

如何以EAP-TLS认证使用aIOS WGB在Cisco Unified 无线网络

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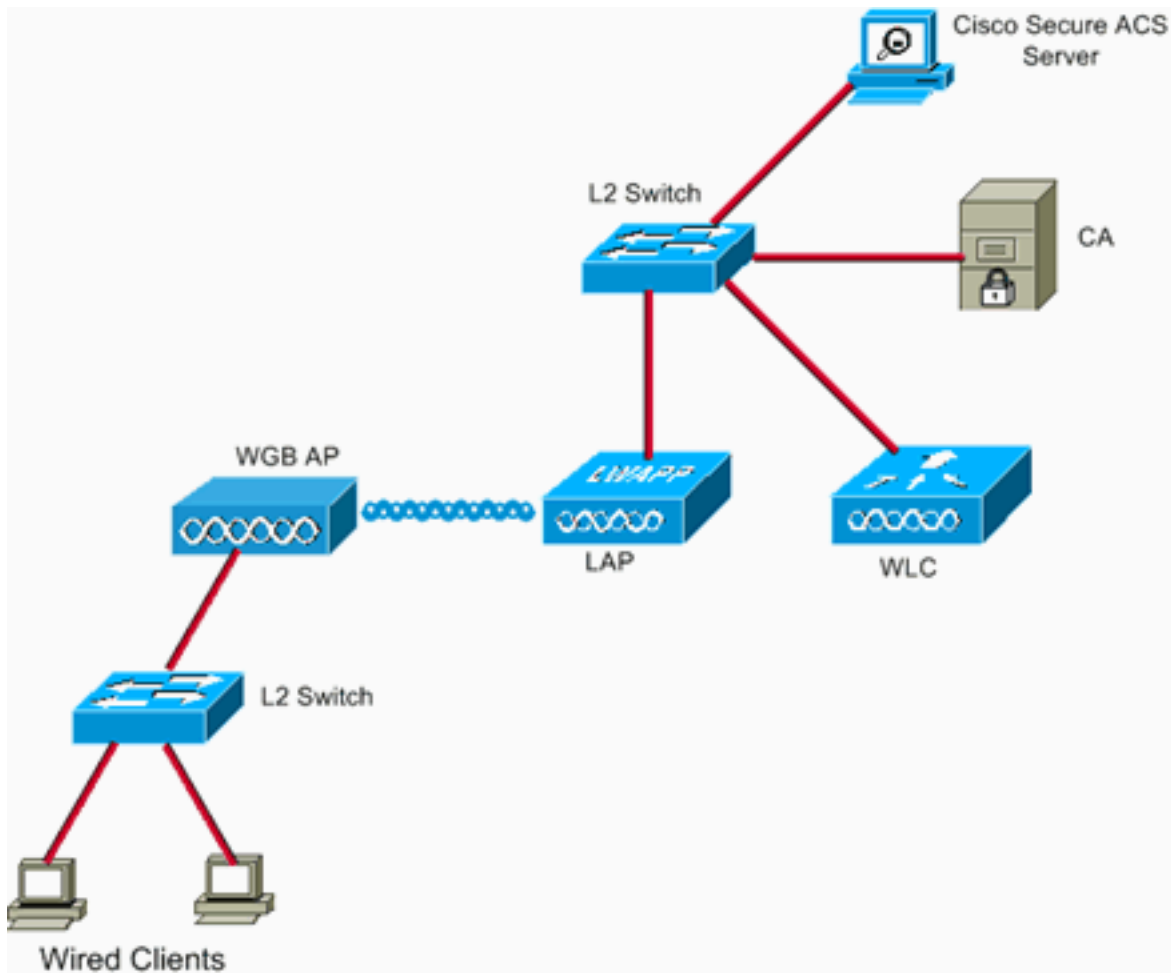
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简介

此示例在工作组网桥(WGB)模式显示如何配置和使用自治IOS (aIOS) AP，运行，以EAP-TLS验证，在Cisco Unified无线网络(CUWN)。在本例中，Microsoft证书颁发机构(Windows 2003)在WGB发出WGB的证书和通过复制和粘贴方法，这些证书手工被输入。ACS作为RADIUS服务器。使用与802.1X密钥管理的WPA1/TKIP加密。



先决条件

要求

尝试进行此配置之前，请确保满足以下要求：

- 思科自治解决方案和基于Cisco IOS的接入点知识。
- 知识轻量级接入点协议 (LWAPP)

使用的组件

本文档中的信息基于以下软件和硬件版本：

- 运行Cisco IOS软件版本12.4(10b)JA2的WGB使用Cisco IOS软件版本12.4(10b)JA2或以上对于这些原因是重要的：Cisco Bug ID [CSCsl85710 \(仅限注册用户\)](#) — 802.11a WGB不能禁用DFS信道或enable (event) ‘移动站点’Cisco Bug ID [CSCsl85798 \(仅限注册用户\)](#) —在DFS事件以后，WGB不重新扫描Cisco Bug ID [CSCsm37686 \(仅限注册用户\)](#) —为Tkip配置的WGB不能assoc对(WPA+TKIP)+(WPA2+AES)Cisco Bug ID [CSCsk85945 \(仅限注册用户\)](#) — WPA1 WGB不能关联到WPA1+WPA2 WLANCisco Bug ID [CSCsk52437 \(仅限注册用户\)](#) —，当AP去offchannel，WGB重新传输发生故障Cisco Bug ID [CSCsb85791 \(仅限注册用户\)](#) —在新的镜像的安装的之后1130失败Cisco Bug ID [CSCsk63882 \(仅限注册用户\)](#) —与被看到的traceback的Bad Id错误，当基于12.4的802.11 AP出现Cisco Bug ID [CSCsl36227 \(仅限注册用户\)](#) —在WGB的Traceback：%SM-4-BADEVENT：事件‘eapResp’无效Cisco Bug ID [CSCsl46209 \(仅限注册用户\)](#) — WGB 1242 11g无线电卡住在重置，终止传送Cisco Bug ID [CSCsl58071 \(仅限](#)

[注册用户](#)) — WGB在EAP-TLS间歇地需要很长时间重新鉴别

- 运行版本4.2.99.0的WLC为此使用4.1.185.0或以后是重要的：Cisco Bug ID [CSCsk41360](#) ([仅限注册用户](#)) — 控制器持续处理EAPOL注销在接收EAPOL以后

注意： 您需要是[注册用户](#)为了查看bug的详细信息。

ACS运行4.1;CA运行Microsoft Windows 2003年高级服务器SP1。在任何情况下，当您浏览对CA，客户端浏览器是有启用的Active X的Internet Explorer。

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您使用的是真实网络，请确保您已经了解所有命令的潜在影响。

规则

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

配置概述

1. [启动Microsoft CA \(如果需要\)](#)
2. [安装在ACS的服务器证书](#)
3. [安装在ACS的CA证书](#)
4. [设置ACS使用服务器证书](#)
5. [配置ACS让WGB验证在EAP-TLS](#)
6. [配置WLC的WLAN验证到ACS](#)
7. [配置WGB的证书](#) 设置主机名、域名和时刻当必要时配置信任点。安装CA证书。生成AP证书请求。发送AP证书请求对CA。发行证书。安装AP证书。
8. [配置WGB SSID、请求方和无线电当必要时](#)
9. [配置一个被动客户端的条目\(如果需要\)](#)
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配置

本部分提供有关如何配置本文档所述功能的信息。

注意： 使用[命令查找工具](#) ([仅限注册用户](#)) 可获取有关本部分所使用命令的详细信息。

[启动Microsoft CA \(如果需要\)](#)

完成这些步骤为了打开与使用的Microsoft CA Windows 2003年高级服务器：

1. 首先，把IIS安装。选择**控制面板>Add/删除Programs> Windows组件>应用服务器**。
2. 然后，请安装CA.选择**控制面板>Add删除Programs> Windows组件>证书服务**。选择**企业根CA**。给予CA名称，并且记录下来它。

[安装在ACS的服务器证书](#)

完成这些步骤为了安装在ACS的服务器证书。

1. 从在ACS服务器运作的浏览器，请浏览对CA:<http://ip.of.CA.server/certsrv>请求证书
>**Advanced请求**>**创建并且提交请求对此CA**。在命名(CN)字段，请输入某事。记录下来它。在证书必要的下拉菜单种类，请选择**服务器验证证书**。在关键选项下，请选择：CSP —微软 Base Cryptographic供应者v1.0密钥大小— 1024复选标记**密钥如可导出**。在本地计算机**cert存储检查存储cert**。留下一切别的东西作为默认，并且单击**提交**。您应该看到说的状态报告如果有一问题，请看MS KB 323172，或者能挡Active X的路的其他事物。
2. 现在，在CA，请进入CA管理程序并且选择**Start > Administrative Tools > 证书颁发机构**。在左边，请展开CA图标，并且查找在待定请求下。在右边，请用鼠标右键单击从ACS的请求并且选择**所有任务>问题**。请求应该当前出现在已签发证书下。
3. 返回在ACS服务器，再浏览对<http://ip.of.CA.server/certsrv>。点击**视图待定证书请求的状况**。点击**服务器验证证书**。单击 **Install this certificate**。

安装在ACS的CA证书

完成这些步骤：

从在ACS服务器运作的浏览器，请浏览对CA:<http://ip.of.CA.server/certsrv>

1. 单击 **Download a CA certificate, certificate chain, or CRL**。
2. 选择**编码方法：Base64**。
3. 选择**下载CA证书**。
4. 打开.cer文件，然后单击**安装证书**。
5. 在证书导入向导中，**其次**请单击，然后在以下**存储安置所有证书**，然后浏览。
6. 选中**显示物理存储区框**。
7. 展开**可靠的根证书颁发机构**，选择**本地计算机**，并且单击**OK键**。
8. 单击**其次**，**芬通社**，并且**好的**为方框。

设置ACS使用服务器证书

完成这些步骤：

1. 在 ACS 服务器上，选择 **System Configuration**。
2. 选择 **ACS Certificate Setup**。
3. 选择 **Install ACS Certificate**。
4. 选择 **Use certificate from storage**。
5. 输入CN名称，在上一步使用的同一名称。
6. 单击 **submit**。
7. 在ACS服务器中，请点击**系统配置**。
8. 选择 **ACS Certificate Setup**。
9. 选择 **Edit Certificate Trust List**。
10. 选中 **CA 复选框**。
11. 单击 **submit**。

配置ACS让WGB验证在EAP-TLS

完成这些步骤为了配置ACS让WGB验证在ACS：

1. 添加WLC作为NAS (AAA客户端)。在ACS GUI中，请点击在左边的**网络配置**。在 AAA Clients 下，单击 **Add Entry**。输入名称在AAA客户端主机名下。输入WLC的管理接口IP地址在AAA客户端IP地址下。输入RADIUS密钥在共享塞克雷下并且记录下来它。在验证使用下拉菜单，请选择**RADIUS (思科Airespace)**。单击 **Submit+Apply**。
2. 启用在ACS的EAP-TLS。选择**系统配置>全局验证设置**。在EAP-TLS下，例如，顶层EAP-TLS，在EAP-FAST以后，在PEAP下的不是EAP-TLS，检查**允许EAP-TLS**。检查全部三证书验证选项。选择**Submit+Restart**。
3. 添加WGB作为ACS。在用户设置，请输入WGB的名称在用户面板中，并且单击**添加/编辑**。此示例使用“WGB”。输入难对猜测密码。这在EAP-TLS要求，虽然没使用。单击 **submit**。

配置WLC的WLAN验证到ACS

完成这些步骤：

1. 浏览对WLC的GUI。
2. 添加ACS到RADIUS服务器列表：选择**安全>AAA > RADIUS>验证**并且点击**新**。输入ACS IP地址在服务器IP地址面板中。输入从上一步的RADIUS共享的机密。单击 **Apply**。
3. 添加EAP-TLS客户端的—WLAN：在WLAN下，请点击**新**。进入SSID作为配置文件名称和WLAN SSID。在常规选项卡，请检查**Enabled复选框**和广播的SSID (如期望的一样)。在安全选项卡下：在Layer2选项卡下，请选择在第2层安全下拉菜单的**WPA+WPA2**，用**TKIP加密检查WPA策略**，不选定与**AES加密的WPA2策略**，并且选择**验证密钥Mgmt的802.1X**。在AAA服务器下，除非ACS是全局默认RADIUS服务器，请添加ACS。单击 **Apply**。

