"t": {"$date": "2025-02-22T22:58:04.477+05:30"}, "s": "I", "c": "CONTROL", "id": 23398, "ctx": "initandlisten", "msg": "Target operating system minimum version", "attr": {"targetMinOS": "Windows 7/Windows Server 2008 R2"}}
{"t": {"$date": "2025-02-22T22:58:04.477+05:30"}, "s": "I", "c": "CONTROL", "id": 23403, "ctx": "initandlisten", "msg": "Build Info", "attr": {"buildInfo": {"version": "10.0_16", "gitVersion": "18b94944fcfd8a8e30b0e10243bc18268251clf", "modules": [], "allocator": "tcmalloc", "environment": {"distmod": "windows", "distarch": "x86_64", "target_arch": "x86_64"}}}}
{"t": {"$date": "2025-02-22T22:58:04.477+05:30"}, "s": "I", "c": "CONTROL", "id": 51765, "ctx": "initandlisten", "msg": "Operating System", "attr": {"os": {"name": "Microsoft Windows 10", "version": "10.0 (build 26100)"}, "options": {"net": {"port": 1250}, "replication": {"replicaSet": "shard2_repl"}, "sharding": {"clusterRole": "shardsvr"}, "storage": {"dbPath": "C:\\shard-practice\\shard2rep3"}}}
{"t": {"$date": "2025-02-22T22:58:04.477+05:30"}, "s": "I", "c": "STORAGE", "id": 22315, "ctx": "initandlisten", "msg": "Opening WiredTiger", "attr": {"config": {"create, cache_size=3402M, session_max=33000, eviction=(threads_min=4, threads_max=4), config_base=false, statistics=(fast), log=(enabled=true, remove=true, path=journ

```

mongosh --host="localhost:1230"

```

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PS C:\Users\khann> mongosh --host="localhost:1230"
Current Mongosh Log ID: 67ba097c7759a523c76eeaa5e
Connecting to:      mongodb://localhost:1230?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+2.1.3
Using MongoDB:     7.0.16
Using Mongosh:    2.1.3
mongosh 2.4.0 is available for download: https://www.mongodb.com/try/download/shell

For mongosh info see: https://docs.mongodb.com/mongodb-shell/

-----
The server generated these startup warnings when booting
2025-02-22T22:56:35.414+05:30: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
2025-02-22T22:56:35.414+05:30: This server is bound to localhost. Remote systems will be unable to connect to this server. Start the server with --bind_ip <address> to specify which IP addresses it should serve responses from, or with --bind_ip_all to bind to all interfaces. If this behavior is desired, start the server with --bind_ip 127.0.0.1 to disable this warning
-----

test> |

```

```

rs.initiate({_id:"shard2_repl", members:[{_id:0,
host:"localhost:1230"},{_id:1,host:"localhost:1240"},{_id:2,
host:"localhost:1250"}]});

```

```

test> rs.initiate({_id:"shard2_repl", members:[{_id:0, host:"localhost:1230"},{_id:1,host:"localhost:1240"},{_id:2, host:"localhost:1250"}]});
{ ok: 1 }

```

Now, initialize a Query Router which is a mongos process

```

>mongos --port=1330 --configdb="config-repl/localhost:1030,
localhost:1040, localhost:1050"

```

