高级网络配置

本章包含以下部分：

以太网接口上的媒体设置

以太网接口的媒体设置可使用 etherconfig 命令访问。每个以太网接口连同其当前设置一起列出。选择接口后，将会显示可能的介质设置。有关示例，请参阅编辑介质设置示例, on page 1。

使用 etherconfig 编辑以太网接口上的介质设置

etherconfig 命令可用于设置以太网接口的双工设置（全/半）以及速度（10/100/1000 Mbps）。默认情况下，接口会自动选择介质设置；但某些情况下，您可能希望覆盖此设置。

✎

Note 如果您已按照"设置和安装"一章中的说明完成了 GUI 的系统设置向导（或命令行界面 systemsetup 命令）并确认了更改，则默认的以太网接口设置应已在邮件网关上配置。

部分邮件网关提供光纤网络接口选项。如果可用，您会在这些邮件网关上的可用接口列表中看到另外两个以太网接口（Data 3 和 Data 4）。这些千兆光纤接口可以与异类配置中的铜缆（Data 1、Data 2 和管理）接口配对。请参阅网络接口卡配对/组合, on page 2。

编辑介质设置示例

```
mail3.example.com> etherconfig

Choose the operation you want to perform:
- MEDIA - View and edit ethernet media settings.
```

```
        - PAIRING - View and configure NIC Pairing.
        - VLAN - View and configure VLANs.
        - LOOPBACK - View and configure Loopback.
        - MTU - View and configure MTU.
        - MULTICAST - Accept or reject ARP replies with a multicast address.

        []> media
        Ethernet interfaces:
        1. Data 1 (Autoselect: <100baseTX full-duplex>) 00:06:5b:f3:ba:6d
        2. Data 2 (Autoselect: <100baseTX full-duplex>) 00:06:5b:f3:ba:6e
        3. Management (Autoselect: <100baseTX full-duplex>) 00:02:b3:c7:a2:da

        Choose the operation you want to perform:
        - EDIT - Edit an ethernet interface.
        []> edit
        Enter the name or number of the ethernet interface you wish to edit.
        []> 2
        Please choose the Ethernet media options for the Data 2 interface.
        1. Autoselect
        2. 10baseT/UTP half-duplex
        3. 10baseT/UTP full-duplex
        4. 100baseTX half-duplex

        5. 100baseTX full-duplex


        6. 1000baseTX half-duplex
        7. 1000baseTX full-duplex
        [1]> 5
        Ethernet interfaces:
        1. Data 1 (Autoselect: <100baseTX full-duplex>) 00:06:5b:f3:ba:6d
        2. Data 2 (100baseTX full-duplex: <100baseTX full-duplex>) 00:06:5b:f3:ba:6e
        3. Management (Autoselect: <100baseTX full-duplex>) 00:02:b3:c7:a2:da
        Choose the operation you want to perform:
        - EDIT - Edit an ethernet interface.
        []>
        Choose the operation you want to perform:
        - MEDIA - View and edit ethernet media settings.
        - PAIRING - View and configure NIC Pairing.
        - VLAN - View and configure VLANs.
        - LOOPBACK - View and configure Loopback.
        - MTU - View and configure MTU.
        - MULTICAST - Accept or reject ARP replies with a multicast address.
        []>
```

网络接口卡配对/组合

NIC 配对可用于组合任何两个物理数据端口，以在从 NIC 到上游以太网端口的数据路径出现故障时提供备用以太网接口。配对主要是配置以太网接口，以便有一个主接口和一个备用接口。如果主接口发生故障（例如，如果 NIC 和上游节点之间的载体中断），则备用接口变为活动状态，并发送警报。当主接口重新启用后，此接口将自动变为活动状态。在本产品的文档中，NIC 配对与 NIC 组合是同义词。

> **Note** NIC 配对在 C170、C190 和 C195 邮件网关上不可用。

您可以创建多个 NIC 配对，以为您提供足够的数据端口。创建配对时，可以组合任意两个数据端口。例如：

Data 1 和 Data 2

Data 3 和 Data 4

Data 2 和 Data 3

等等

部分邮件网关提供光纤网络接口选项。如果可用，您会在这些邮件网关上的可用接口列表中看到另外两个以太网接口（Data 3 和 Data 4）。这些千兆光纤接口可以与异类配置中的铜缆（Data 1、Data 2 和管理）接口配对。