配置WGB的证书

完成这些步骤：

注意： 此方法使用复制和粘贴方法。参考[配置证书使用](#)在Cisco 3200系列无线MIC软件配置指南的[crypto pki CLI](#)关于如何使用TFTP和SCEP方法的更多信息。

1. 设置WGB的主机名、域名和时期当必要时。主机名必须匹配为它输入的用户名在ACS和在

```
ap#configure terminal ap(config)#hostname WGB WGB(config)#
```

时间一定是正确，为了证明能工作 (clock set exec CLI或者配置ntp server)。
2. 配置CA:的信任点WGB#config term WGB(config)#crypto pki trustpoint CUT-PASTE

```
WGB(config)#enrollment terminal WGB(config)#subject-name CN=WGB
```

注意： subject-name CN=<ClientName>要求。没有它，Microsoft CA不能发出cert，与0x80094001错误消息。

```
WGB(config)#revocation-check none
```

注意： none命令的撤销检查是必要避免在Cisco Bug ID描述的问题[CSCs107349 \(仅限注册用户\)](#)。WGB经常取消关联/重新关联并且需要很长时间重新连接。

```
WGB(config)#rsa keypair manual-keys 1024
```
3. 安装在WGB的CA cert：获得CA cert的复制：浏览对CA:[http://ip.of.CA.server/certsrv](#)单击 **Download a CA certificate, certificate chain, or CRL**。选择编码方法：**Base64**。单击**下载 CA 证书**。保存.cer文件。安装CA cert：

```
WGB(config)#crypto pki authenticate
```

 CUT-PASTE Enter the base 64 encoded CA certificate. End with a blank line or the word "quit" on a line by itself 现在，请粘贴在文本从在上一步下载的.cer文件。-----BEGIN CERTIFICATE-----

```
[ ... ]
```

-----END CERTIFICATE-----
quit
Certificate has the following attributes:

```
Fingerprint: 45EC6866 A66B4D8F 2E05960F BC5C1B76
```

```
% Do you accept this certificate? [yes/no]: yes
```

```
Trustpoint CA certificate accepted.
```

```
% Certificate successfully imported
```

4. 请求并且安装在WGB的客户端证书：生成在WGB的证书请求：WGB(config)#crypto pki enroll

```
CUT-PASTE % Start certificate enrollment .. % The subject name in the certificate will include: CN=WGB % Include the router serial number in the subject name? [yes/no]: no % Include an IP address in the subject name? [no]: no Display Certificate Request to terminal? [yes/no]: yes Certificate Request follows:
```

```
MIIBjzCB+QIBADAvMQwwCgYDVQQDEwNXR0IxHzAdBgkqhkiG9w0BCQIWEFdhQI5jY2l1d2lmaS5jb20wgZ8wDQYJKoZIhvcNAQEBBQADgY0AMIGJAoGBAMuyZ0Y/xI3O6Pwch3qA/JoBobYcvKHlc0B0qvqPgCmZgNb8nsFDV8ZFQKb3ySdIxIqOGtrn/Yoh2LHzRKi+AWQHFGAB2vkFD0SJD8A6+YD/GqEdXGoo/e0eqJ7LgFq0wpUQoYlPxsPnQUcK9ZDwd8EZNYdxU/jBtLG9MLX4gta9AgMBAAAGITAFBgkqhkiG9w0BCQ4xEjAQMA4GAlUdDWEB/wQEAWIFoDANBgkqhkiG9w0BAQQFAAOBgQAsCITCKRtul6JmG4rzcDRO0lQdmNYDUwksWHRgSHDMjVvBmoqA2bKeNsTj+svuX5S/Q2cGbzC6OLN/ftQ7fw+RcKKm8+SpaEnU3eYGs3HhY7W9L4MY4JkY8I89ah15/V82SoIAOfCJDy5BvBP6hk7GAPbMYkW9wJaNruVEvkYoLQ== ---End - This line not part of the certificate request---
```

```
Redisplay enrollment request? [yes/no]: no WGB(config)#请求客户端/用户证书对与以前被采集的输出的CA。使用此方法，以对CA的访问使用PC并且请求用户证书：浏览对
```

CA:http://ip.of.CA.server/certsrv选择"Request a certificate"选项。选择“提前证书请求”选项。通过使用base-64-encoded CMC或PKCS-10文件，选择“提交证书请求或者提交续订请求通过使用base-64-encoded PKCS-7文件”选项。粘贴在从“crypto pki生成的IOS登记”以前使用的命令的证书请求和请提交请求。最后，请下载证书作为“编码的Base64”。注意：您需要确保，证书为WGB实际上生成，当主题有“WGB”(用户名您提供了给WGB)作为CN。安装在

```
WGB的用户证书：WGB(config)#crypto pki import CUT-PASTE certificate Enter the base 64
```

```
encoded certificate. End with a blank line or the word "quit" on a line by itself 现在，请粘贴在文本从在上一步下载的.cer文件。 -----BEGIN CERTIFICATE-----
```

```
[ ... ]
```

```
-----END CERTIFICATE-----
```

```
% Router Certificate successfully imported
```

5. 验证从WGB CLI的证明：WGB#show crypto pki certificates Certificate Status: Available

```
Certificate Serial Number: 1379B072000000000000C Certificate Usage: General Purpose Issuer: cn=AARONLAB Subject: Name: WGB cn=WGB CRL Distribution Points: http://wswin/CertEnroll/AARONLAB.crl Validity Date: start date: 11:33:09 MST Mar 3 2008 end date: 11:43:09 MST Mar 3 2009 Associated Trustpoints: COPY-PASTE CA Certificate Status: Available Certificate Serial Number: 612683248DBA539B44B039BD51CD1D48 Certificate Usage: Signature Issuer: cn=AARONLAB Subject: cn=AARONLAB CRL Distribution Points: http://wswin/CertEnroll/AARONLAB.crl Validity Date: start date: 16:34:48 MST Feb 28 2008 end date: 16:41:25 MST Feb 28 2018 Associated Trustpoints: COPY-PASTE
```

配置WGB SSID、请求方和无线电当必要时

完成这些步骤：

1. 配置SSID。这应该匹配在此[上一步的](#)WLC配置的SSID：dot11 ssid EAPTLS

```
authentication network-eap eap_methods
authentication key-management wpa version 1
dot1x credentials EAPTLS
dot1x eap profile EAPTLS
infrastructure-ssid
```

2. 配置EAP-TLS请求方。用户名必须匹配在信任点和用户名条目的CN在ACS。 eap profile


```
EAPTLS
  method tls
!
dot1x credentials EAPTLS
  username WGB
  pki-trustpoint CUT-PASTE
```

3. 配置无线接口当必要时。在本例中，(Dot11Radio0)使用无线电2.4的GHz。interface

```
Dot11Radio0
  encryption mode ciphers aes-ccm tkip
  ssid EAPTLS
!
  packet retries 128 drop-packet
  station-role workgroup-bridge 注意：使用128，WGB保持已关联对其根AP，只要能，因此这是一个固定WGB的一个适当的配置。对于物理的漫游的WGB，这些配置可以使用，按照越来越积极漫游的顺序：packet retries 128 注意：或 packet retries 128
  mobile station period 5 threshold 82
(tune the mobile station command as needed for a specialized application)
```

配置被动客户端的条目(如果需要)

如果一个或更多“被动客户端”是在WGB后，例如，有静态IP地址，并且连续不传输未经请求的IP数据的有线的设备，则特殊步骤需要采取为了保证WGB和CUWN能找到那些客户端。在本例中，客户端有10.0.47.66的IP地址和0040.96b4.7e8f MAC地址。

完成这些步骤为了使用此方法：

1. 配置在WGB的一个静态网桥条目客户端的：

```
B(config)#bridge 1 address 0040.96b4.7e8f
forward fastethernet0
```
2. 配置在WLC的一个静态MAC对IP地址映射：配置WLAN为了启用MAC过滤，AAA覆盖和不要请求DHCP：

```
(Cisco Controller) >show wlan summary !--- Make a note of the WLAN ID for the
SSID used for EAP-TLS. (Cisco Controller) >config wlan disable 6 (Cisco Controller) >config
wlan mac-filtering enable 6 (Cisco Controller) >config wlan aaa-override enable 6 (Cisco
Controller) >config wlan dhcp_server 6 0.0.0.0 !--- Do not have DHCP required checked.添加
MAC过滤器(MAC对IP映射)每个客户端的：(Cisco Controller) >config macfilter add
0040.96b4.7e8f 6 management "client1" 10.0.47.66
```

特殊注释是否使用802.11a (5 GHz)

因为802.11a比802.11b/g (2.4 GHz)支持许多信道，能采取更加长的WGB扫描所有可用的信道。所以，中断，当您漫游在5 GHz，或者在连接问题以后对根AP时，能持续在几秒钟。另外，如果使用DFS信道，信道扫描能采取更加长，并且在DFS雷达探测事件以后的摘要中断能发生。

推荐因此，如果使用802.11a，您应该避免使用DFS信道，例如，在FCC域和使用仅UNII-1和UNII-3波段。应该也配置WGB的Dot11Radio1接口扫描仅信道在使用中在覆盖区域。例如：

```
WGB(config-if)#mobile station scan 36 40 44 48 149 153 157
```

配置

这是AP1242的一示例WGB配置，该用途Cisco IOS软件版本12.4(10b)JA2，与WPA1-TKIP的EAP-TLS验证，2.4 GHz。

注意：此配置一些线路移动向第二行由于空间限制条件。

```
version 12.4
```

```
no service pad
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname WGB
!
logging buffered 200000 debugging
enable secret 5 $1$xPtX$hjxzdWVR9qa4ykoxLYba9l
!
no aaa new-model
clock timezone MST -7
!
!
!
dot11 ssid EAPTLS
    authentication network-eap eap_methods
    authentication key-management wpa version 1
    dot1x credentials EAPTLS
    dot1x eap profile EAPTLS
    infrastructure-ssid
!
power inline negotiation prestandard source
eap profile EAPTLS
    method tls
!
!
crypto pki trustpoint COPY-PASTE
    enrollment terminal
    subject-name CN=WGB
    revocation-check none
    rsakeypair manual-keys 1024
!
!
crypto pki certificate chain COPY-PASTE
    certificate 1379B07200000000000C
[... ]
    quit
    certificate ca 612683248DBA539B44B039BD51CD1D48
[... ]
    quit
dot1x credentials EAPTLS
    username WGB
    pki-trustpoint COPY-PASTE
!
username Cisco password 0 Cisco
!
bridge irb
!
!
interface Dot11Radio0
    no ip address
    no ip route-cache
    !
    encryption mode ciphers tkip
    !
    ssid EAPTLS
    !
    packet retries 128 drop-packet
    station-role workgroup-bridge
    no dot11 qos mode
    bridge-group 1
    bridge-group 1 spanning-disabled
!
```



```

interface Dot11Radiol
  no ip address
  no ip route-cache
  shutdown
  !
  station-role root
  bridge-group 1
  bridge-group 1 subscriber-loop-control
  bridge-group 1 block-unknown-source
  no bridge-group 1 source-learning
  no bridge-group 1 unicast-flooding
  bridge-group 1 spanning-disabled
  !
interface FastEthernet0
  no ip address
  no ip route-cache
  duplex auto
  speed auto
  bridge-group 1
  bridge-group 1 spanning-disabled
  !
interface BV11
  ip address dhcp client-id FastEthernet0
  no ip route-cache
  !
  ip http server
  no ip http secure-server
  ip http help-path

bridge 1 route ip
!
!
!
line con 0
line vty 0 4
  login local
!
sntp server 10.0.47.1
end

```

[同步Cisco IOS请求者的时钟并且节省其时间对NVRAM \(系统用Cisco IOS软件版本12.4\(21a\)JY\)](#)

请求方配置执行其网络连接基于认证的验证，设备此后指请求方的Cisco IOS设备，可能无法连接到网络，除非这些步骤采取。

为了确保，请求方，在重新加载，但是，在它连接对网络前后，知道近似几点是，因此能验证服务器的证书，您必须配置请求方学习从Ntp server的时间和写入时间到其NVRAM。这是运行Cisco IOS软件版本12.4(21a)JY的所有系统的一个需求。

完成这些步骤：

- 配置请求方同步其时间对已知好Ntp server，请求方访问网络访问和存储其时间到其NVRAM。
示例1.1。(在一个系统有SNTP的和没有硬件日历)： `Supp(config)#sntp server 10.0.47.1`
`Supp(config)#clock save interval 8 Supp(config)#end Supp#write memory` **示例1.2。(在一个系统有NTP的和有硬件日历的)：** `Supp(config)#ntp server 10.0.47.1 iburst Supp(config)#ntp update-calendar Supp(config)#end Supp#write memory`
- 确保请求方有网络连通性对Ntp server和同步其时间。**示例2.1：** `Supp#show sntp SNTP server`

Stratum Version Last Receive 10.0.47.1 3 1 00:00:09 Synced **示例2.2** : Supp#**show ntp status**
Clock is synchronized, stratum 4, reference is 10.95.42.129 [...]

