

Unit 1: Create the MarkLogic Cluster

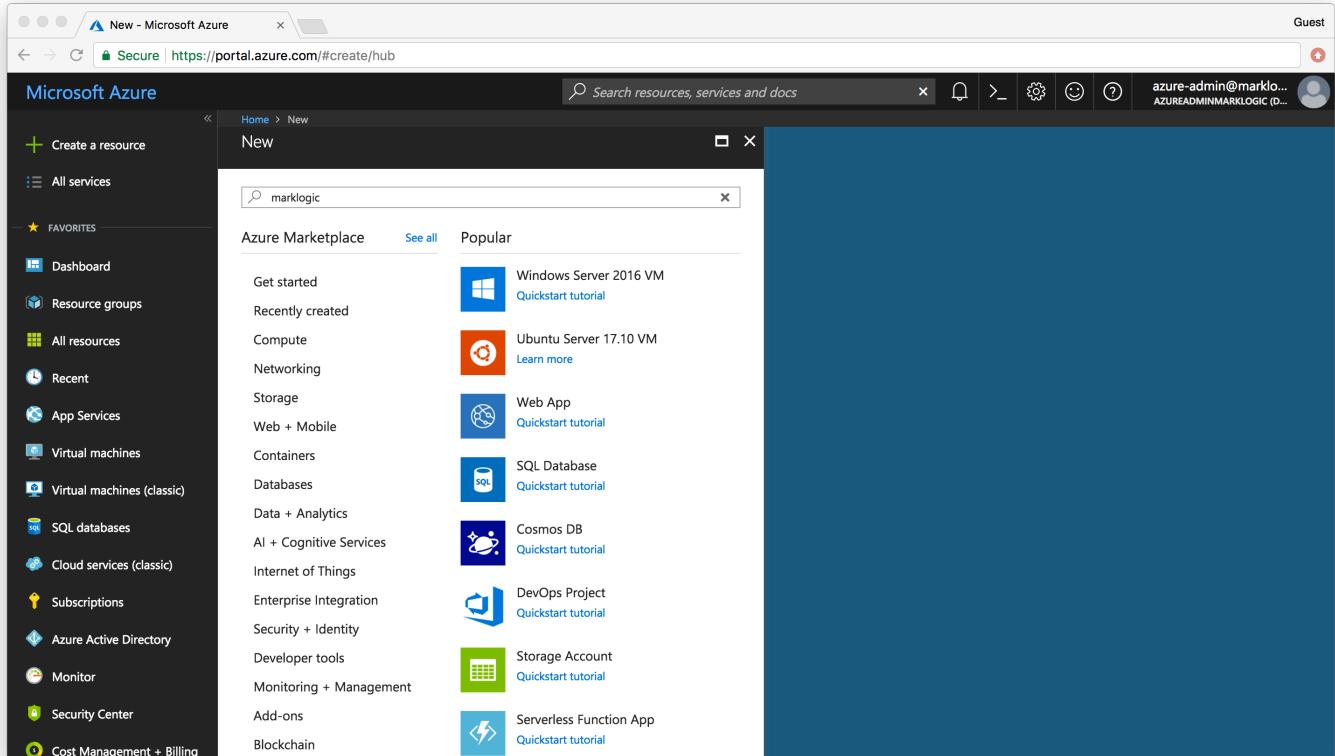
In Unit 1, we will create a three-node MarkLogic cluster using Solution Templates on Microsoft Azure. For our purposes, a *node* is an Azure VM instance running MarkLogic. A *cluster* is one or more MarkLogic nodes working together.

Table of Contents

1. [Launch your cluster using an Azure Solution Template](#)
2. [Check the Status of the New Cluster](#)
3. [Access the Cluster](#)
4. [Optional Exercise](#)

Launch your cluster using an Azure Solution Template

1. Go to the [Microsoft Azure Portal](#). Log into your Microsoft account, if needed.
2. Click the **Create a resource** button on the left tab bar.
3. Type `marklogic` in the search text box. Press the **Enter** key to begin the search.