NIC 配对和 VLAN

VLAN（请参阅）仅在主接口上允许。

NIC 对命名

在创建 NIC 对时，必须指定用于引用该对的名称。在 4.5 之前的 AsyncOS 版本中创建的 NIC 对将在升级后自动接收默认名称"Pair 1"。

因 NIC 配对生成的任何警报都将按名称引用特定的 NIC 对。

NIC 配对和现有侦听程序

如果在为其指定了侦听程序的接口上启用 NIC 配对，系统会提示您删除、重新分配或禁用指定给备用接口的所有侦听程序。

通过 etherconfig 命令启用 NIC 配对

Note NIC 配对在 C170、C190 和 C195 邮件网关上不可用。

```
mail3.example.com> etherconfig

Choose the operation you want to perform:

- MEDIA - View and edit ethernet media settings.

- PAIRING - View and configure NIC Pairing.

- VLAN - View and configure VLANs.

- LOOPBACK - View and configure Loopback.

- MTU - View and configure MTU.

- MULTICAST - Accept or reject ARP replies with a multicast address.
```

高级网络配置

```
[]> pairing

Paired interfaces:

Choose the operation you want to perform:

- NEW - Create a new pairing.

[]> new

Please enter a name for this pair (Ex: "Pair 1"):

[]> Pair 1

Warning: The backup (Data 2) for the NIC Pair is currently configured with one or more
IP addresses. If you continue, the Data 2 interface will be deleted.

Do you want to continue? [N]> y

The interface you are deleting is currently used by listener "OutgoingMail".

What would you like to do?

1. Delete: Remove the listener and all its settings.

2. Change: Choose a new interface.

3. Ignore: Leave the listener configured for interface "Data 2" (the listener will be
disabled until you add a new interface named "Data 2" or edit the listener's settings).


[1]>

Listener OutgoingMail deleted for mail3.example.com.

Interface Data 2 deleted.

Paired interfaces:

1. Pair 1:


Primary (Data 1) Active, Link is up

Backup (Data 2) Standby, Link is up

Choose the operation you want to perform:

- DELETE - Delete a pairing.

- STATUS - Refresh status.

[]>
```

# 虚拟局域网 (VLAN)

您可以在邮件网关的任意物理网络端口上配置多个虚拟局域网 (VLAN)。

可以使用 VLAN 来：

- 将邮件网关可连接的网络数增加到超过邮件网关设备上的物理接口数。
- 允许在现有侦听程序的独立"端口"上定义更多网络。
- 出于安全考虑对网络进行分段，以简化管理或增加带宽。

使用案例示例：

直接因 VLAN 限制而无法通信的两个邮件服务器可以通过邮件网关发送邮件。邮件网关上的 Data 2 接口通过 VLAN1 和 VLAN2 配置。蓝线显示从销售网络 (VLAN1) 发送至设备的邮件。邮件网关按照正常方式处理该，然后在传送时，以目的 VLAN2 信息（红线）标记数据包。

使用 VLAN 加速邮件网关之间的通信

Figure 1: 使用 *VLAN* 加速邮件网关之间的通信
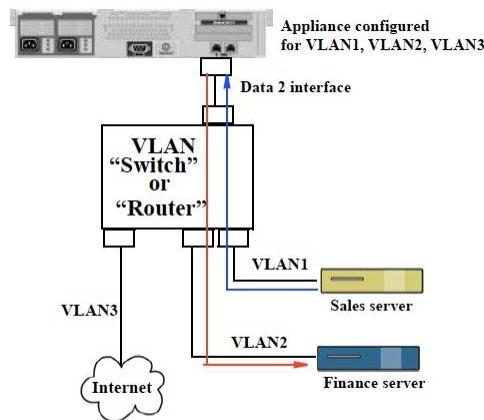
关于配置 VLAN

可以在邮件网关上的任意物理网络端口上配置多个 VLAN，包括"数据"和"管理"端口以及某些邮件网关型号上提供的光纤数据端口。AsyncOS 最多支持 30 个 VLAN。