3. 确保正确时间保存对请求方的硬件日历，如果有一，或者对NVRAM，如果不。**示例3.1**。在**没有硬件日历的一个系统上**：重新加载请求方为了确保，时间保存对NVRAM。在它重新加载后，请验证时间近似正确，既使当Ntp server不可用：Supp#**show clock detail** *08:24:30.103 - 0700 Thu Apr 15 2010 No time source **示例3.2**。在**有硬件日历的一个系统上**：写入当前，正确时间对硬件日历：Supp#**clock update-calendar** 验证日历正确：Supp#**show calendar**

验证

使用本部分可确认配置能否正常运行。

[命令输出解释程序 \(仅限注册用户 \)](#) (OIT) 支持某些 **show** 命令。使用 OIT 可查看对 **show** 命令输出的分析。

验证WGB连接。

在WLC，WGB的无线电MAC地址应该出现作为一个相关的客户端。例如：

```
(Cisco Controller) >show client summary Number of Clients..... 5 MAC
Address AP Name Status WLAN/ Auth Protocol Port Wired Guest-Lan -----
----- 00:00:39:dd:4d:24 AP0019.e802.3034 Associated 6
Yes N/A 4 No 00:0e:9b:cb:d3:9c AP0019.e802.3034 Associated 1 No 802.11b 4 No 00:16:6f:50:e1:25
AP0019.e802.3034 Probing N/A No 802.11b 4 No 00:19:56:b0:7e:b6 AP0019.e802.3034 Associated 6 Yes
802.11b 4 No 00:40:96:b4:7e:8f AP0019.e802.3034 Associated 6 Yes N/A 4 No Use "show client
detail <MAC>" to see more information on the WGB: (Cisco Controller) >show client detail
00:19:56:b0:7e:b6 Client MAC Address..... 00:19:56:b0:7e:b6 Client
Username ..... WGB AP MAC Address.....
00:19:a9:42:e4:10 Client State..... Associated Workgroup
Bridge..... 2 client(s) Wireless LAN
Id..... 6 BSSID.....
00:19:a9:42:e4:15 Channel..... 1 IP
Address..... 10.0.47.23
```

在WGB，您能使用**show dot11 associations**和**show dot11 associations全客户端**命令为了发现关于关联的更多详细信息到AP。请使用**ping w.x.y.z**命令为了ping WGB的默认网关。

验证WGB的客户端连接。

在WGB，您能使用**show bridge 1 fastethernet0**命令为了发现通过FastEthernet0了解的地址建立接口：

```
WGB.Cisco.COM#show bridge 1 fastethernet0 Total of 300 station blocks, 292 free Codes: P -
permanent, S - self Bridge Group 1: Address Action Interface Age RX count TX count
0000.39dd.4d24 forward FastEthernet0 1 328 71 0040.96b4.7e8f forward FastEthernet0 P 0 352 On
the WLC, the WGB's wired clients will show up as associated clients with protocol "N/A": (Cisco
Controller) >show client summary Number of Clients..... 5 MAC Address
AP Name Status WLAN/ Auth Protocol Port Wired Guest-Lan -----
----- 00:00:39:dd:4d:24 AP0019.e802.3034 Associated Yes N/A 4
No 00:0e:9b:cb:d3:9c AP0019.e802.3034 Associated 1 No 802.11b 4 No 00:16:6f:50:e1:25
AP0019.e802.3034 Probing N/A No 802.11b 4 No 00:19:56:b0:7e:b6 AP0019.e802.3034 Associated 6 Yes
802.11b 4 No 00:40:96:b4:7e:8f AP0019.e802.3034 Associated 6 Yes N/A 4 No (Cisco Controller)
>show client detail 00:00:39:dd:4d:24 Client MAC Address.....
00:00:39:dd:4d:24 Client Username ..... N/A AP MAC
Address..... 00:19:a9:42:e4:10 Client
State..... Associated Workgroup Bridge
Client..... WGB: 00:19:56:b0:7e:b6 Wireless LAN
```

Id..... 6 BSSID.....
00:19:a9:42:e4:15 Channel..... 1

故障排除

本部分提供的信息可用于对配置进行故障排除。

故障排除命令

[命令输出解释程序 \(仅限注册用户 \)](#) (OIT) 支持某些 **show** 命令。使用 OIT 可查看对 show 命令输出的分析。

注意： 使用 **debug** 命令之前，请参阅[有关 Debug 命令的重要信息](#)。

调试示例

- [WGB旁拉示例](#)
- [WLC旁拉示例](#)

WGB旁拉示例

在WGB，此示例假设2.4 GHz;如果使用5 GHz，请指定Dot11Radio1而不是Dot11Radio0。

```
WGB#no debug dot11 dot11radio0 print printf !--- This runs the radio debugs through !--- the  
standard Cisco IOS logger. WGB#debug dot11 dot11radio0 trace print mgmt uplink !--- radio driver  
debugs: 802.11 management frames !--- and uplink events WGB#debug dot11 supp-sm-dot1x !---  
interface to the 802.1X supplicant
```