```

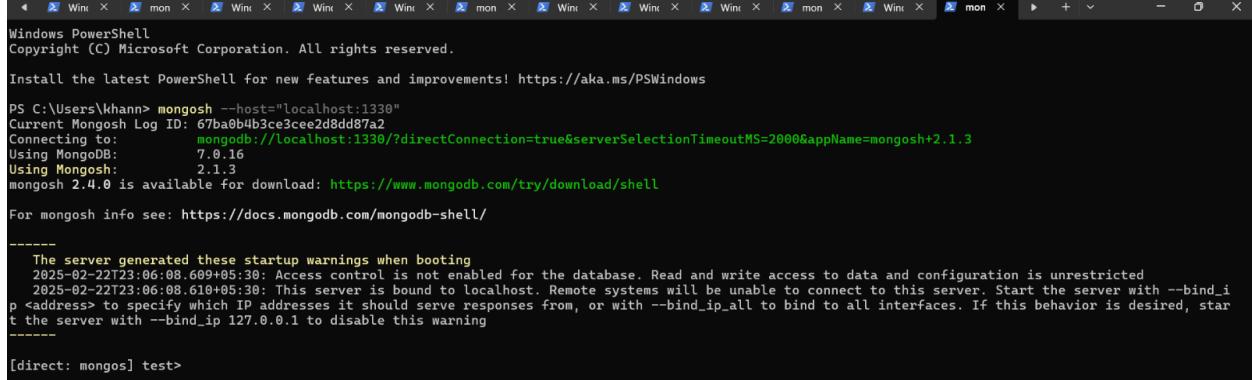
Windows PowerShell
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PS C:\Users\khann> mongos --port=1330 --configdb="config-repl/localhost:1030,localhost:1040,localhost:1050"
{"t": {"$date": "2025-02-22T23:06:07.361+05:30"}, "s": "I", "c": "NETWORK", "id": 4915701, "ctx": "thread1", "msg": "Initialized wire specification", "attr": {"spec": "incomingExternalClient", {"minWireVersion": 0, "maxWireVersion": 21}, "incomingInternalClient": {"minWireVersion": 0, "maxWireVersion": 21}, "outgoing": {"minWireVersion": 21, "maxWireVersion": 30, "isInternalClient": true}}}, {"t": {"$date": "2025-02-22T23:06:07.373+05:30"}, "s": "I", "c": "CONTROL", "id": 23285, "ctx": "thread1", "msg": "Automatically disabling TLS 1.0, to force-enable TLS 1.0 specify --sslDisabledProtocols 'none'"}, {"t": {"$date": "2025-02-22T23:06:08.602+05:30"}, "s": "I", "c": "NETWORK", "id": 4648602, "ctx": "thread1", "msg": "Implicit TCP FastOpen in use."}, {"t": {"$date": "2025-02-22T23:06:08.603+05:30"}, "s": "I", "c": "HEALTH", "id": 5936503, "ctx": "thread1", "msg": "Fatal manager changed state", "attr": {"state": "StartupCheck"}}, {"t": {"$date": "2025-02-22T23:06:08.609+05:30"}, "s": "W", "c": "CONTROL", "id": 22120, "ctx": "thread1", "msg": "Access control is not enabled for the database. Read and write access to data and configuration is unrestricted", "tags": ["startupWarnings"]}, {"t": {"$date": "2025-02-22T23:06:08.610+05:30"}, "s": "W", "c": "CONTROL", "id": 22140, "ctx": "thread1", "msg": "This server is bound to localhost. Remote systems will be unable to connect to this server. Start the server with --bind_ip <address> to specify which IP addresses it should serve responses from, or with --bind_ip_all to bind to all interfaces. If this behavior is desired, start the server with --bind_ip 127.0.0.1 to disable this warning", "tags": ["startupWarnings"]}, {"t": {"$date": "2025-02-22T23:06:08.613+05:30"}, "s": "I", "c": "CONTROL", "id": 23403, "ctx": "mongosMain", "msg": "Build Info", "attr": {"buildInfo": {"version": "7.0.16", "gitVersion": "18b94944cfdaa88e30b0e10243bc18268251cf", "modules": [], "allocator": "tcmalloc", "environment": {"distMod": "windows", "distArch": "x86_64"}}, {"t": {"$date": "2025-02-22T23:06:08.613+05:30"}, "s": "I", "c": "CONTROL", "id": 