物理端口不需要为了进入 VLAN 而配置 IP 地址。在其上创建 VLAN 的物理端口可以有一个用来接收非 VLAN 流量的 IP，以便可以在同一接口上同时拥有 VLAN 和非 VLAN 流量。

VLAN 可与 NIC 配对（在配对的 NIC 上提供）和直接服务器返回 (DSR) 配合使用。

VLAN 显示为以："VLAN DDDD"格式标记的动态"数据端口"，其中"DDDD"是 ID，是长度最多为 4 位数的整数（例如 VLAN 2 或 VLAN 4094）。VLAN ID 在邮件网关上必须是唯一的。

相关主题

FTP、SSH 和 SCP 访问

管理 VLAN

可以通过 etherconfig 命令创建、编辑和删除 VLAN。创建 VLAN 后，可以通过"网络"(Network) >"接口"(Interfaces) 页面或 CLI 中的 interfaceconfig 命令配置该 VLAN。请记得要确认所有更改。

通过 etherconfig 命令创建新的 VLAN

在本例中，在 Data 1 端口上创建两个 VLAN（名为 VLAN 31 和 VLAN 34）：

```
mail3.example.com> etherconfig

Choose the operation you want to perform:

- MEDIA - View and edit ethernet media settings.

- PAIRING - View and configure NIC Pairing.

- VLAN - View and configure VLANs.

- LOOPBACK - View and configure Loopback.

- MTU - View and configure MTU.

- MULTICAST - Accept or reject ARP replies with a multicast address.

[]> vlan

VLAN interfaces:

Choose the operation you want to perform:

- NEW - Create a new VLAN.

[]> new

VLAN ID for the interface (Ex: "34"):

[]> 34

Enter the name or number of the ethernet interface you wish bind to:

1. Data 1

2. Data 2

3. Management

[1]> 1


VLAN interfaces:

1. VLAN 34 (Data 1)

Choose the operation you want to perform:


- NEW - Create a new VLAN.

- EDIT - Edit a VLAN.

- DELETE - Delete a VLAN.

[]> new

VLAN ID for the interface (Ex: "34"):

[]> 31
```

```
Enter the name or number of the ethernet interface you wish bind to:

1. Data 1

2. Data 2

3. Management

[1]> 1

VLAN interfaces:

1. VLAN 31 (Data 1)

2. VLAN 34 (Data 1)

Choose the operation you want to perform:

- NEW - Create a new VLAN.

- EDIT - Edit a VLAN.

- DELETE - Delete a VLAN.

[]>

Choose the operation you want to perform:

- MEDIA - View and edit ethernet media settings.

- PAIRING - View and configure NIC Pairing.

- VLAN - View and configure VLANs.

- LOOPBACK - View and configure Loopback.

- MTU - View and configure MTU.

- MULTICAST - Accept or reject ARP replies with a multicast address.

[]>
```

通过 **interfaceconfig** 命令在 **VLAN** 上创建 **IP** 接口

在本例中，在 VLAN 31 以太网接口上创建新的 IP 接口。

对接口进行更改可能会断开您与邮件网关的连接。

```
mail3.example.com> interfaceconfig

Currently configured interfaces:

1. Data 1 (10.10.1.10/24: example.com)

2. Management (10.10.0.10/24: example.com)

Choose the operation you want to perform:

- NEW - Create a new interface.

- EDIT - Modify an interface.
```

高级网络配置

```
- GROUPS - Define interface groups.

- DELETE - Remove an interface.

[]> new


Please enter a name for this IP interface (Ex: "InternalNet"):


[]> InternalVLAN31

Would you like to configure an IPv4 address for this interface (y/n)? [Y]>

IPv4 Address (Ex: 10.10.10.10):

[]> 10.10.31.10

Netmask (Ex: "255.255.255.0" or "0xffffff00"):

[255.255.255.0]>

Would you like to configure an IPv6 address for this interface (y/n)? [N]>

Ethernet interface:

1. Data 1

2. Data 2

3. Management

4. VLAN 31

5. VLAN 34

[1]> 4

Hostname:

[]> mail31.example.com

Do you want to enable SSH on this interface? [N]>

Do you want to enable FTP on this interface? [N]>

Do you want to enable HTTP on this interface? [N]>

Do you want to enable HTTPS on this interface? [N]>

Currently configured interfaces:

1. Data 1 (10.10.1.10/24: example.com)

2. InternalVLAN31 (10.10.31.10/24: mail31.example.com)

3. Management (10.10.0.10/24: example.com)

Choose the operation you want to perform:

- NEW - Create a new interface.

- EDIT - Modify an interface.
```

```
- GROUPS - Define interface groups.

- DELETE - Remove an interface.

[]>
```