这是在先前配置里给的一个正常关联的示例：

WGB旁拉示例
<pre>Mar 4 23:22:39.427: 108DD0BF-0 Uplink: Enabling active scan Mar 4 23:22:39.427: 108DD0D0-0 Uplink: Not busy, scan all channels Mar 4 23:22:39.427: 108DD0DE-0 Uplink: Scanning Mar 4 23:22:39.430: 108DDF83-0 Uplink: Rcvd response from 0019.a942.e415 channel 1 3237 !--- WGB scans the 2.4 GHz channels, !--- found an AP on channel 1. Mar 4 23:22:39.470: 108E7B31-0 Uplink: dot11_uplink_scan_done: ssnie_accept returns 0x0 key_mgmt 0x50F201 encrypt_type 0x20 Mar 4 23:22:39.470: 108E7B67-0 Uplink: ssid EAPTLS auth leap Mar 4 23:22:39.471: 108E7B77-0 Uplink: try 0019.a942.e415, enc 20 key 1, priv 1, eap 11 Mar 4 23:22:39.471: 108E7B93-0 Uplink: Authenticating Mar 4 23:22:39.479: 108E9C71 t 1 0 - B000 13A 42E415 B07EB6 42E415 D9E0 auth 1 6 algorithm 128 sequence 1 status 0 Mar 4 23:22:39.480: 108EA160 r 1 73/ 26- B000 13A B07EB6 42E415 42E415 5E70 auth 1 37 algorithm 128 sequence 2 status 0 221 - 0 40 96 C 1 A 22 79 95 1A 7C 18 1 0 0 CA 4 0 0 0 0 74 52 EA 31 F4 9E 89 5A !--- WGB completes 802.11 authentication. Mar 4 23:22:39.480: 108EA1EB-0 Uplink: Associating Mar 4 23:22:39.481: 108EA951 t 1 0 - 0000 13A 42E415 B07EB6 42E415 D9F0 assreq 1 119 cap 431 infra privacy shorthdr</pre>

```
listen interval 200 ssid EAPTLS rates 82 84 8B C 12 96
18 24 extrates 30 48 60 6C aironet WGB.Cisco.COM load 0
clients 0 hops 0 device 7C-2700 refresh 15 CW 0-0 flags
0 distance 0 ccxver 5 221 - 0 40 96 14 0 IP 10.0.47.23 1
wpa1 mcst tkip ucst tkip keymgmt wpa cap 2800 221 - 0 40
96 6 2 Mar 4 23:22:39.484: 108EB2C6 r 1 80/77 19- 1000
13A B07EB6 42E415 42E415 5E80 assrsp 1 101 cap 31 infra
privacy shorthdr status 0 aid C003 rates 82 4 B 16
aironet AP0019.e802.303 load 0 clients 0 hops 0 device
8F-2700 refresh 15 CW 31-1023 flags 40 distance 0 IP
10.0.47.6 0 ccxver 5 221 - 0 40 96 14 0 221 - 0 40 96 C
1 A 22 7E 95 1A 7C 18 1 0 0 CB 4 0 0 0 0 FB 4C F3 7D D
29 71 E2 !--- WGB completes 802.11 association. Mar 4
23:22:39.486: Uplink address set to 0019.a942.e415 Mar 4
23:22:39.486: Initialising common IOS structures for
dot1x Mar 4 23:22:39.486: Done. Mar 4 23:22:39.486:
DOT1X_SHIM: Start supplicant on Dot11Radio0 (credentials
EAPTLS) Mar 4 23:22:39.486: DOT1X_SHIM: Starting
dot1x_mgr_auth (auth type 128) Mar 4 23:22:39.486:
DOT1X_SHIM: Initialising WPA [or WPA-PSK or CCKM] key
management module !--- Starting the EAP-TLS supplicant
Mar 4 23:22:39.488: DOT1X_SHIM: Dot1x pkt sent (uplink)
with dest 0019.a942.e415 Mar 4 23:22:39.489: DOT1X_SHIM:
No AAA client found for 0019.a942.e415 (on Dot11Radio0)
Mar 4 23:22:39.489: DOT1X_SHIM: Dot1x pkt sent (uplink)
with dest 0019.a942.e415 Mar 4 23:22:39.490: DOT1X_SHIM:
No AAA client found for 0019.a942.e415 (on Dot11Radio0)
!--- The "No AAA client found" message appears !--- to
be a bogon and can be ignored. Mar 4 23:22:39.491:
DOT1X_SHIM: Dot1x pkt sent (uplink) with dest
0019.a942.e415 Mar 4 23:22:39.491: 108EB9B4-0 Uplink:
EAP authenticating Mar 4 23:22:39.491: 108EBD22 r 11 73/
4 - 0802 13A B07EB6 42E415 42E415 5E90 164 0100 0034
0101 0034 0100 6E65 7477 6F72 6B69 643D 4541 5054 4C53
2C6E 6173 6964 3D74 7563 736F 6E2D 776C 6332 3030 362C
706F 7274 6964 3D34 0000 Mar 4 23:22:39.492: 108EC770 t
11 0 - 0801 13A 42E415 B07EB6 42E415 DA00 168 EAPOL2
EAPOL start Mar 4 23:22:39.492: 108ECA4D r 11 74/ 18-
0802 13A B07EB6 42E415 42E415 5EA0 164 0100 0034 0102
0034 0100 6E65 7477 6F72 6B69 643D 4541 5054 4C53 2C6E
6173 6964 3D74 7563 736F 6E2D 776C 6332 3030 362C 706F
7274 6964 3D34 0000 Mar 4 23:22:39.492: 108ECDE2 t 11 0
- 0801 13A 42E415 B07EB6 42E415 DA10 168 EAPOL2 EAP id 1
resp ident "WGB" Mar 4 23:22:39.493: 108ED000 t 11 0 -
0801 13A 42E415 B07EB6 42E415 DA20 168 EAPOL2 EAP id 2
resp ident "WGB" Mar 4 23:22:39.524: 108F50C4 r 11 74/
18- 080A 13A B07EB6 42E415 42E415 5EC0 131 0100 0013
01AF 0013 1101 0008 E23F 829E AE45 57EB 5747 4200 0000
0000 0000 00 !--- The WGB sends an EAPOL START, !--- the
WLC authenticator sends an EAP ID Request, !--- and the
WGB responds with an EAP ID response. Mar 4
23:22:39.525: DOT1X_SHIM: No AAA client found for
0019.a942.e415 (on Dot11Radio0) Mar 4 23:22:39.525:
DOT1X_SHIM: Dot1x pkt sent (uplink) with dest
0019.a942.e415 Mar 4 23:22:39.526: 108F57D0 t 11 0 -
0801 13A 42E415 B07EB6 42E415 DA30 168 EAPOL2 EAP id 175
resp nak 0D Mar 4 23:22:39.547: 108FA89C r 11 86/77 19-
080A 13A B07EB6 42E415 42E415 5ED0 118 0100 0006 01B0
0006 0D20 0000 0000 0000 0000 Mar 4 23:22:39.547:
DOT1X_SHIM: No AAA client found for 0019.a942.e415 (on
Dot11Radio0) Mar 4 23:22:39.561: DOT1X_SHIM: Dot1x pkt
sent (uplink) with dest 0019.a942.e415 Mar 4
23:22:39.561: 108FE059 t 11 0 - 0801 13A 42E415 B07EB6
42E415 DA40 186 EAPOL2 EAP id 176 resp tls 8000 0000
```

```
3216 0301 002D 0100 0029 0301 47CD D9BF CE1B 71B1 A815
CB99 8C80 8876 39F2 57A3 0F02 F382 147E 9D0C 657E 3AA7
Mar 4 23:22:39.572: DOT1X_SHIM: No AAA client found for
0019.a942.e415 (on Dot11Radio0) Mar 4 23:22:39.573:
DOT1X_SHIM: Dot1x pkt sent (uplink) with dest
0019.a942.e415 Mar 4 23:22:39.573: 10900868 r 11 86/77
20- 0802 13A B07EB6 42E415 42E415 5EF0 11024 0100 03F4
01B1 03F4 0DC0 0000 079D 1603 0100 4A02 0000 4603 0147
CDD9 B413 0683 9734 4D26 136F EC8F ECD3 5D3B 77C7 4D20
7DA1 9B17 D7D3 E4A6 1720 Mar 4 23:22:39.574: 109012E6 t
11 1 - 0809 13A 42E415 B07EB6 42E415 DA50 168 EAPOL2 EAP
id 177 resp tls 00 Mar 4 23:22:39.582: DOT1X_SHIM: No
AAA client found for 0019.a942.e415 (on Dot11Radio0) Mar
4 23:22:39.734: DOT1X_SHIM: Dot1x pkt sent (uplink) with
dest 0019.a942.e415 Mar 4 23:22:39.735: 1090317E r 11
/78 19- 0802 13A B07EB6 42E415 42E415 5F00 1965 0100
03B9 01B2 03B9 0D00 C687 1DB6 065B 2467 2609 EE5F 9C64
F3A9 C199 493E 2B79 F157 1765 6C2F C409 4D54 7DA4 6791
4859 ECAA 685B 0F66 C5E9 22A6 Mar 4 23:22:39.736:
10928A31 t 11 0 - 0801 13A 42E415 B07EB6 42E415 DA60
11239 EAPOL2 EAP id 178 resp tls 8000 0004 B316 0301
036D 0B00 0369 0003 6600 0363 3082 035F 3082 0247 A003
0201 0202 0A13 79B0 7200 0000 0000 0C30 0D06 Mar 4
23:22:39.755: 1092D464 r 11 /78 18- 0802 13A B07EB6
42E415 42E415 5F40 165 0100 0035 01B3 0035 0D80 0000
002B 1403 0100 0101 1603 0100 20B8 EBFA 2DDB 2E1A BF84
37A8 892C 84C5 50B2 B1A5 6F3E B2B5 981A 2899 1DE2 B470
6800 Mar 4 23:22:39.755: DOT1X_SHIM: No AAA client found
for 0019.a942.e415 (on Dot11Radio0) Mar 4 23:22:39.760:
DOT1X_SHIM: Dot1x pkt sent (uplink) with dest
0019.a942.e415 Mar 4 23:22:39.760: 1092E92C t 11 0 -
0801 13A 42E415 B07EB6 42E415 DA70 168 EAPOL2 EAP id 179
resp tls 00 Mar 4 23:22:39.770: 10930F50 r 11 75/80 19-
0802 13A B07EB6 42E415 42E415 5F60 116 0100 0004 03B3
0004 0000 0000 0000 0000 0000 Mar 4 23:22:39.770: DOT1X_SHIM:
No AAA client found for 0019.a942.e415 (on Dot11Radio0)
Mar 4 23:22:39.774: DOT1X_SHIM: Received Dot1x success -
Authenticated with EAP-TLS !--- EAP-TLS authentication
is successful, !--- now come the keys. Mar 4
23:22:39.774: DOT1X_SHIM: treat key material as wpa-v1
v2 pmk Mar 4 23:22:39.774: DOT1X_SHIM: WPA PMK key size
truncated from 64 to 32 Mar 4 23:22:39.777: DOT1X_SHIM:
Got Eapol key packet from dot1x manager Mar 4
23:22:39.777: DOT1X_SHIM: Passing key packet to KM
module Mar 4 23:22:39.777: supp_km_processKey:
descriptor type = 254 Mar 4 23:22:39.777:
supp_km_processKey: key length = 137 Mar 4 23:22:39.778:
109319B7 r 11 /77 16- 080A 13A B07EB6 42E415 42E415 5F70
1107 0103 005F FE00 8900 2000 0000 0000 0000 006E 64D0
C659 1C91 11D2 6040 C251 0592 E6B6 3799 0EDE B1BD B3A6
87B7 8C9B 0D5E DF00 0000 0000 0000 0000 Mar 4
23:22:39.779: 109332C2 t 11 1 - 0809 13A 42E415 B07EB6
42E415 DA80 1133 EAPOL key desc FE info 109 len 20
replay 0000000000000000 nonce
11AADA303F5F9B2357A932B3093483905E69F8408D019FB2EF56F7AD
706F0759 iv 00000000000000000000000000000000 rsc
0000000000000000 id 0000000000000000 mic
DBD06C383B83E3478F802844095E9444 datalen 1A key DD18
0050 F201 0100 0050 F202 0100 0050 F202 0100 0050 F201
2800 Mar 4 23:22:39.780: 109336C1 r 11 83/78 18- 0802
13A B07EB6 42E415 42E415 5F80 1133 0103 0079 FE01 C900
2000 0000 0000 0000 016E 64D0 C659 1C91 11D2 6040 C251
0592 E6B6 3799 0EDE B1BD B3A6 87B7 8C9B 0D5E DF6E 64D0
C659 1C91 11D2 Mar 4 23:22:39.781: DOT1X_SHIM: Got Eapol
```

```

key packet from dot1x manager Mar 4 23:22:39.781:
DOT1X_SHIM: Passing key packet to KM module Mar 4
23:22:39.781: supp_km_processKey: descriptor type = 254
Mar 4 23:22:39.781: supp_km_processKey: key length = 457
Mar 4 23:22:39.781: dot1x_pakio_plumb_keys: trying to
plumb PTK key Mar 4 23:22:39.782: 10933E11 t 11 0 - 0801
13A 42E415 B07EB6 42E415 DA90 1107 EAPOL key desc FE
info 109 len 20 replay 0000000000000001 nonce
000000000000000000000000000000000000000000000000000000000000000000
00000000 iv 00000000000000000000000000000000 rsc
0000000000000000 id 0000000000000000 mic
3A59680D1130EC24B00F7246F9D0738F datalen 0 key Mar 4
23:22:39.785: 10934749 r 11 88/77 17- 0842 13A B07EB6
42E415 42E415 5F90 1155 IV 0103007F-FE039100 2000 0000
0000 0000 026E 64D0 C659 1C91 11D2 6040 C251 0592 E6B6
3799 0EDE B1BD B3A6 87B7 8C9B 0D5E D76E 64D0 C659 1C91
11D2 Mar 4 23:22:39.785: DOT1X_SHIM: Got Eapol key
packet from dot1x manager Mar 4 23:22:39.785:
DOT1X_SHIM: Passing key packet to KM module Mar 4
23:22:39.785: supp_km_processKey: descriptor type = 254
Mar 4 23:22:39.785: supp_km_processKey: key length = 913
Mar 4 23:22:39.786: dot1x_pakio_plumb_keys: trying to
plumb vlan key - length: 32 Mar 4 23:22:39.787: %DOT11-
4-UPLINK_ESTABLISHED: Interface Dot11Radio0, Associated
To AP AP0019.e802.303 0019.a942.e415 [EAP-TLS WPA] Mar 4
23:22:39.787: %LINK-3-UPDOWN: Interface Dot11Radio0,
changed state to up Mar 4 23:22:39.789: 10934D63-0
Uplink: Done Mar 4 23:22:39.789: 10934D94-0 Interface up
Mar 4 23:22:39.790: 10934ED7 t 11 0 - 0841 13A 42E415
B07EB6 42E415 DAA0 1115 EAPOL key desc FE info 311 len 0
replay 0000000000000002 nonce
000000000000000000000000000000000000000000000000000000000000000000
00000000 iv 00000000000000000000000000000000 rsc
0000000000000000 id 0000000000000000 mic
DA60CCDAE27E7362B9B720B52715E081 datalen 0 key !--- The
keys are all distributed, !--- and the Dot11Radio0
interface is fully up.

```

WLC旁拉调试

WLC旁拉示例

```

(Cisco Controller) >debug mac addr 00:19:56:b0:7e:b6 !---
- Filter debugs on the radio !--- MAC address of the
WGB. (Cisco Controller) >debug dot11 state enable (Cisco
Controller) >debug dot1x events enable (Cisco
Controller) >debug dot1x states enable (Cisco
Controller) >debug pem events enable (Cisco Controller)
>debug pem state enable (Cisco Controller) >debug aaa
packet enable (Cisco Controller) >debug aaa events
enable (Cisco Controller) >debug aaa events enable Tue
Mar 4 16:45:56 2008: 00:19:56:b0:7e:b6 Processing WPA IE
type 221, length 24 for mobile 00:19:56:b0:7e:b6 Tue Mar
4 16:45:56 2008: 00:19:56:b0:7e:b6 10.0.47.23 RUN (20)
Change state to START (0) last state RUN (20) Tue Mar 4
16:45:56 2008: 00:19:56:b0:7e:b6 10.0.47.23 START (0)
Initializing policy Tue Mar 4 16:45:56 2008:
00:19:56:b0:7e:b6 10.0.47.23 START (0) Change state to
AUTHCHECK (2) last state RUN (20) Tue Mar 4 16:45:56
2008: 00:19:56:b0:7e:b6 10.0.47.23 AUTHCHECK (2) Change
state to 8021X_REQD (3) last state RUN (20) Tue Mar 4
16:45:56 2008: 00:19:56:b0:7e:b6 10.0.47.23 8021X_REQD
(3) Plumbed mobile LWAPP rule on AP 00:19:a9:42:e4:10