51765, "ctx": "mongosMain", "msg": "Operating System", "attr": {"os": {"name": "Microsoft Windows 10", "version": "10.0 (build 26100)"}}, {"t": {"$date": "2025-02-22T23:06:08.613+05:30"}, "s": "I", "c": "CONTROL", "id": 21951, "ctx": "mongosMain", "msg": "Options set by command line", "attr": {"options": {"net": {"port": 1330}, "sharding": {"configDB": "config-repl/localhost:1030,localhost:1040,localhost:1050"}}, {"t": {"$date": "2025-02-22T23:06:08.620+05:30"}, "s": "I", "c": "NETWORK", "id": 4663701, "ctx": "mongosMain", "msg": "Starting Replica Set Monitor", "attr": {"protocol": "streamable", "uri": "config-repl/localhost:1030,localhost:1040,localhost:1050"}}, {"t": {"$date": "2025-02-22T23:06:08.622+05:30"}, "s": "I", "c": "", "id": 4333223, "ctx": "mongosMain", "msg": "RSM now monitoring replica set", "attr": {"replicaSet": "config-repl", "nReplicaSetMembers": 3}}, {"t": {"$date": "2025-02-22T23:06:08.622+05:30"}, "s": "I", "c": "", "id": 4333226, "ctx": "mongosMain", "msg": "RSM host was added to the topology", "attr": {"replicaSet": "config-repl", "host": "localhost:1030"}}, {"t": {"$date": "2025-02-22T23:06:08.623+05:30"}, "s": "I", "c": "", "id": 4333226, "ctx": "mongosMain", "msg": "RSM host was added to the topology", "attr": {"replicaSet": "config-repl", "host": "localhost:1040"}}, {"t": {"$date": "2025-02-22T23:06:08.623+05:30"}, "s": "I", "c": "", "id": 4333226, "ctx": "mongosMain", "msg": "RSM host was added to the topology", "attr": {"replicaSet": "config-repl", "host": "localhost:1050"}}, {"t": {"$date": "2025-02-22T23:06:08.625+05:30"}, "s": "I", "c": "", "id": 4333218, "ctx": "monitoring-keys-for-HMAC", "msg": "Rescheduling the next replica set monitoring request", "attr": {"replicaSet": "config-repl", "host": "localhost:1040", "delayMillis": 0}}, {"t": {"$date": "2025-02-22T23:06:08.625+05:30"}, "s": "I", "c": "", "id": 4333218, "ctx": "monitoring-keys-for-HMAC", "msg": "Rescheduling the next replica set monitoring request", "attr": {"replicaSet": "config-repl", "host": "localhost:1050", "delayMillis": 0}}

```

Step 7: Now, Connect Shards and Query Router (mongos)Connect to 'mongos' using 'mongosh'
>mongosh --host="localhost:1330"