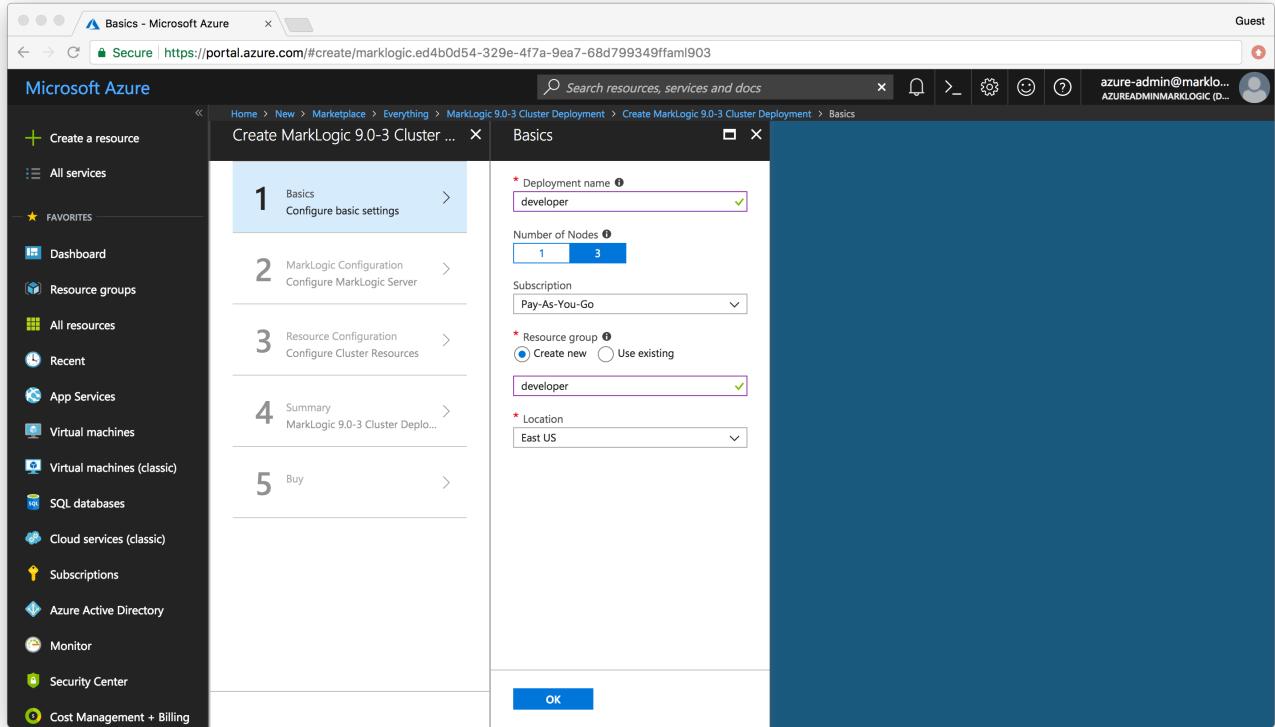
4. From the search result list, select **MarkLogic 9.0-4 Cluster Deployment**.

The screenshot shows the Microsoft Azure portal interface. On the left, there's a sidebar with various service icons. The main area shows a search result for 'MarkLogic 9.0-4 Cluster Deployment'. There are several entries in the list, each showing 'MarkLogic' as the name and 'Compute' as the category. The first entry is highlighted. To the right of the list, there's a detailed description of the 'MarkLogic 9.0-3 Cluster Deployment' solution, mentioning its features such as easy data ingestion, fast search, and enterprise-level features.

