

Configuring Servers and Services in Helm™

A guide to configuring Helm to effectively use your multi-server environment.

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Contents

About This Document	1
The Example Company	1
Deciding on How to Layout Services	2
Server 1	2
Server2	3
Server 3 & 4	3
Servers, Services, Service Groups and Resources	4
Servers	4
Services	4
Service Groups	4
Resources	4
Describing the Servers and Their Services	6
Adding Servers	6
IP Allocation	6
Adding the Services	6
Adding Web Services	6
Adding FTP Services	7
Adding Mail Services	7
Adding DNS Services	7
Adding Statistics Services	7
Adding Database Services	7
Resources	8

About This Document

This document provides descriptions, by example, on how Helm can be configured to best utilise the services of a multi-server environment.

The key topic in this document is scalability, resource layout and general service distribution.

To better describe how Helm resource distribution works, and how to describe server and service layout in Helm, we will use a general but common example of a small webhosting business.

The Example Company

For the purpose of this document, let us first explain what the example company does and briefly describe their infrastructure.

*ABC Ltd, is a small web hosting solution provider with 4 servers. They provide services to the public that allow them to host their own ASP, FrontPage and ASP.Net websites, use email through MailEnable, FTP content to their web space using Serv-U FTP Server. The customers can also install additional services, such as Livestats to their domains.

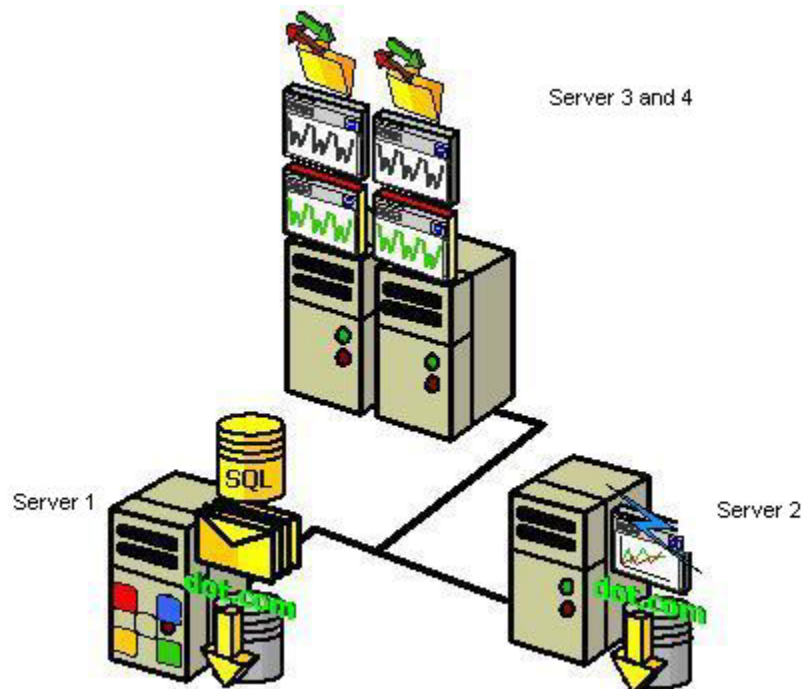
The company is doing well and are steadily growing in size. They plan on purchasing more servers in the near future and therefore wish to use Helm to ensure that the servers are best utilised and are set up to ensure future proof growth without affecting their current customers.

*ABC Ltd for the purpose of this document is a completely fictional company. Any resemblance of a current, past or future company is pure coincidence and should be treated in this way

Deciding on How to Layout Services

This is the important first stage before configuring Helm. Helm is an exceptionally flexible system and can handle almost any configuration that you decide upon. What is important to remember is that Helm *does not* need a dedicated control server. Helm uses little resources so on a small scale layout like ABC Ltd, utilising the control server for some services will not affect the system and would better utilise the resources available.

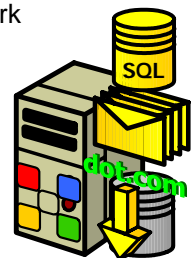
ABC Ltd now have their 4 servers installed and have decided on the following layout:



Server 1

Server 1 is the Helm control server. As well as having Helm installed on this server it has been decided to also include Microsoft SQL Server or MSDE. Helm can use this database engine as its backend so installing it locally would optimise the speed of Helm as well as minimising local network traffic.

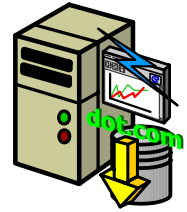
MailEnable is also going to be installed on this server. Since Helm does not use much server resources, adding MailEnable will better utilise the server. Most mail servers do not use much resource either, however, to cover the eventualities of large mail lists or sudden SMTP traffic to or from the server, this server will have adequate resources available.