使用 **Web** 界面配置 **VLAN**

使用 etherconfig 命令创建 VLAN 后，可以使用"网络">"侦听程序"页对其进行配置。

直接服务器返回

直接服务器返回(DSR)是一种为轻量级负载均衡机制提供支持的方式，以实现共享同一虚拟 IP (VIP) 的多个邮件网关之间的负载均衡。

DSR 通过在邮件网关的"环回"以太网接口上创建的 IP 接口实现。

Note 为邮件网关配置负载均衡不在本文档的范围之内

启用直接服务器返回

通过在每个参与邮件网关上启用"环回"以太网接口来启用 DSR。接下来，使用 CLI 中的 **interfaceconfig** 命令或 GUI 中的"网络"(Network) > "接口"(Interfaces) 页面通过虚拟 IP (VIP) 在环回接口上创建 IP 接口。最后，使用 CLI 中的 **listenerconfig** 命令或 GUI 中的"网络"(Network) > "侦听程序"(Listeners) 页面在新 IP 接口上创建侦听程序。请记得要确认所有更改。

Note 使用环回接口可以防止邮件网关针对该特定接口发出 ARP 应答

当启用 DSR 时，以下规则适用：

所有系统都使用同一虚拟 IP (VIP) 地址

所有系统必须与负载均衡器位于同一交换机和子网上

Figure 2: 使用 *DSR* 实现交换机上多个邮件网关之间的负载均衡
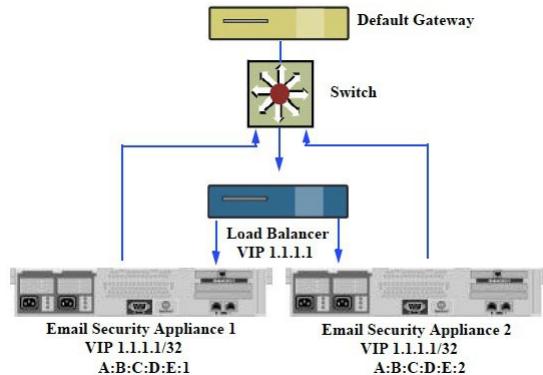
使用 DSR 实现交换机上多个邮件网关之间的负载均衡

通过 etherconfig 命令启用环回接口

启用后，环回接口将像其他任何接口（例如 Data 1）一样被跟踪：

```
mail3.example.com> etherconfig

Choose the operation you want to perform:

- MEDIA - View and edit ethernet media settings.

- PAIRING - View and configure NIC Pairing.

- VLAN - View and configure VLANs.

- LOOPBACK - View and configure Loopback.

- MTU - View and configure MTU.

- MULTICAST - Accept or reject ARP replies with a multicast address.


[]> loopback

Currently configured loopback interface:

Choose the operation you want to perform:


- ENABLE - Enable Loopback Interface.

[]> enable

Currently configured loopback interface:


1. Loopback

Choose the operation you want to perform:

- DISABLE - Disable Loopback Interface.

[]>
```

```
Choose the operation you want to perform:

- MEDIA - View and edit ethernet media settings.

- PAIRING - View and configure NIC Pairing.

- VLAN - View and configure VLANs.

- LOOPBACK - View and configure Loopback.

- MTU - View and configure MTU.

- MULTICAST - Accept or reject ARP replies with a multicast address.

[]>
```