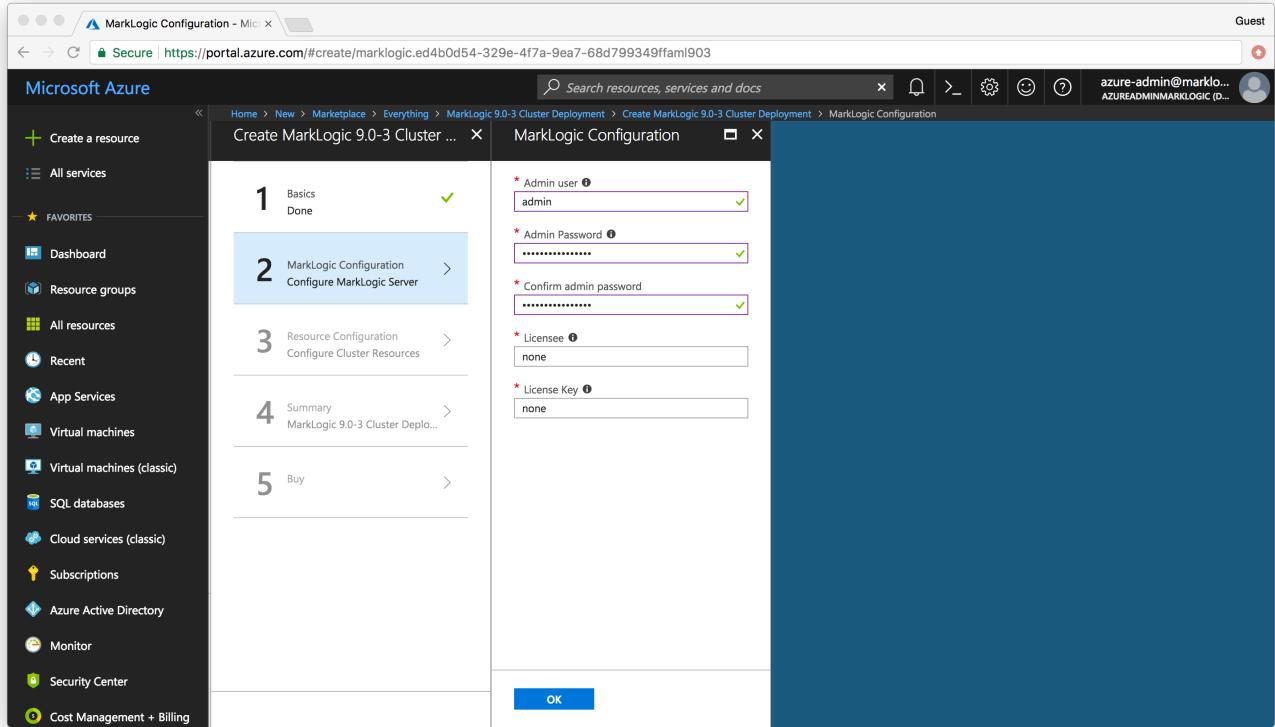
5. Click the **Create** button to enter the interactive guide for cluster deployment.

6. In the *Basics* configuration page, fill in the following information:

- **Deployment name** - a unique string that will be used as the resources' prefix. Example: `mlwdemo`
- **Number of Nodes** - leave at the default of `3` nodes
- **Subscription** - select a subscription which the running resources will be billed to
- **Resource group** - `Use existing` and select a resource group from the dropdown menu. If the list is empty, set it to `Create new` and enter a value such as `developer`.
- **Location** - You can change the region from the dropdown. For this exercise, we will use West US.