```



```
Tue Mar 4 16:45:56 2008: 00:19:56:b0:7e:b6
apfPemAddUser2 (apf_policy.c:209) Changing state for
mobile 00:19:56:b0:7e:b6 on AP 00:19:a9:42:e4:10 from
Associated to Associated Tue Mar 4 16:45:56 2008:
00:19:56:b0:7e:b6 apfProcessAssocReq (apf_80211.c:4149)
Changing state for mobile 00:19:56:b0:7e:b6 on AP
00:19:a9:42:e4:10 from Associated to Associated !--- WGB
is associated in 802.11. !--- Note in this case that the
WGB associated !--- when it was already associated. Tue
Mar 4 16:45:56 2008: 00:19:56:b0:7e:b6 dot1x - moving
mobile 00:19:56:b0:7e:b6 into Connecting state Tue Mar 4
16:45:56 2008: 00:19:56:b0:7e:b6 Sending EAP-
Request/Identity to mobile 00:19:56:b0:7e:b6 (EAP Id 1)
Tue Mar 4 16:45:56 2008: 00:19:56:b0:7e:b6 10.0.47.23
Removed NPU entry. Tue Mar 4 16:45:59 2008:
00:19:56:b0:7e:b6 Received EAPOL START from mobile
00:19:56:b0:7e:b6 Tue Mar 4 16:45:59 2008:
00:19:56:b0:7e:b6 dot1x - moving mobile
00:19:56:b0:7e:b6 into Connecting state Tue Mar 4
16:45:59 2008: 00:19:56:b0:7e:b6 Sending EAP-
Request/Identity to mobile 00:19:56:b0:7e:b6 (EAP Id 2)
Tue Mar 4 16:45:59 2008: 00:19:56:b0:7e:b6 Received
EAPOL EAPPKT from mobile 00:19:56:b0:7e:b6 Tue Mar 4
16:45:59 2008: 00:19:56:b0:7e:b6 Received EAP Response
packet with mismatching id (currentid=2, eapid=1) from
mobile 00:19:56:b0:7e:b6 Tue Mar 4 16:45:59 2008:
00:19:56:b0:7e:b6 Received EAPOL EAPPKT from mobile
00:19:56:b0:7e:b6 Tue Mar 4 16:45:59 2008:
00:19:56:b0:7e:b6 Received Identity Response (count=2)
from mobile 00:19:56:b0:7e:b6 !--- WGB sends EAPOL START
while !--- WLC sends its EAP ID-request, !--- which
confuses the state machines for a moment, !--- but
eventually we get on track, and the WLC !--- gets its
ID-response from the WGB supplicant. Tue Mar 4 16:45:59
2008: 00:19:56:b0:7e:b6 EAP State update from Connecting
to Authenticating for mobile 00:19:56:b0:7e:b6 Tue Mar 4
16:45:59 2008: 00:19:56:b0:7e:b6 dot1x - moving mobile
00:19:56:b0:7e:b6 into Authenticating state Tue Mar 4
16:45:59 2008: 00:19:56:b0:7e:b6 Entering Backend Auth
Response state for mobile 00:19:56:b0:7e:b6 Tue Mar 4
16:45:59 2008: 00:19:56:b0:7e:b6 Successful transmission
of Authentication Packet (id 17) to 10.0.47.42:1812,
proxy state 00:19:56:b0:7e:b6-00:00 Tue Mar 4 16:45:59
2008: 00000000: 01 11 00 9c 85 82 35 15 62 0f 50 bd 32
60 0c e6 .....5.b.P.2`.. Tue Mar 4 16:45:59 2008:
00000010: de 94 b2 40 01 05 57 47 42 1f 13 30 30 2d 31
39 ...@..WGB..00-19 Tue Mar 4 16:45:59 2008: 00000020:
2d 35 36 2d 42 30 2d 37 45 2d 42 36 1e 1a 30 30 -56-B0-
7E-B6..00 Tue Mar 4 16:45:59 2008: 00000030: 2d 31 39 2d
41 39 2d 34 32 2d 45 34 2d 31 30 3a -19-A9-42-E4-10: Tue
Mar 4 16:45:59 2008: 00000040: 45 41 50 54 4c 53 05 06
00 00 00 04 04 06 0a 00 EAPTLS..... Tue Mar 4
16:45:59 2008: 00000050: 2f 06 20 10 74 75 63 73 6f 6e
2d 77 6c 63 32 30 /...tucson-wlc20 Tue Mar 4 16:45:59
2008: 00000060: 30 36 1a 0c 00 00 37 63 01 06 00 00 00
06 06 06 06....7c..... Tue Mar 4 16:45:59 2008:
00000070: 00 00 00 02 0c 06 00 00 05 14 3d 06 00 00 00
13 .....=..... Tue Mar 4 16:45:59 2008: 00000080:
4f 0a 02 02 00 08 01 57 47 42 50 12 c5 f3 f5 9c
O.....WGBP.... Tue Mar 4 16:45:59 2008: 00000090: c0
81 0e 3e 23 c0 a7 1b 03 f7 af 5b ...>#.....[ Tue Mar 4
16:45:59 2008: 00000000: 0b 11 00 47 54 d3 b6 45 75 eb
83 b7 97 7c 80 1b ...GT..Eu....|.. Tue Mar 4 16:45:59
2008: 00000010: 13 03 71 1d 4f 15 01 b0 00 13 11 01 00
```



```
08 3d 17 ..q.O.....=. Tue Mar 4 16:45:59 2008:
00000020: 4a 94 eb c7 3b 3e 57 47 42 18 0c 53 56 43 3d
30 J...;>WGB..SVC=0 Tue Mar 4 16:45:59 2008: 00000030:
2e 36 34 37 3b 50 12 67 50 d3 ad 88 7d 16 8b 5b
.647;P.gP...}..[ Tue Mar 4 16:45:59 2008: 00000040: d1
25 57 56 b2 ec 76.%WV..v Tue Mar 4 16:45:59 2008:
****Enter processIncomingMessages: response code=11 Tue
Mar 4 16:45:59 2008: ****Enter processRadiusResponse:
response code=11 Tue Mar 4 16:45:59 2008:
00:19:56:b0:7e:b6 Access-Challenge received from RADIUS
server 10.0.47.42 for mobile 00:19:56:b0:7e:b6 receiveId
= 7 Tue Mar 4 16:45:59 2008: 00:19:56:b0:7e:b6
Processing Access-Challenge for mobile 00:19:56:b0:7e:b6
!--- The WLC forwards the ID-request info, !--- that it
had received !--- in 802.1X from the WGB supplicant, to
the RADIUS server, !--- in a RADIUS Access-Request
packet. !--- The RADIUS server responds with an Access-
Challenge. !--- If there is a configuration problem with
RADIUS, then either !--- the RADIUS server does not
respond, or it responds !--- with a RADIUS Access-
Reject. !--- If EAP-TLS goes well, there is much back
and forth !--- between the EAP exchange on the wireless
!--- link, and the RADIUS exchange between the WLC and
ACS. Tue Mar 4 16:45:59 2008: 00:19:56:b0:7e:b6 Entering
Backend Auth Req state (id=176) for mobile
00:19:56:b0:7e:b6 Tue Mar 4 16:45:59 2008:
00:19:56:b0:7e:b6 WARNING: updated EAP-Identifer 2 ==>
176 for STA 00:19:56:b0:7e:b6 Tue Mar 4 16:45:59 2008:
00:19:56:b0:7e:b6 Sending EAP Request from AAA to mobile
00:19:56:b0:7e:b6 (EAP Id 176) Tue Mar 4 16:45:59 2008:
00:19:56:b0:7e:b6 Received EAPOL EAPPKT from mobile
00:19:56:b0:7e:b6 Tue Mar 4 16:45:59 2008:
00:19:56:b0:7e:b6 Received EAP Response from mobile
00:19:56:b0:7e:b6 (EAP Id 176, EAP Type 3) Tue Mar 4
16:45:59 2008: 00:19:56:b0:7e:b6 Entering Backend Auth
Response state for mobile 00:19:56:b0:7e:b6 Tue Mar 4
16:45:59 2008: 00:19:56:b0:7e:b6 Successful transmission
of Authentication Packet (id 18) to 10.0.47.42:1812,
proxy state 00:19:56:b0:7e:b6-00:00 Tue Mar 4 16:45:59
2008: 00000000: 01 12 00 a6 d5 64 56 8a e8 27 fa de ca
69 c4 2a .....dV...'...i.* Tue Mar 4 16:45:59 2008:
00000010: cd 06 26 0c 01 05 57 47 42 1f 13 30 30 2d 31
39 ..&...WGB..00-19 Tue Mar 4 16:45:59 2008: 00000020:
2d 35 36 2d 42 30 2d 37 45 2d 42 36 1e 1a 30 30 -56-B0-
7E-B6..00 Tue Mar 4 16:45:59 2008: 00000030: 2d 31 39 2d
41 39 2d 34 32 2d 45 34 2d 31 30 3a -19-A9-42-E4-10: Tue
Mar 4 16:45:59 2008: 00000040: 45 41 50 54 4c 53 05 06
00 00 00 04 04 06 0a 00 EAPTLS..... Tue Mar 4
16:45:59 2008: 00000050: 2f 06 20 10 74 75 63 73 6f 6e
2d 77 6c 63 32 30 /...tucson-wlc20 Tue Mar 4 16:45:59
2008: 00000060: 30 36 1a 0c 00 00 37 63 01 06 00 00 00
06 06 06 06....7c..... Tue Mar 4 16:45:59 2008:
00000070: 00 00 00 02 0c 06 00 00 05 14 3d 06 00 00 00
13 .....=..... Tue Mar 4 16:45:59 2008: 00000080:
4f 08 02 b0 00 06 03 0d 18 0c 53 56 43 3d 30 2e
O.....SVC=0. Tue Mar 4 16:45:59 2008: 00000090: 36
34 37 3b 50 12 43 6e 32 b6 e9 11 a3 47 8e 96
647;P.Cn2...G.. Tue Mar 4 16:45:59 2008: 000000a0: dc
f0 37 a8 37 9e..7.7. Tue Mar 4 16:45:59 2008: 00000000:
0b 12 00 4b 71 7a 36 1d d9 24 16 8d c0 2f 45 52
...Kqz6..$/ER Tue Mar 4 16:45:59 2008: 00000010: 82
3d 58 cf 4f 08 01 b1 00 06 0d 20 18 1d 45 41
.=X.O.....EA Tue Mar 4 16:45:59 2008: 00000020: 50
3d 30 2e 32 30 32 2e 32 37 65 61 2e 31 3b 53
```