通过 **interfaceconfig** 命令在环回接口上创建 **IP**

在环回接口上创建 IP 接口：

```
mail3.example.com> interfaceconfig

Currently configured interfaces:

1. Data 1 (10.10.1.10/24: example.com)

2. InternalV1 (10.10.31.10/24: mail31.example.com)

3. Management (10.10.0.10/24: example.com)

Choose the operation you want to perform:

- NEW - Create a new interface.

- EDIT - Modify an interface.

- GROUPS - Define interface groups.

- DELETE - Remove an interface.

[]> new

Please enter a name for this IP interface (Ex: "InternalNet"):

[]> LoopVIP

Would you like to configure an IPv4 address for this interface (y/n)? [Y]>

IPv4 Address (Ex: 10.10.10.10):

[]> 10.10.1.11

Netmask (Ex: "255.255.255.0" or "0xffffff00"):

[255.255.255.0]> 255.255.255.255

Would you like to configure an IPv6 address for this interface (y/n)? [N]>

Ethernet interface:

1. Data 1
```

```
2. Data 2

3. Loopback

4. Management

5. VLAN 31

6. VLAN 34

[1]> 3

Hostname:

[]> example.com

Do you want to enable SSH on this interface? [N]>


Do you want to enable FTP on this interface? [N]>


Do you want to enable HTTP on this interface? [N]>

Do you want to enable HTTPS on this interface? [N]>


Currently configured interfaces:

1. Data 1 (10.10.1.10/24: example.com)

2. InternalV1 (10.10.31.10/24: mail31.example.com)

3. LoopVIP (10.10.1.11/24: example.com)

4. Management (10.10.0.10/24: example.com)

Choose the operation you want to perform:

- NEW - Create a new interface.

- EDIT - Modify an interface.

- GROUPS - Define interface groups.

- DELETE - Remove an interface.

[]>
```

在新 **IP** 接口上创建侦听程序

通过 GUI 或 CLI 在新 IP 接口上创建侦听程序。例如，下图显示了 GUI 的"添加侦听程序"(Add Listener) 页面上可用的新创建的 IP 接口。

Figure 3: *在新环回 IP 接口上创建侦听程序*

以太网接口的最大传输单位

最大传输单位 (MTU) 是以太网接口将接受的最大数据单位。可以通过 etherconfig 命令降低以太网接口的 MTU。默认的 MTU 大小是 1500 字节，这是以太网可以接受的最大 MTU。

要编辑接口的 MTU，请执行以下操作：

```
mail3.example.com> etherconfig

Choose the operation you want to perform:

- MEDIA - View and edit ethernet media settings.

- PAIRING - View and configure NIC Pairing.

- VLAN - View and configure VLANs.

- LOOPBACK - View and configure Loopback.

- MTU - View and configure MTU.

- MULTICAST - Accept or reject ARP replies with a multicast address.

[]> mtu

Ethernet interfaces:

1. Data 1 mtu 1400

2. Data 2 default mtu 1500

3. Management default mtu 1500

Choose the operation you want to perform:
```

```
- EDIT - Edit an ethernet interface.

[]> edit

Enter the name or number of the ethernet interface you wish to edit.

[]> 2

Please enter a non-default (1500) MTU value for the Data 2 interface.

[]> 1200

Ethernet interfaces:

1. Data 1 mtu 1400

2. Data 2 mtu 1200

3. Management default mtu 1500

Choose the operation you want to perform:

- EDIT - Edit an ethernet interface.

[]>
```

接受或拒绝包含组播地址的 **ARP** 应答

您现在可指定是接受还是拒绝包含组播地址的 ARP 应答。使用 MULTICAST 子命令配置此功能。

以下示例显示如何将邮件网关配置为接受包含组播地址的 ARP 应答：

```
mail.example.com> etherconfig
Choose the operation you want to perform:
- MEDIA - View and edit ethernet media settings.
- VLAN - View and configure VLANs.
- LOOPBACK - View and configure Loopback.
- MTU - View and configure MTU.
- MULTICAST - Accept or reject ARP replies with a multicast address.
[]> multicast
ARP replies with a multicast address will be rejected.
Choose the operation you want to perform:
- ACCEPT - Accept ARP replies with a multicast address.
[]> accept
ARP replies with a multicast address will be accepted.
```

当地语言翻译版本说明

思科可能会在某些地方提供本内容的当地语言翻译版本。请注意，翻译版本仅供参考，如有任何不一致之处，以本内容的英文版本为准。