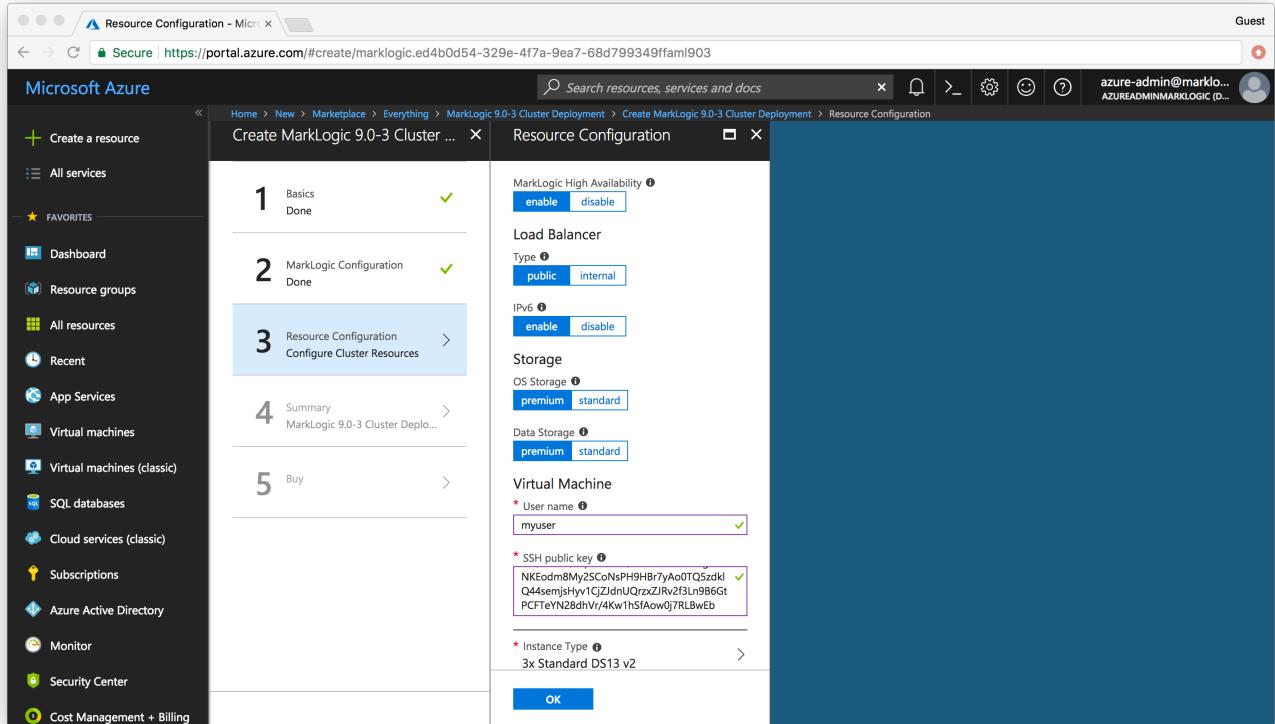


7. Then click the **OK** to move on to next step.
8. In the *MarkLogic Configuration* page, fill in the following information:
 - **Admin user** - The MarkLogic administrator user name. The user and password will be created when the cluster is created. We will use `mlwadmin` for the administrator name.
 - **Admin password** - the MarkLogic administrator user password. The user and password will be created when the cluster is created. The Password must be 12-40 characters long and contain at least one uppercase letter, digit and special character `. ! @ # $ % ^ & () _ = +`. We will use `MarkLogicWorld_2018` as the password.
 - **Confirm admin password** - confirm the admin password
 - **Licensee** - Leave it with the default value `none` to use the included Developer's License. See the [Developer License page](#) for more details.
 - **License Key** - Leave it with the default value `none` to use the included Developer's License.