P=0.202.27ea.1;S Tue Mar 4 16:45:59 2008: 00000030: 56
43 3d 30 2e 36 34 37 3b 50 12 71 bf 1f 5c c7
VC=0.647;P.q.\. Tue Mar 4 16:45:59 2008: 00000040: 69
7e e8 cc 9d 71 18 de b7 e5 b7 i~...q..... Tue Mar 4
16:45:59 2008: ****Enter processIncomingMessages:
response code=11 Tue Mar 4 16:45:59 2008: ****Enter
processRadiusResponse: response code=11 Tue Mar 4
16:45:59 2008: 00:19:56:b0:7e:b6 Access-Challenge
received from RADIUS server 10.0.47.42 for mobile
00:19:56:b0:7e :b6 receiveId = 7 Tue Mar 4 16:45:59
2008: 00:19:56:b0:7e:b6 Processing Access-Challenge for
mobile 00:19:56:b0:7e:b6 Tue Mar 4 16:45:59 2008:
00:19:56:b0:7e:b6 Entering Backend Auth Req state
(id=177) for mobile 00:19:56:b0:7e:b6 Tue Mar 4 16:45:59
2008: 00:19:56:b0:7e:b6 Sending EAP Request from AAA to
mobile 00:19:56:b0:7e:b6 (EAP Id 177) Tue Mar 4 16:45:59
2008: 00:19:56:b0:7e:b6 Received EAPOL EAPPKT from
mobile 00:19:56:b0:7e:b6 Tue Mar 4 16:45:59 2008:
00:19:56:b0:7e:b6 Received EAP Response from mobile
00:19:56:b0:7e:b6 (EAP Id 177, EAP Type 13) Tue Mar 4
16:45:59 2008: 00:19:56:b0:7e:b6 Entering Backend Auth
Response state for mobile 00:19:56:b0:7e:b6 Tue Mar 4
16:45:59 2008: 00:19:56:b0:7e:b6 Successful transmission
of Authentication Packet (id 19) to 10.0.47.42:1812,
proxy state 00:19:56:b0:7e:b6-00:00 Tue Mar 4 16:45:59
2008: 00000000: 01 13 00 ed 30 a2 b8 d3 6c 6a e9 08 04
f9 b9 320...lj.....2 Tue Mar 4 16:45:59 2008:
00000010: 98 fe 36 62 01 05 57 47 42 1f 13 30 30 2d 31
39 ..6b..WGB..00-19 Tue Mar 4 16:45:59 2008: 00000020:
2d 35 36 2d 42 30 2d 37 45 2d 42 36 1e 1a 30 30 -56-B0-
7E-B6..00 Tue Mar 4 16:45:59 2008: 00000030: 2d 31 39 2d
41 39 2d 34 32 2d 45 34 2d 31 30 3a -19-A9-42-E4-10: Tue
Mar 4 16:45:59 2008: 00000040: 45 41 50 54 4c 53 05 06
00 00 00 04 04 06 0a 00 EAPTLS..... Tue Mar 4
16:45:59 2008: 00000050: 2f 06 20 10 74 75 63 73 6f 6e
2d 77 6c 63 32 30 /...tucson-wlc20 Tue Mar 4 16:45:59
2008: 00000060: 30 36 1a 0c 00 00 37 63 01 06 00 00 00
06 06 06 06....7c..... Tue Mar 4 16:45:59 2008:
00000070: 00 00 00 02 0c 06 00 00 05 14 3d 06 00 00 00
13=..... Tue Mar 4 16:45:59 2008: 00000080:
4f 3e 02 b1 00 3c 0d 80 00 00 00 32 16 03 01 00
O>...<.....2.... Tue Mar 4 16:45:59 2008: 00000090: 2d
01 00 00 29 03 01 47 cd df 36 c4 bc 40 48 75 -
...)..G..6..@Hu Tue Mar 4 16:45:59 2008: 000000a0: f4 09
ea 60 0c 40 fc 99 a0 e7 11 15 00 7e ca 90
...`.@.....~.. Tue Mar 4 16:45:59 2008: 000000b0: da
5a d3 39 45 be ca 00 00 02 00 04 01 00 18 1d
.Z.9E..... Tue Mar 4 16:45:59 2008: 000000c0: 45
41 50 3d 30 2e 32 30 32 2e 32 37 65 61 2e 31
EAP=0.202.27ea.1 Tue Mar 4 16:45:59 2008: 000000d0: 3b
53 56 43 3d 30 2e 36 34 37 3b 50 12 c0 6b 4c
;SVC=0.647;P..kL Tue Mar 4 16:45:59 2008: 000000e0: 37
6c 1a 4f 58 89 18 2b c4 0e 99 cd 0f 71.OX..+..... Tue
Mar 4 16:45:59 2008: 00000000: 0b 13 04 3f 5d 80 89 e2
e7 3f b0 c4 4c 99 d2 bd ...?]....?.L... Tue Mar 4
16:45:59 2008: 00000010: e5 e3 6e af 4f ff 01 b2 03 f4
0d c0 00 00 07 9d ..n.O..... Tue Mar 4 16:45:59
2008: 00000020: 16 03 01 00 4a 02 00 00 46 03 01 47 cd
df 2a f3J...F..G..*. Tue Mar 4 16:45:59 2008:
00000030: 19 0f 6f 52 2f a7 c3 00 d4 c8 f0 50 1c 8f 47
f4 ..oR/.....P..G. Tue Mar 4 16:45:59 2008: 00000040:
97 1b f2 a0 ca a9 f4 27 0c 34 32 20 d9 33 c4 27
.....'.42..3.' Tue Mar 4 16:45:59 2008: 00000050: 81
91 e4 97 d7 a6 6b 03 58 1a 4a c8 6d 4a e7 ef

.....k.X.J.mJ.. Tue Mar 4 16:45:59 2008: 00000060: 9d
f8 fd ad c9 95 aa b5 3e f5 1b dc 00 04 00 16
.....>..... Tue Mar 4 16:45:59 2008: 00000070: 03
01 07 37 0b 00 07 33 00 07 30 00 03 c2 30 82
...7...3..0...0. Tue Mar 4 16:45:59 2008: 00000080: 03
be 30 82 02 a6 a0 03 02 01 02 02 0a 61 0f c8
..0.....a.. Tue Mar 4 16:45:59 2008: 00000090: d9
00 00 00 00 00 02 30 0d 06 09 2a 86 48 86 f7
.....0...*.H.. Tue Mar 4 16:45:59 2008: 000000a0: 0d
01 01 05 05 00 30 13 31 11 30 0f 06 03 55 04
.....0.1.0...U. Tue Mar 4 16:45:59 2008: 000000b0: 03
13 08 41 41 52 4f 4e 4c 41 42 30 1e 17 0d 30
...AARONLAB0...0 Tue Mar 4 16:45:59 2008: 000000c0: 38
30 32 32 39 30 30 30 32 35 30 5a 17 0d 30 39
80229000250Z..09 Tue Mar 4 16:45:59 2008: 000000d0: 30
32 32 38 30 30 31 32 35 30 5a 30 12 31 10 30
0228001250Z0.1.0 Tue Mar 4 16:45:59 2008: 000000e0: 0e
06 03 55 04 03 13 07 41 43 53 63 65 72 74 30
...U....ACScert0 Tue Mar 4 16:45:59 2008: 000000f0: 81
9f 30 0d 06 09 2a 86 48 86 f7 0d 01 01 01 05
..0...*.H..... Tue Mar 4 16:45:59 2008: 00000100: 00
03 81 8d 00 30 81 89 02 81 81 00 e4 cb 25 a1
.....0.....%. Tue Mar 4 16:45:59 2008: 00000110: 96
3f df 4f ff 0d de 8a 89 6f 33 b1 b3 b9 fe 6e
..?.O.....c3....n Tue Mar 4 16:45:59 2008: 00000120: df
6a 01 cf 7f b4 44 5b 6b 4e 91 17 9c 88 d3 6c
.j....D[kN.....l Tue Mar 4 16:45:59 2008: 00000130: 1a
44 5e 1e e7 c1 c5 ae c2 6f e7 ca 63 31 5f 3a
.D^.....o..c1_ Tue Mar 4 16:45:59 2008: 00000140: cf
a9 da 83 0e c8 94 93 35 2e c8 f1 21 b0 78 1c
.....5...!.x. Tue Mar 4 16:45:59 2008: 00000150: a1
ca f7 e9 40 a7 d1 7a f1 85 d6 e9 36 46 51 a7
....@..z....6FQ. Tue Mar 4 16:45:59 2008: 00000160: a7
bf 70 db a7 47 da db 59 69 17 db 06 a3 7e b1
..p..G..Yi....~. Tue Mar 4 16:45:59 2008: 00000170: 3c
e5 ad 39 7f ee 61 cd ab 3e 0e 8a d5 c1 47 d4
<..9..a..>....G. Tue Mar 4 16:45:59 2008: 00000180: 65
62 09 22 f4 75 c5 5b b1 42 94 14 9f c7 02 03
eb."u.[.B..... Tue Mar 4 16:45:59 2008: 00000190: 01
00 01 a3 82 01 97 30 82 01 93 30 0e 06 03 55
.....0...0...U Tue Mar 4 16:45:59 2008: 000001a0: 1d
0f 01 01 ff 04 04 03 02 04 f0 30 44 06 09 2a
.....0D..* Tue Mar 4 16:45:59 2008: 000001b0: 86
48 86 f7 0d 01 09 0f 04 37 30 35 30 0e 06 08
.H.....7050... Tue Mar 4 16:45:59 2008: 000001c0: 2a
86 48 86 f7 0d 03 02 02 02 00 80 30 0e 06 08
*.H.....0... Tue Mar 4 16:45:59 2008: 000001d0: 2a
86 48 86 f7 0d 03 04 02 02 00 80 30 07 06 05
*.H.....0... Tue Mar 4 16:45:59 2008: 000001e0: 2b
0e 03 02 07 30 0a 06 08 2a 86 48 86 f7 0d 03
+....0...*.H.... Tue Mar 4 16:45:59 2008: 000001f0: 07
30 1d 06 03 55 1d 0e 04 16 04 14 b3 fe c9 de
.0...U..... Tue Mar 4 16:45:59 2008: 00000200: 52
60 44 c8 9a c2 4a c2 b4 fd 98 2c 8b 39 5a a6
R`D...J.....,9Z. Tue Mar 4 16:45:59 2008: 00000210: 30
13 4f ff 06 03 55 1d 25 04 0c 30 0a 06 08 2b
0.O...U.%.0...+ Tue Mar 4 16:45:59 2008: 00000220: 06
01 05 05 07 03 01 30 1f 06 03 55 1d 23 04 18
.....0...U.#.. Tue Mar 4 16:45:59 2008: 00000230: 30
16 80 14 f0 a4 3a c2 cd f5 d4 c8 b4 5e ee 03
0.....:.....^.. Tue Mar 4 16:45:59 2008: 00000240: 4f
83 79 b1 f2 d4 e0 19 30 5f 06 03 55 1d 1f 04
O.y.....0_.U... Tue Mar 4 16:45:59 2008: 00000250: 58
30 56 30 54 a0 52 a0 50 86 25 68 74 74 70 3a

```
XOV0T.R.P.%http: Tue Mar 4 16:45:59 2008: 00000260: 2f
2f 77 63 73 77 69 6e 2f 43 65 72 74 45 6e 72
//wswin/CertEnr Tue Mar 4 16:46:00 2008: 00000270: 6f
6c 6c 2f 41 41 52 4f 4e 4c 41 42 2e 63 72 6c
oll/AARONLAB.crl Tue Mar 4 16:46:00 2008: 00000280: 86
27 66 69 6c 65 3a 2f 2f 5c 5c 77 63 73 77 69
.'file://\\wswi Tue Mar 4 16:46:00 2008: 00000290: 6e
5c 43 65 72 74 45 6e 72 6f 6c 6c 5c 41 41 52
n\CertEnroll\AAR Tue Mar 4 16:46:00 2008: 000002a0: 4f
4e 4c 41 42 2e 63 72 6c 30 81 84 06 08 2b 06
ONLAB.crl0....+. Tue Mar 4 16:46:00 2008: 000002b0: 01
05 05 07 01 01 04 78 30 76 30 38 06 08 2b 06
.....x0v08...+. Tue Mar 4 16:46:00 2008: 000002c0: 01
05 05 07 30 02 86 2c 68 74 74 70 3a 2f 2f 77
....0...,http://w Tue Mar 4 16:46:00 2008: 000002d0: 63
73 77 69 6e 2f 43 65 72 74 45 6e 72 6f 6c 6c
cswin/CertEnroll Tue Mar 4 16:46:00 2008: 000002e0: 2f
77 63 73 77 69 6e 5f 41 41 52 4f 4e 4c 41 42
/wswin_AARONLAB Tue Mar 4 16:46:00 2008: 000002f0: 2e
63 72 74 30 3a 06 08 2b 06 01 05 05 07 30 02
.crt0:...+.....0. Tue Mar 4 16:46:00 2008: 00000300: 86
2e 66 69 6c 65 3a 2f 2f 5c 5c 77 63 73 77 69
..file://\\wswi Tue Mar 4 16:46:00 2008: 00000310: 6e
4f ff 5c 43 65 72 74 45 6e 72 6f 6c 6c 5c 77
nO.\CertEnroll\w Tue Mar 4 16:46:00 2008: 00000320: 63
73 77 69 6e 5f 41 41 52 4f 4e 4c 41 42 2e 63
cswin_AARONLAB.c Tue Mar 4 16:46:00 2008: 00000330: 72
74 30 0d 06 09 2a 86 48 86 f7 0d 01 01 05 05
rt0...*.H..... Tue Mar 4 16:46:00 2008: 00000340: 00
03 82 01 01 00 67 35 f2 80 42 b5 a8 be f7 c4
.....g5..B..... Tue Mar 4 16:46:00 2008: 00000350: 9b
ea 19 10 67 39 78 cb 38 fb 36 15 69 2a f0 80
....g9x.8.6.i*.. Tue Mar 4 16:46:00 2008: 00000360: 1e
a1 7d 63 72 6a e0 7e d4 51 7a 1d 64 ec ee b5
..}crj.~.Qz.d... Tue Mar 4 16:46:00 2008: 00000370: 2a
73 dc b0 d1 eb 0f 28 1d 66 7a bc 12 ef d8 61
*s.....(.fz....a Tue Mar 4 16:46:00 2008: 00000380: 5d
05 7b 81 0f 57 20 4d 49 37 4d ba 0b 5a 96 65
].{.W.MI7M..Z.e Tue Mar 4 16:46:00 2008: 00000390: d6
a8 e1 bb 1f c6 0e 27 4c 4b d6 3a 00 c7 8d 83
.....'LK.:.... Tue Mar 4 16:46:00 2008: 000003a0: 22
a5 29 61 36 19 19 33 f2 41 18 f7 c6 42 23 36
".)a6..3.A...B#6 Tue Mar 4 16:46:00 2008: 000003b0: 92
66 4a d9 ef fa 32 d7 a5 0a df 47 50 3c 72 23
.fJ...2....GP<r# Tue Mar 4 16:46:00 2008: 000003c0: f0
0a d5 59 eb a8 79 f2 e0 56 a0 97 91 48 60 31
...Y..y..V...H`1 Tue Mar 4 16:46:00 2008: 000003d0: 56
8d 2f b2 69 45 e5 44 3a 59 13 dd 66 eb c7 58
V./.iE.D:Y..f..X Tue Mar 4 16:46:00 2008: 000003e0: 35
90 7c 79 69 ee dc 6e 19 68 b3 c3 4c ba 7d b3
5.|yi..n.h..L.}. Tue Mar 4 16:46:00 2008: 000003f0: 8f
a0 b9 e0 cf df 67 93 6f 01 d4 34 33 86 b6 95
.....g.o..43... Tue Mar 4 16:46:00 2008: 00000400: 77
1b 19 61 34 46 82 4c 8e 6b b4 6b e2 4a c1 20
w..a4F.L.k.k.J.. Tue Mar 4 16:46:00 2008: 00000410: 18
1d 45 41 50 3d 30 2e 32 30 32 2e 32 37 65 61
..EAP=0.202.27ea Tue Mar 4 16:46:00 2008: 00000420: 2e
32 3b 53 56 43 3d 30 2e 36 34 37 3b 50 12 3a
.2;SVC=0.647;P.: Tue Mar 4 16:46:00 2008: 00000430: f3
3b 7f 99 45 f4 e6 a6 29 c4 17 51 ce 97 df
.:.E...).Q... Tue Mar 4 16:46:00 2008: ****Enter
processIncomingMessages: response code=11 Tue Mar 4
16:46:00 2008: ****Enter processRadiusResponse: response
code=11 Tue Mar 4 16:46:00 2008: 00:19:56:b0:7e:b6
```

```
Access-Challenge received from RADIUS server 10.0.47.42
for mobile 00:19:56:b0: 7e:b6 receiveId = 7 Tue Mar 4
16:46:00 2008: 00:19:56:b0:7e:b6 Processing Access-
Challenge for mobile 00:19:56:b0:7e:b6 Tue Mar 4
16:46:00 2008: 00:19:56:b0:7e:b6 Entering Backend Auth
Req state (id=178) for mobile 00:19:56:b0:7e:b6 Tue Mar
4 16:46:00 2008: 00:19:56:b0:7e:b6 Sending EAP Request
from AAA to mobile 00:19:56:b0:7e:b6 (EAP Id 178) Tue
Mar 4 16:46:00 2008: 00:19:56:b0:7e:b6 Received EAPOL
EAPPKT from mobile 00:19:56:b0:7e:b6 Tue Mar 4 16:46:00
2008: 00:19:56:b0:7e:b6 Received EAP Response from
mobile 00:19:56:b0:7e:b6 (EAP Id 178, EAP Type 13) Tue
Mar 4 16:46:00 2008: 00:19:56:b0:7e:b6 Entering Backend
Auth Response state for mobile 00:19:56:b0:7e:b6 Tue Mar
4 16:46:00 2008: 00:19:56:b0:7e:b6 Successful
transmission of Authentication Packet (id 20) to
10.0.47.42:1812, proxy state 00:19:56:b0:7e:b6-00:00 Tue
Mar 4 16:46:00 2008: 00000000: 01 14 00 b7 e8 b0 94 59
96 a1 7f e5 af 22 0f 6c .....Y.....".l Tue Mar 4
16:46:00 2008: 00000010: 1e 33 6e ee 01 05 57 47 42 1f
13 30 30 2d 31 39 .3n...WGB..00-19 Tue Mar 4 16:46:00
2008: 00000020: 2d 35 36 2d 42 30 2d 37 45 2d 42 36 1e
1a 30 30 -56-B0-7E-B6..00 Tue Mar 4 16:46:00 2008:
00000030: 2d 31 39 2d 41 39 2d 34 32 2d 45 34 2d 31 30
3a -19-A9-42-E4-10: Tue Mar 4 16:46:00 2008: 00000040:
45 41 50 54 4c 53 05 06 00 00 00 04 04 06 0a 00
EAPTLS..... Tue Mar 4 16:46:00 2008: 00000050: 2f
06 20 10 74 75 63 73 6f 6e 2d 77 6c 63 32 30 /...tucson-
wlc20 Tue Mar 4 16:46:00 2008: 00000060: 30 36 1a 0c 00
00 37 63 01 06 00 00 00 06 06 06 06....7c..... Tue
Mar 4 16:46:00 2008: 00000070: 00 00 00 02 0c 06 00 00
05 14 3d 06 00 00 00 13 .....=..... Tue Mar 4
16:46:00 2008: 00000080: 4f 08 02 b2 00 06 0d 00 18 1d
45 41 50 3d 30 2e O.....EAP=0. Tue Mar 4 16:46:00
2008: 00000090: 32 30 32 2e 32 37 65 61 2e 32 3b 53 56
43 3d 30 202.27ea.2;SVC=0 Tue Mar 4 16:46:00 2008:
000000a0: 2e 36 34 37 3b 50 12 a2 aa c7 ed 12 84 25 db
4b .647;P.....%.K Tue Mar 4 16:46:00 2008: 000000b0:
4c dc 45 09 06 44 c6 L.E..D. Tue Mar 4 16:46:00 2008:
00000000: 0b 14 04 04 6b 98 3a 74 12 1f 77 54 77 d8 a8
77 ....k.:t..wTw..w Tue Mar 4 16:46:00 2008: 00000010:
4e a8 a7 6b 4f ff 01 b3 03 b9 0d 00 c6 87 1d b6
N..kO..... Tue Mar 4 16:46:00 2008: 00000020: 06
5b 24 67 26 09 ee 5f 9c 64 f3 a9 c1 99 49 3e
.[$g&...d...I> Tue Mar 4 16:46:00 2008: 00000030: 2b
79 f1 57 17 65 6c 2f c4 09 4d 54 7d a4 67 91
+y.W.el/..MT}.g. Tue Mar 4 16:46:00 2008: 00000040: 48
59 ec aa 68 5b 0f 66 c5 e9 22 a6 09 8d 36 cf
HY..h[.f.."...6. Tue Mar 4 16:46:00 2008: 00000050: e3
d9 00 03 68 30 82 03 64 30 82 02 4c a0 03 02
....h0..d0..L... Tue Mar 4 16:46:00 2008: 00000060: 01
02 02 10 61 26 83 24 8d ba 53 9b 44 b0 39 bd
....a&$.S.D.9. Tue Mar 4 16:46:00 2008: 00000070: 51
cd 1d 48 30 0d 06 09 2a 86 48 86 f7 0d 01 01
Q..H0...*.H.... Tue Mar 4 16:46:00 2008: 00000080: 05
05 00 30 13 31 11 30 0f 06 03 55 04 03 13 08
...0.1.0...U... Tue Mar 4 16:46:00 2008: 00000090: 41
41 52 4f 4e 4c 41 42 30 1e 17 0d 30 38 30 32
AARONLAB0...0802 Tue Mar 4 16:46:00 2008: 000000a0: 32
38 32 33 33 34 34 38 5a 17 0d 31 38 30 32 32
28233448Z..18022 Tue Mar 4 16:46:00 2008: 000000b0: 38
32 33 34 31 32 35 5a 30 13 31 11 30 0f 06 03
8234125Z0.1.0... Tue Mar 4 16:46:00 2008: 000000c0: 55
04 03 13 08 41 41 52 4f 4e 4c 41 42 30 82 01
```