```
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PS C:\Users\khann> mongosh --host="localhost:1330"
Current Mongosh Log ID: 67ba0b4b3ce3cee2d8d87a2
Connecting to: mongodb://localhost:1330/?directConnection=true&serverSelectionTimeoutMS=2000&appName=mongosh+2.1.3
Using MongoDB: 7.0.16
Using Mongosh: 2.1.3
mongosh 2.4.0 is available for download: https://www.mongodb.com/try/download/shell

For mongosh info see: https://docs.mongodb.com/mongodb-shell/
-----
The server generated these startup warnings when booting
2025-02-22T23:06:08.609+05:30: Access control is not enabled for the database. Read and write access to data and configuration is unrestricted
2025-02-22T23:06:08.610+05:30: This server is bound to localhost. Remote systems will be unable to connect to this server. Start the server with --bind_ip <address> to specify which IP addresses it should serve responses from, or with --bind_ip_all to bind to all interfaces. If this behavior is desired, start the server with --bind_ip 127.0.0.1 to disable this warning
-----
[direct: mongos] test>
```

Step 8: Add Shard Replica Set to Sharded Cluster
This will be repeated for all the Shard ReplicaSets we have configured
>sh.addShard("shard_repl/localhost:1130,localhost:1140,localhost:1150");



```
[direct: mongos] test> sh.addShard("shard_repl/localhost:1130,localhost:1140,localhost:1150");
{
  shardAdded: 'shard_repl',
  ok: 1,
  '$clusterTime': {
    clusterTime: Timestamp({ t: 1740246081, i: 2 }),
    signature: {
      hash: Binary.createFromBase64('AAAAAAAAAAAAAAAAAAAAAAA='), 0),
      keyId: Long('0')
    }
  },
  operationTime: Timestamp({ t: 1740246081, i: 2 })
}
[direct: mongos] test> |
```

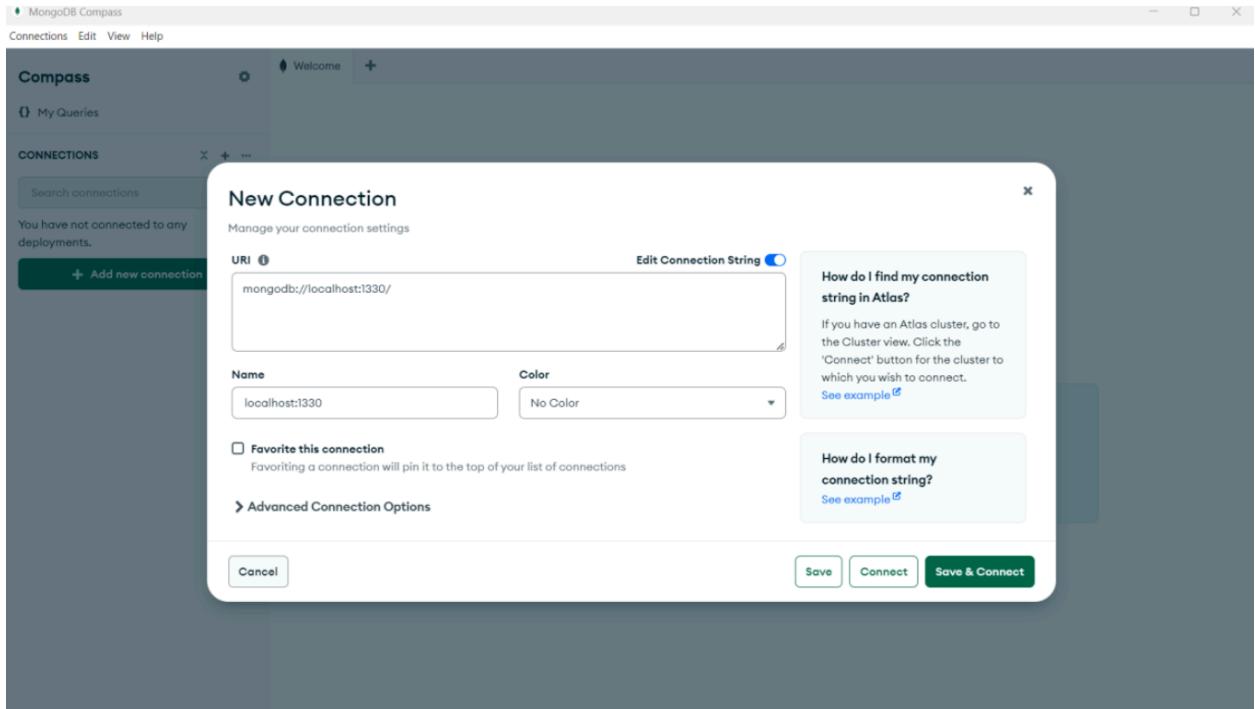
sh.addShard("shard2_repl/localhost:1230,localhost:1240,localhost:1250");