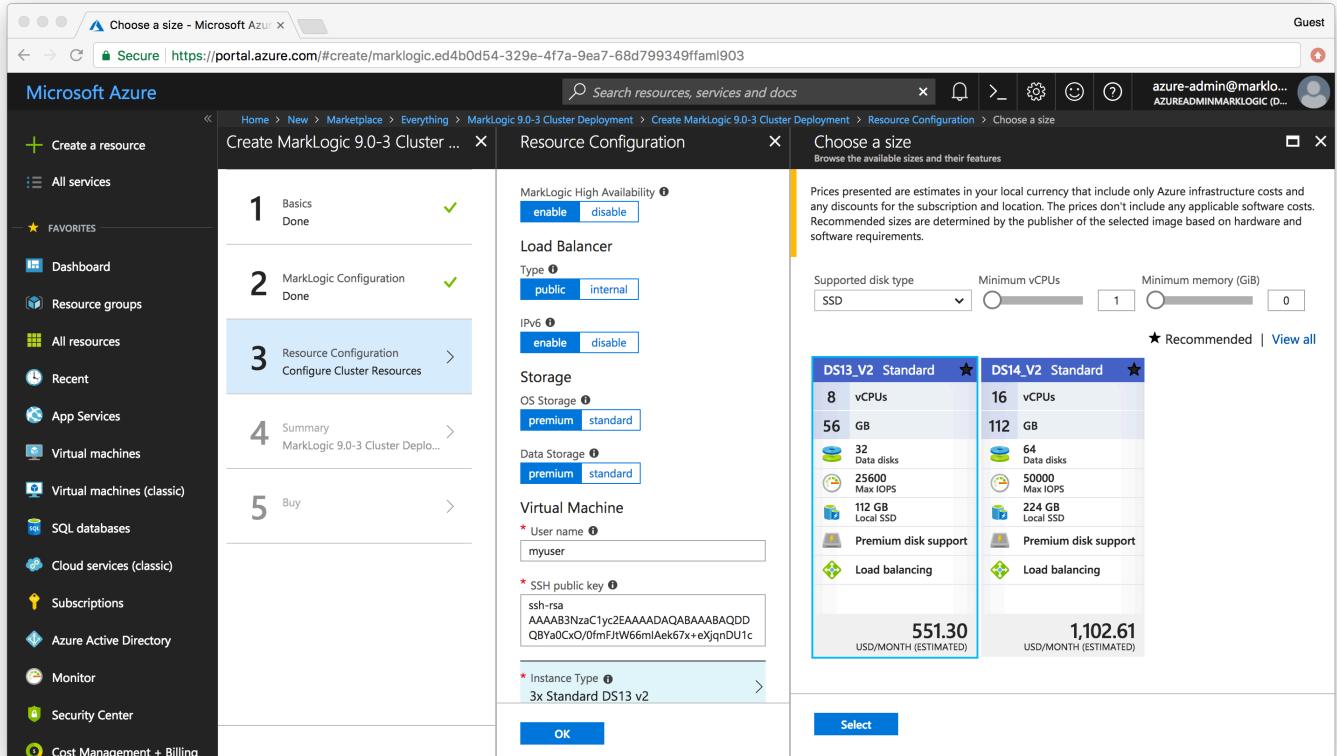


9. Then click the **OK** button to move on to next step.
10. In the *Resource Configuration* page, fill in the following information:

- **MarkLogic High Availability** - leave at the default of `enable`
- **Load Balancer: Type** - leave at the default of `public`
- **Load Balancer: IPv6** - leave at the default of `enable`
- **Storage: OS Storage** - Select `premium` for this exercise
- **Storage: Data Storage** - Select `premium` for this exercise
- **Virtual machine: Username** - `mlwdadmin`
- **Virtual machine: SSH public key** - **TBD**



11. Still on the *Resource Configuration* page, click the **Instance Type** control to pop up the *Instance Size Selector*. Select a size for VM instance. For this exercise, we will use default value **3x Standard DS13 v2**. Click the **Select** button.



12. Click the **OK** button on the *Resource Configuration* page.
13. The *Summary* of the cluster configuration will show. Click the **OK** button to confirm. If you want to modify some settings, click the corresponding tab to the left (*Basics*, *MarkLogic Configuration*, *Resource Configuration*) to go back.