Secondary DNS has been decided to be added to the server. Since secondary DNS is mostly used when the primary fails, this service will be a minimum resource requirement but the server will be able to handle the traffic requirements should the primary not be available.

Server 2

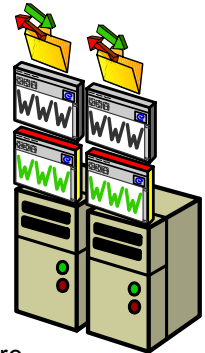
Server 2 is a Helm remote server. This server has the primary DNS installed and also the Livestats service. Livestats can use a high amount of resources when dealing with a larger number of sites or sites with high traffic. Some hosts like to install Livestats on the web servers but in this case we want to centralise the Livestats service for flexibility and scalability at a later stage should it be required.



Server 3 & 4

Both Server 3 and Server 4 are the main web servers. ABC Ltd recognises that the web services are the most important service they offer. Minimising the number of services on the web server will ensure that the chances of server issues are reduced (such as high resource usage) by other products installed on the server.

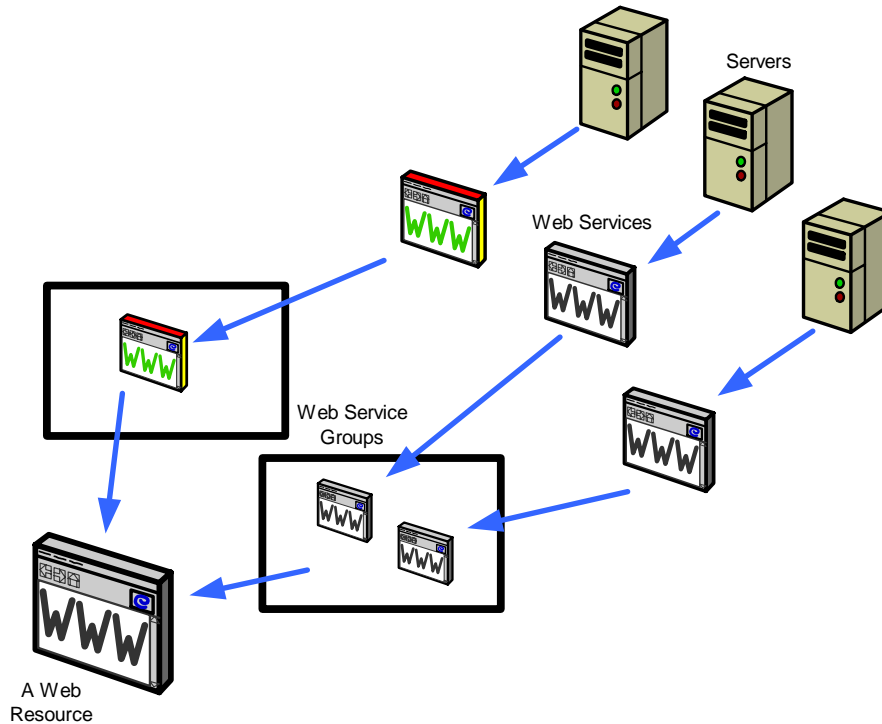
Some hosts prefer to separate ASP.Net, normal websites and FrontPage websites onto different servers. Since ABC Ltd only have a limited number of servers at this time it has been decided to have all of the web services on both of the web servers. Helm fully supports the ability to have services such as FrontPage web sites set up on separate servers.



FTP is also installed on these servers to reduce the amount of internal traffic and to ensure better redundancy for the web servers. As web servers are added the amount of FTP traffic is likely to increase relatively. Helm will automatically select the FTP service that is on the same server as the web service by default. If there is no FTP service on the web server then it will set it up on a different server.

Servers, Services, Service Groups and Resources

It sounds complicated, but this is actually quite straightforward.



Servers

Servers are the physical machines that services are installed upon. They contain two main items of data within Helm, the services and the IP addresses.

Services

A service is a server based software product such as IIS, MailEnable, Serv-U or any other web, FTP, mail, DNS, statistic or database service. Each service in Helm has a number of properties that describe either how it works or how it should be controlled by Helm.

Service Groups

A service group is a cluster of services where during the set up, a domain will be added to all of the services within the group. More often than not, a group will have only one service unless it is in a clustered environment.

Resources

Resources are collections of service groups that are allocated to plans and packages within Helm. A resource will distribute a domain to one of the selected service groups.