```
[direct: mongos] test> sh.addShard("shard2_repl/localhost:1230,localhost:1240,localhost:1250");
{
  shardAdded: 'shard2_repl',
  ok: 1,
  '$clusterTime': {
    clusterTime: Timestamp({ t: 1740246146, i: 9 }),
    signature: {
      hash: Binary.createFromBase64('AAAAAAAAAAAAAAAAAAAAAAA='), 0),
      keyId: Long('0')
    }
  },
  operationTime: Timestamp({ t: 1740246145, i: 4 })
}
[direct: mongos] test> |
```

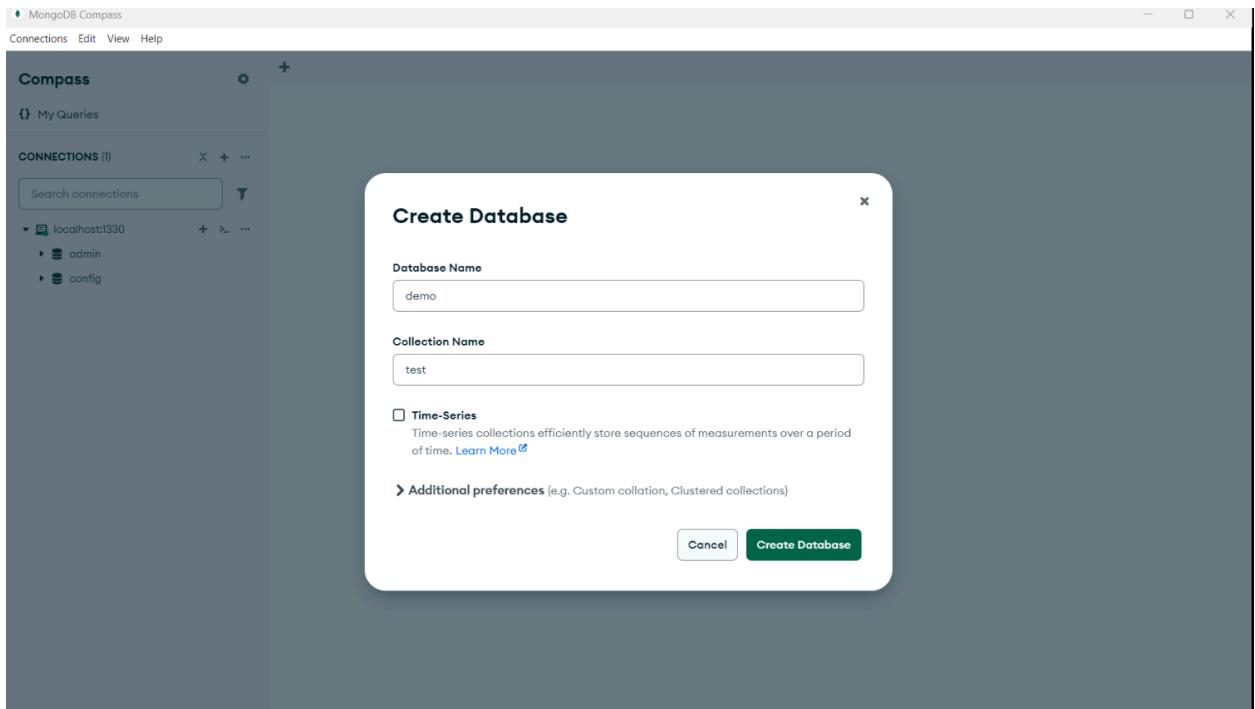
sh.status();

```
[direct: mongos] test> sh.status();
shardingVersion
{ _id: 1, clusterId: ObjectId('67ba04d8f57f52c1ba4ba10b') }
---
shards
[
  {
    _id: 'shard2_repl',
    host: 'shard2_repl/localhost:1230,localhost:1240,localhost:1250',
    state: 1,
    topologyTime: Timestamp({ t: 1740246145, i: 2 })
  },
  {
    _id: 'shard_repl',
    host: 'shard_repl/localhost:1130,localhost:1140,localhost:1150',
    state: 1,
    topologyTime: Timestamp({ t: 1740246080, i: 3 })
  }
]
---
active mongoses
[ { '7.0.16': 1 } ]
---
autosplit
{ 'Currently enabled': 'yes' }
---
balancer
{
  'Currently enabled': 'yes',
  'Currently running': 'no',
  'Failed balancer rounds in last 5 attempts': 0,
  'Migration Results for the last 24 hours': 'No recent migrations'
}
```

Step 9: Now Open MongoDB Compass and edit the localhost to your port



Step 10: Now, create database “demo”, collection name-> “test”



Step 11: Import any random Dataset. I have used airline dataset

Import

To collection demo.test

Import file: Airline Dataset.csv

Options

Select delimiter: Comma

Ignore empty strings

Stop on errors

Specify Fields and Types [Learn more about data types](#)

Passenger ID	First Name	Last Name	Gender	Age	Name
10856	Edithe	Leggis	Female	62	Japan
43872	Elwood	Catt	Male	62	Nicarc
42633	Darby	Felgate	Male	67	Russia
78493	Dominica	Pyle	Female	71	China

Cancel **Import**

Step12:Create index -> Age (asc: 1)

localhost:1330 > demo > test

Documents (98.6K) Aggregations Schema Indexes (1) Validation

Create Index Refresh

VIEWING INDEXES SEARCH INDEXES

Name & Definition Type Size Status Properties

demo.test

Create Index

Index fields

Age 1(asc) +

Options

Create Index

Import completed.
98619 documents imported.

Name & Definition	Type	Size	Usage	Properties	Status
> _id_	REGULAR <small>i</small>	2.5 MB	2 (since Sat Feb 22 2025)	UNIQUE <small>i</small>	READY
> Age_1	REGULAR <small>i</small>	462.8 KB	0 (since Sat Feb 22 2025)		READY

Step 13: Now, go to current cmd/powershell terminal (not a new one) and type

>use demo

>show collections