Basics

Subscription	Pay-As-You-Go
Resource group	developer
Location	East US

MarkLogic Configuration

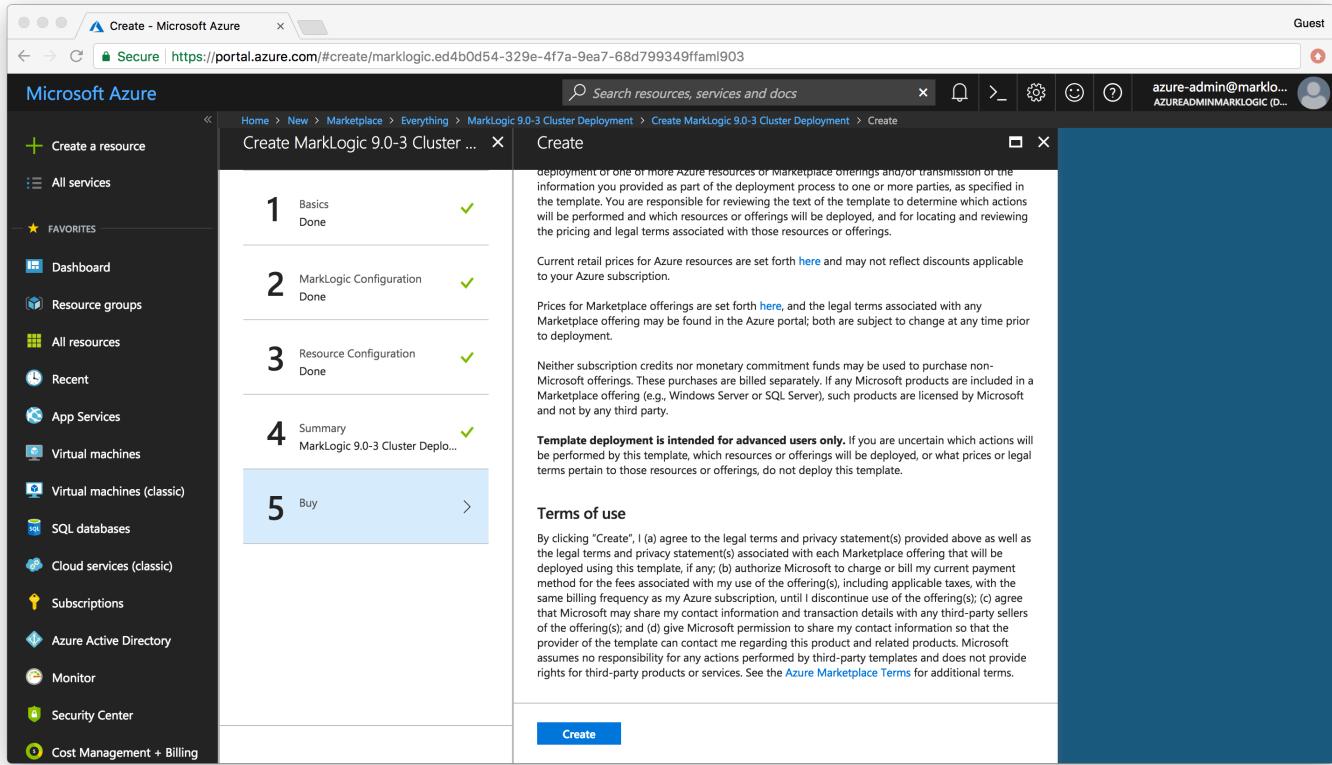
Admin user	admin
Admin Password	*****
Licensee	none
License Key	none

Resource Configuration

MarkLogic High Availability	enable
Type	public
IPv6	enable
OS Storage	premium
Data Storage	premium
User name	jsun
SSH public key	ssh-rsa AAAAB3NzaC1yc2EAAAQABAAQDDQBYa0CxO/...
Instance Type	Standard DS13 v2

Buttons: OK, Download template and parameters

14. On the *Buy* page, scroll down to bottom and click the **Create** button to accept the terms and deploy the stack.



Check the Status of the New Cluster

Note: It takes approximately 10 to 15 minutes for the created instances to start up and to initialize the MarkLogic Servers.

1. Go to **Resource Groups** by click on the **Resource Groups** button on the left tab bar.
2. Select the resource group we just created.
3. From the **Resource group** view, we will see the deployment status and a list of successfully created resources.

- Once it shows all deployments are finished and successful, the cluster is ready to use.

Access the Cluster

- Go to **Resource Groups** by click on the **Resource Groups** button on the left tab bar.
- Select the resource group we just created.
- Select the load balancer's public IPv4 address from the resource list. In this exercise, it is called "mlwdemo-lblp-v4".
- From the **Public IP address** view, copy the **DNS Name** value. We will use this address to access the cluster.