Resources have a few distribution types that can be selected for any type of service, whether it be a web service, FTP service, DNS service, mail service, database service or statistics service.

Balanced Distribution	This allocates domains to the services by spreading them evenly across all of the services available in the resource. This is the most common and recommended distribution type to use if you are unsure.
Balanced with Bias Distribution	Each service can be provided a “maximum number of domains” for that service. This is useful where environments have mixed servers of various powers. The bias will allow smaller servers to have fewer domains distributed to them.
Random Distribution	This allocates domains to all of the services randomly. This will not take into account how much each service is already being used.
Random with Bias Distribution	This allocates domains to all of the services randomly whilst also taking into account the power of each server (number of domains it can handle). It will bias towards the bigger services.

Describing the Servers and Their Services

Helm needs to understand where to put services as well as how to set up the services in the way that you want. The first step is to describe the servers and services that have been installed on the servers.

Getting the server and services correct from the start is critical if you want to avoid problems at a later stage. This is one of the key reasons to plan the layout before configuring Helm.

Adding Servers

You will need to login as Admin to setup the servers. From the “standard” interface you can add new servers from within the “System Settings” > “Servers” area.

The first thing to do is to add the control server into the server list. When adding a server there are two important pieces of information that are required. The first is the machine name and the second is the communication IP. These two pieces of information allow the control server to communicate with the remote servers. It is not uncommon to have a separate internal network to separate external traffic from traffic between servers such as backups, or in this case communication traffic. When setting up the control server add in the local IP address as the communication IP. Do not put the localhost name or IP into these boxes as some services will not set up correctly as sometimes they only listen on the IP addresses listed for the network adapter.

The remote servers do not require any “Helm remote setup application” to be installed. There may be some additional service configuration required for individual services but on the whole, to get a server up and running you only need to describe where it is in the Helm control panel.

IP Allocation

The next stage is IP allocation. Some networks are based on NAT where servers are only recognised by their internal IP addresses such as “192.168.1.13” or “10.2.3.4”. This type of network is becoming more popular for easier external IP allocations and migrations at the router level. Helm fully supports a NAT based network and ensures services are configured correctly for these types of environments.

Within each server you should add all of the IP addresses that are configured on that server whether they are being utilised or not as Helm provides a means of keeping track of the IP allocations.

Adding the Services

Once the servers have been added into the system and the IP addresses have been assigned, the next step is to add the services that each server supports.

Adding Web Services

When adding a web service there are a number of options including the path to the local folder where the web spaces should be set up. The one property we are interested in is the web farm option. For ABC Ltd we want each website to be allocated to one server, so we select that the service is not part of a web farm. If you add a service to a web farm then websites are set up on all the services within that farm.

Adding FTP Services

Adding FTP services requires some simple information about the way that the FTP accounts should be setup. The default physical path is automatically overridden when a domain has a website so that the FTP account point directly at the web space.

Adding Mail Services

Mail services are straightforward. You can add more than one mail service into a service group and provide a priority which will reflect in the DNS MX record priority.

Adding DNS Services

The DNS service is the most complex of all the services. Before you can add any secondary DNS services you must add the primary. When adding a secondary service you will need to select the primary that the secondary server obtains the zone information from.

Adding Statistics Services

Adding a statistics service is straightforward and just requires information about obtaining authentication to set up statistics sites and where to communicate with as some statistics software will only listen to a single IP address.

Adding Database Services

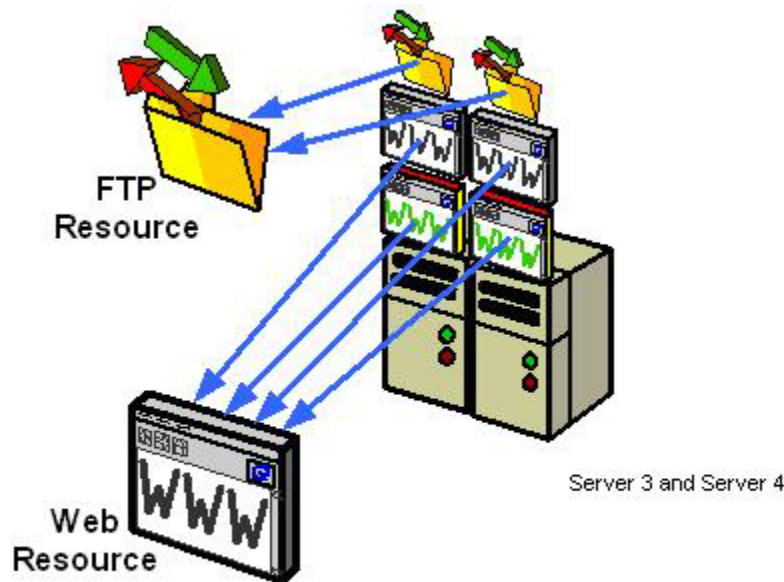
Adding a database service also just requires information about obtaining authentication to set up the databases and the database users. The databases should be contactable from the communication IP of the server.