```
[direct: mongos] test> use demo
switched to db demo
[direct: mongos] demo> show collections
test
[direct: mongos] demo> |
```

sh.enableSharding("demo");

```
[direct: mongos] demo> sh.enableSharding("demo");
{
  ok: 1,
  '$clusterTime': {
    clusterTime: Timestamp({ t: 1740247896, i: 1 }),
    signature: {
      hash: Binary.createFromBase64('AAAAAAAAAAAAAAAAAAAAAAA='),
      keyId: Long('0')
    }
  },
  operationTime: Timestamp({ t: 1740247896, i: 1 })
}
[direct: mongos] demo> |
```

sh.shardCollection("demo.test", {Age:1});

```
[direct: mongos] demo> sh.shardCollection("demo.test", {Age:1});
{
  collectionsharded: 'demo.test',
  ok: 1,
  '$clusterTime': {
    clusterTime: Timestamp({ t: 1740247923, i: 31 }),
    signature: {
      hash: Binary.createFromBase64('AAAAAAAAAAAAAAAAAAAAAAA='),
      keyId: Long('0')
    }
  },
  operationTime: Timestamp({ t: 1740247923, i: 31 })
}
[direct: mongos] demo> |
```

sh.status();

```
[direct: mongos] demo> sh.status();
shardingVersion
{ _id: 1, clusterId: ObjectId('67ba04d8f57f52c1ba4ba10b') }
---
shards
[
  {
    _id: 'shard2_repl',
    host: 'shard2_repl/localhost:1230,localhost:1240,localhost:1250',
    state: 1,
    topologyTime: Timestamp({ t: 1740246145, i: 2 })
  },
  {
    _id: 'shard_repl',
    host: 'shard_repl/localhost:1130,localhost:1140,localhost:1150',
    state: 1,
    topologyTime: Timestamp({ t: 1740246080, i: 3 })
  }
]
---
active mongoses
[ { '7.0.16': 1 } ]
---
autosplit
{ 'Currently enabled': 'yes' }
---
```

db.test.getShardDistribution();

```
[direct: mongos] demo> db.test.getShardDistribution();
Shard shard2_repl at shard2_repl/localhost:1230,localhost:1240,localhost:1250
{
  data: '37.91MiB',
  docs: 98619,
  chunks: 1,
  'estimated data per chunk': '37.91MiB',
  'estimated docs per chunk': 98619
}
---
Totals
{
  data: '37.91MiB',
  docs: 98619,
  chunks: 1,
  'Shard shard2_repl': [
    '100 % data',
    '100 % docs in cluster',
    '403B avg obj size on shard'
  ]
}
[direct: mongos] demo> |
```

if the dataset was larger, we would be having chunks > 1. But, due to airlines only having 100,000 records approximately, we were unable to get chunks > 1 but our **sharding has been performed successfully.**