The screenshot shows the Microsoft Azure portal with the URL <https://portal.azure.com/#@azurereadminmarklogic.onmicrosoft.com/resource/subscriptions/b143bcf7-e5a4-4ec1-a06e-0e8361700ccb/resourceGroups/developer/providers/Microsoft...>. The page title is "Cluster Summary - MarkLogic". The left sidebar lists various Azure services. The main content area displays the "developer-lbp-v4" cluster summary, including its Overview, Activity log, Access control (IAM), Tags, Configuration, Properties, Locks, Automation script, and Support + Troubleshooting sections. Key details shown include the Resource group (developer), Location (East US), Subscription name (Pay-As-You-Go), Subscription ID (b143bcf7-e5a4-4ec1-a06e-0e8361700ccb), SKU (Basic), IP address (52.191.192.119), DNS name (developer-qoyhgz6npg2zg-lb.eastus.cloudapp.azure.com), and Associated to (developer-lb).

5. Open another tab in the browser and go to the port 80001 of the above address. For example developer-qoyhgz6npg2zg-lb.westus.cloudapp.azure.com:8001.
6. Enter the Admin user name and password set for the cluster when we specified the [deployment configuration](#).
7. You will see MarkLogic administration interface show up.

The screenshot shows the MarkLogic Cluster Summary interface. At the top, it displays the URL `developer-qoyhgzbnpq2zg-lb.eastus.cloudapp.azure.com:8001`. The main header includes the MarkLogic logo and navigation tabs for Summary, Status, Support, Logs, Usage, and Help. The left sidebar, titled "MarkLogic Server ESSENTIAL ENTERPRISE 9.0-3", contains a "Configure" section with links for Groups, Databases, Hosts, Forests, Mimetype, Clusters, and Security.

The central content area is divided into several sections:

- Databases (10)**: Index, query, and content processing configuration. Sub-links include App-Services, Documents, Extensions, Fab, Last-Login, Meters, Modules, Schemas, Security, and Triggers.
- App Servers (4)**: Enable connections from client software. Sub-links include Default :: Admin : 8001 [HTTP], Default :: App-Services : 8000 [HTTP], Default :: HealthCheck : 7997 [HTTP], and Default :: Manage : 8002 [HTTP].
- Groups (1)**: Allow hosts to share a common configuration. Sub-links include Default.
- Forsts (20)**: Manage physical content storage for databases. Sub-links include App-Services, App-Services-Replica, Documents, Documents-Replica, Extensions, Extensions-Replica, Fab, Fab-Replica, Last-Login, Last-Login-Replica, Meters, Meters-Replica, Modules, Modules-Replica, Schemas, Schemas-Replica, Security, Security-Replica, Triggers, and Triggers-Replica.
- Security**: Resources describing the role-based security model. Sub-links include Users (4), Roles (86), Execute Privileges (562), URI Privileges (5), Apps (807), Collections (8), Protected Paths (0), Query Rolesets (0), Certificate Authorities (133), Certificate Templates (0), External Security (0), Credentials, and Secure Credentials (0).
- Clusters (1)**: Cluster configuration. Sub-links include developer-qoyhgzbnpq2zg-0.eastus.cloudapp.azure.com-cluster (Local Cluster).
- Hosts (3)**: Computers belonging to this cluster. Sub-links include Default :: developer-qoyhgzbnpq2zg-0.eastus.cloudapp.azure.com, Default :: developer-qoyhgzbnpq2zg-1.eastus.cloudapp.azure.com, and Default :: developer-qoyhgzbnpq2zg-2.eastus.cloudapp.azure.com.

At the bottom, a copyright notice reads: "Copyright © 2011-2017 MarkLogic Corporation. All rights reserved."

Optional Exercise

Once you go through the basic flow of deploying a cluster, you can also try to customize the cluster by using different deployment options.

- In [Step 6 of Launch](#), select 1 node to be deployed as a cluster.
- In [Step 8 of Launch](#), you only need to configure fewer parameters for the single node cluster.
- Follow [Step 10 of Launch](#) and subsequent steps to finish deployment.

Now you should see a new one-node cluster is coming up!