U....AARONLAB0.. Tue Mar 4 16:46:00 2008: 00000d0: 22
30 0d 06 09 2a 86 48 86 f7 0d 01 01 01 05 00
"0...*.H..... Tue Mar 4 16:46:00 2008: 00000e0: 03
82 01 0f 00 30 82 01 0a 02 82 01 01 00 c8 5a
.....0.....Z Tue Mar 4 16:46:00 2008: 00000f0: 57
75 45 19 4a 8b 99 da 35 6c cb e0 b6 a0 ff 66
WuE.J...5l.....f Tue Mar 4 16:46:00 2008: 00000100: e2
8f c1 44 89 09 32 13 c7 d8 70 6c 6d 74 2d e5
...D..2...plmt-. Tue Mar 4 16:46:00 2008: 00000110: 89
b8 23 4f ff ea 0a 0e 2d 57 1b 62 36 05 90 92 ..#0....-
W.b6... Tue Mar 4 16:46:00 2008: 00000120: e0 ea f9 a3
e2 fb 54 87 f4 cf 69 52 86 be 0b caT...iR.... Tue
Mar 4 16:46:00 2008: 00000130: 14 d1 88 9d 82 01 9a f7
08 da ba cc c9 29 37 947. Tue Mar 4
16:46:00 2008: 00000140: 27 75 d4 6e ae 9e 60 06 84 94
9b 42 f6 c7 5e e0 'u.n..`....B..^. Tue Mar 4 16:46:00
2008: 00000150: 29 34 b3 06 cb 24 b1 39 73 84 ba be ba
d8 6f bb)4...\$.9s.....o. Tue Mar 4 16:46:00 2008:
00000160: 94 f9 32 36 d6 68 68 f2 b2 43 e6 0e a9 b6 4b
62 ..26.hh..C....Kb Tue Mar 4 16:46:00 2008: 00000170:
b8 f9 6e 47 dc 0e c5 5b 16 a3 94 e9 96 08 e5 18
..nG...[..... Tue Mar 4 16:46:00 2008: 00000180: f0
38 ad a2 98 d3 7c 73 39 80 4a ae 14 e3 f8 f7
.8....|s9.J.... Tue Mar 4 16:46:00 2008: 00000190: 1e
14 27 bb 6a ce a1 2a dc 18 66 59 ea b4 d9 b1
..'j...*.fy.... Tue Mar 4 16:46:00 2008: 000001a0: a7
50 e9 ff 56 09 ea 93 df 31 08 09 17 ab e5 e9
.P..V....1..... Tue Mar 4 16:46:00 2008: 000001b0: 80
90 30 95 e4 54 90 75 bc f0 7f 13 b1 e7 cd 0b
..0..T.u..... Tue Mar 4 16:46:00 2008: 000001c0: 88
33 81 e7 74 d2 81 d9 97 ab b2 57 f4 5f f6 8b
.3..t.....W._. Tue Mar 4 16:46:00 2008: 000001d0: 1e
c2 62 d4 de 94 74 7f 8a 28 3b 64 73 88 86 28
..b...t..(;ds..(Tue Mar 4 16:46:00 2008: 000001e0: 92
74 b0 92 94 7e ce e1 74 23 f2 64 da 9a 88 47
.t...~...t#..d...G Tue Mar 4 16:46:00 2008: 000001f0: 02
03 01 00 01 a3 81 b3 30 81 b0 30 0b 06 03 55
.....0..0...U Tue Mar 4 16:46:00 2008: 00000200: 1d
0f 04 04 03 02 01 86 30 0f 06 03 55 1d 13 01
.....0...U... Tue Mar 4 16:46:00 2008: 00000210: 01
ff 4f ff 04 05 30 03 01 01 ff 30 1d 06 03 55
..O...0....0...U Tue Mar 4 16:46:00 2008: 00000220: 1d
0e 04 16 04 14 f0 a4 3a c2 cd f5 d4 c8 b4 5e
.....:.....^ Tue Mar 4 16:46:00 2008: 00000230: ee
03 4f 83 79 b1 f2 d4 e0 19 30 5f 06 03 55 1d
..O.y.....0_..U. Tue Mar 4 16:46:00 2008: 00000240: 1f
04 58 30 56 30 54 a0 52 a0 50 86 25 68 74 74
..X0V0T.R.P.%htt Tue Mar 4 16:46:00 2008: 00000250: 70
3a 2f 2f 77 63 73 77 69 6e 2f 43 65 72 74 45
p://wcswin/CertE Tue Mar 4 16:46:00 2008: 00000260: 6e
72 6f 6c 6c 2f 41 41 52 4f 4e 4c 41 42 2e 63
nroll/AARONLAB.c Tue Mar 4 16:46:00 2008: 00000270: 72
6c 86 27 66 69 6c 65 3a 2f 2f 5c 5c 77 63 73
rl.'file://\\wcs Tue Mar 4 16:46:00 2008: 00000280: 77
69 6e 5c 43 65 72 74 45 6e 72 6f 6c 6c 5c 41
win\CertEnroll\A Tue Mar 4 16:46:00 2008: 00000290: 41
52 4f 4e 4c 41 42 2e 63 72 6c 30 10 06 09 2b
ARONLAB.crl0...+ Tue Mar 4 16:46:00 2008: 000002a0: 06
01 04 01 82 37 15 01 04 03 02 01 00 30 0d 06
.....7.....0.. Tue Mar 4 16:46:00 2008: 000002b0: 09
2a 86 48 86 f7 0d 01 01 05 05 00 03 82 01 01
.*.H..... Tue Mar 4 16:46:00 2008: 000002c0: 00
17 eb b2 43 da 02 66 05 cd 76 c0 7b 2a 16 83
....C..f..v.{*.. Tue Mar 4 16:46:00 2008: 000002d0: 95

```
bb 5e bf d3 db fc 23 7e 14 6e 52 f8 37 01 7c
..^....#~.nR.7.| Tue Mar 4 16:46:00 2008: 000002e0: dd
e9 bf 34 60 49 f1 68 7e da 53 07 f6 b2 66 6d
...4`I.h~.S...fm Tue Mar 4 16:46:00 2008: 000002f0: 8c
bd ca 26 f4 fa 3d 03 4f db be 92 33 7e 50 06
...&...=.O...3~P. Tue Mar 4 16:46:00 2008: 00000300: 5e
b3 b9 35 c6 83 3c 90 1e 42 54 3e 63 17 9a 8a
^..5...<..BT>c... Tue Mar 4 16:46:00 2008: 00000310: d0
4f c4 68 24 97 90 a1 77 c9 c8 93 1f 58 ab ca
.O.h$.w....X.. Tue Mar 4 16:46:00 2008: 00000320: f7
18 e6 8c 36 12 44 9d a6 ca 43 5f 03 07 16 99
....6.D...C_.... Tue Mar 4 16:46:00 2008: 00000330: 1d
a4 48 7d a4 e5 12 7c d0 81 e7 35 9e ad 69 5e
..H}...|...5..i^ Tue Mar 4 16:46:00 2008: 00000340: 15
d7 2a 7f 51 4e 8c 59 69 9f d1 41 9b 2e e1 05
..*.QN.Yi..A.... Tue Mar 4 16:46:00 2008: 00000350: 95
15 bd b1 1a 97 a6 69 d3 9c 0b 93 00 16 e1 49
.....i.....I Tue Mar 4 16:46:00 2008: 00000360: 66
e3 98 29 79 ba 14 69 cf 76 27 69 7d 43 d0 f4
f..)y..i.v'i}C.. Tue Mar 4 16:46:00 2008: 00000370: 86
3c 6b 58 55 d4 85 be c5 da 71 e4 43 76 3d 0a
.<kXU.....q.Cv=. Tue Mar 4 16:46:00 2008: 00000380: d3
4f 49 97 12 75 e3 7d 88 92 99 5d fc 7a 69 28
.OI..u.}...].zi( Tue Mar 4 16:46:00 2008: 00000390: f6
f0 20 70 33 b7 22 5a bf c5 e5 28 43 35 00 2f
...p3."Z...(C5./ Tue Mar 4 16:46:00 2008: 000003a0: 47
46 9a 5a 45 5c 56 d5 24 3d 44 bf e9 63 f2 05
GF.ZE\V.$=D..c.. Tue Mar 4 16:46:01 2008: 000003b0: 84
da 94 17 b7 ef c3 31 7d 04 30 87 e1 c3 31 8a
.....1}.0...1. Tue Mar 4 16:46:01 2008: 000003c0: 2a
e1 52 16 03 01 00 0d 0d 00 00 05 02 01 02 00
*.R..... Tue Mar 4 16:46:01 2008: 000003d0: 00
0e 00 00 00 18 1d 45 41 50 3d 30 2e 32 30 32
.....EAP=0.202 Tue Mar 4 16:46:01 2008: 000003e0: 2e
32 37 65 61 2e 33 3b 53 56 43 3d 30 2e 36 34
.27ea.3;SVC=0.64 Tue Mar 4 16:46:01 2008: 000003f0: 37
3b 50 12 05 0e 3c e0 e4 5f 38 21 96 26 8e 39
7;P...<..._8!.&.9 Tue Mar 4 16:46:01 2008: 00000400: 96
a9 09 5d...] Tue Mar 4 16:46:01 2008: ****Enter
processIncomingMessages: response code=11 Tue Mar 4
16:46:01 2008: ****Enter processRadiusResponse: response
code=11 Tue Mar 4 16:46:01 2008: 00:19:56:b0:7e:b6
Access-Challenge received from RADIUS server 10.0.47.42
for mobile 00:19:56:b0: 7e:b6 receiveId = 7 Tue Mar 4
16:46:01 2008: 00:19:56:b0:7e:b6 Processing Access-
Challenge for mobile 00:19:56:b0:7e:b6 Tue Mar 4
16:46:01 2008: 00:19:56:b0:7e:b6 Entering Backend Auth
Req state (id=179) for mobile 00:19:56:b0:7e:b6 Tue Mar
4 16:46:01 2008: 00:19:56:b0:7e:b6 Sending EAP Request
from AAA to mobile 00:19:56:b0:7e:b6 (EAP Id 179) Tue
Mar 4 16:46:01 2008: 00:19:56:b0:7e:b6 Received EAPOL
EAPPKT from mobile 00:19:56:b0:7e:b6 Tue Mar 4 16:46:01
2008: 00:19:56:b0:7e:b6 Received EAP Response from
mobile 00:19:56:b0:7e:b6 (EAP Id 179, EAP Type 13) Tue
Mar 4 16:46:01 2008: 00:19:56:b0:7e:b6 Entering Backend
Auth Response state for mobile 00:19:56:b0:7e:b6 Tue Mar
4 16:46:01 2008: 00:19:56:b0:7e:b6 Successful
transmission of Authentication Packet (id 21) to
10.0.47.42:1812, proxy state 00:19:56:b0:7e:b6-00:00 Tue
Mar 4 16:46:01 2008: 00000000: 01 15 05 76 81 b7 fa 95
63 1f 50 6f 98 4d a3 6b ...v....c.Po.M.k Tue Mar 4
16:46:01 2008: 00000010: db 3c bc 1d 01 05 57 47 42 1f
13 30 30 2d 31 39 .<....WGB..00-19 Tue Mar 4 16:46:01
2008: 00000020: 2d 35 36 2d 42 30 2d 37 45 2d 42 36 1e
```