Resources

As previously discussed resources are a collection of services that are allocated to plans and packages.

Let's go back to our example hosting providers, ABC Ltd. The company wishes to set up their reseller plan so that all domains are allocated some web space, a FTP account to the web space, a Mail account and want to give an option of either a normal website of a FrontPage based website.

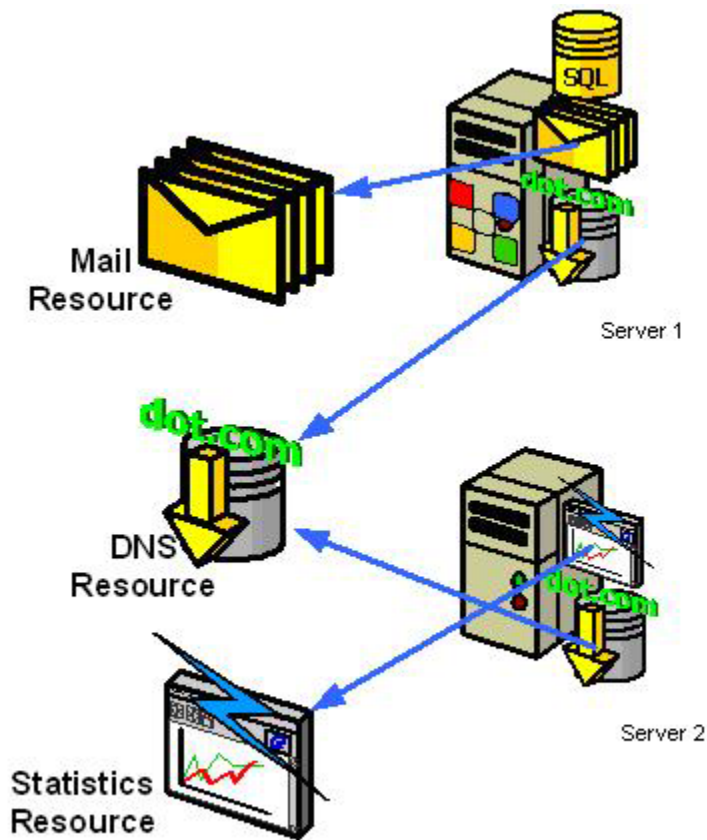
The servers and services have already been added to the system so the next task is to create some resources and add the services to these.



First the web service needs to be added. Server 3 and Server 4 each provide two web services, a normal web service and a FrontPage web service. So firstly a new resource is added into Helm which is of type "Web". ABC Ltd want to ensure that websites are evenly distributed across both servers so the resource is set to have a balanced distribution. Added into this resource are the IIS service from both Server 3 and Server 4 and the FrontPage service from Server 3 and Server 4.

Helm will now have enough information to know where and how to configure the websites on the web servers. Since the plans and packages use the one resource, this makes adding new servers a breeze since all that would be required is to add the new server(s) into Helm, describe the services that they support much like the current ones already configured then add these to the already existing resources. As soon as they have been added to the existing resource new domains will automatically start to be distributed to the new servers.

Next the FTP resource is created and the two FTP services from Server 3 and Server 4 are added to the resource. Although we provide these two services with a balanced distribution, Helm takes a preference over which FTP service is chosen by automatically selecting the same server as the web service. If this is not available, the preferred FTP service is selected based on the distribution method.



The mail resource is added next and the mail service from Server 1 is added. Since this is the only mail service in the resource, all domains added into the system will be set up on this mail service.

The DNS services have been configured already so that Server 2 holds the primary zones and Server 1 holds the secondary zones. When the DNS resource is created in Helm you will only be able to add the primary zones to the resource. Helm will automatically pick up all the secondary DNS services and create secondary zones pointing to the primary server. Since ABC Ltd only has the one primary DNS server, all of the domains will be added to the primary DNS server and, therefore, the secondary DNS server as well.

Although we don't need the statistics yet the resource can still be added into Helm. Without the resource having been allocated to the plans or packages on the system, the resource will remain unused.