1a 30 30 -56-B0-7E-B6..00 Tue Mar 4 16:46:01 2008:
00000030: 2d 31 39 2d 41 39 2d 34 32 2d 45 34 2d 31 30
3a -19-A9-42-E4-10: Tue Mar 4 16:46:01 2008: 00000040:
45 41 50 54 4c 53 05 06 00 00 00 04 04 06 0a 00
EAPTLS..... Tue Mar 4 16:46:01 2008: 00000050: 2f
06 20 10 74 75 63 73 6f 6e 2d 77 6c 63 32 30 /...tucson-
wlc20 Tue Mar 4 16:46:01 2008: 00000060: 30 36 1a 0c 00
00 37 63 01 06 00 00 00 06 06 06 06....7c..... Tue
Mar 4 16:46:01 2008: 00000070: 00 00 00 02 0c 06 00 00
05 14 3d 06 00 00 00 13=..... Tue Mar 4
16:46:01 2008: 00000080: 4f ff 02 b3 04 bd 0d 80 00 00
04 b3 16 03 01 03 O..... Tue Mar 4 16:46:01
2008: 00000090: 6d 0b 00 03 69 00 03 66 00 03 63 30 82
03 5f 30 m...i...f..c0.._0 Tue Mar 4 16:46:01 2008:
000000a0: 82 02 47 a0 03 02 01 02 02 0a 13 79 b0 72 00
00 ..G.....y.r.. Tue Mar 4 16:46:01 2008: 000000b0:
00 00 00 0c 30 0d 06 09 2a 86 48 86 f7 0d 01 01
....0...*.H.... Tue Mar 4 16:46:01 2008: 000000c0: 05
05 00 30 13 31 11 30 0f 06 03 55 04 03 13 08
...0.1.0...U.... Tue Mar 4 16:46:01 2008: 000000d0: 41
41 52 4f 4e 4c 41 42 30 1e 17 0d 30 38 30 33
AARONLAB0...0803 Tue Mar 4 16:46:01 2008: 000000e0: 30
33 31 38 33 33 30 39 5a 17 0d 30 39 30 33 30
03183309Z..09030 Tue Mar 4 16:46:01 2008: 000000f0: 33
31 38 34 33 30 39 5a 30 0e 31 0c 30 0a 06 03
3184309Z0.1.0... Tue Mar 4 16:46:01 2008: 00000100: 55
04 03 13 03 57 47 42 30 81 9f 30 0d 06 09 2a
U...WGB0..0...* Tue Mar 4 16:46:01 2008: 00000110: 86
48 86 f7 0d 01 01 01 05 00 03 81 8d 00 30 81
.H.....0. Tue Mar 4 16:46:01 2008: 00000120: 89
02 81 81 00 a6 34 91 20 dd 58 df b2 60 c0 6c
.....4...X..`l Tue Mar 4 16:46:01 2008: 00000130: d0
9d 10 86 01 a9 61 9f cb 2b 01 22 49 d7 38 ee
.....a..+."I.8. Tue Mar 4 16:46:01 2008: 00000140: 00
fe be c9 cd 48 4b 73 a0 75 6d bb d0 c9 20 24
.....HKs.um....\$ Tue Mar 4 16:46:01 2008: 00000150: 0f
cc f0 76 2f ad ef 43 53 8f b7 ec c7 50 04 02
...v/..CS...P.. Tue Mar 4 16:46:01 2008: 00000160: d8
03 4a 7d 08 9e b4 f2 78 ab 36 06 ba f7 02 ab
..J}....x.6..... Tue Mar 4 16:46:01 2008: 00000170: a1
6e 26 6c 2d d4 10 08 0d 25 82 1a d2 fc 14 4f .n&l-
....%.O Tue Mar 4 16:46:01 2008: 00000180: ff 86 fa
fd 84 ec de be 3c 3e f8 be d6 b6 7b 81<>....{.
Tue Mar 4 16:46:01 2008: 00000190: 89 9a da a6 96 fd 7f
e7 dd bf 7f 26 6e 20 03 63&n..c Tue Mar 4
16:46:01 2008: 000001a0: c4 a2 56 4c 8e 75 99 02 03 01
00 01 a3 82 01 3c ..VL.u.....< Tue Mar 4 16:46:01
2008: 000001b0: 30 82 01 38 30 0e 06 03 55 1d 0f 01 01
ff 04 04 0..80...U..... Tue Mar 4 16:46:01 2008:
000001c0: 03 02 05 a0 30 1d 06 03 55 1d 0e 04 16 04 14
410...U.....A Tue Mar 4 16:46:01 2008: 000001d0:
97 b6 32 83 7f c0 88 11 4d 59 d5 44 70 e9 0f c6
..2.....MY.Dp... Tue Mar 4 16:46:01 2008: 000001e0: 3b
a2 85 30 1f 06 03 55 1d 23 04 18 30 16 80 14
;.0...U.#..0... Tue Mar 4 16:46:01 2008: 000001f0: f0
a4 3a c2 cd f5 d4 c8 b4 5e ee 03 4f 83 79 b1
...:.....^..O.y. Tue Mar 4 16:46:01 2008: 00000200: f2
d4 e0 19 30 5f 06 03 55 1d 1f 04 58 30 56 30
....0_..U...X0V0 Tue Mar 4 16:46:01 2008: 00000210: 54
a0 52 a0 50 86 25 68 74 74 70 3a 2f 2f 77 63
T.R.P.%http://wc Tue Mar 4 16:46:01 2008: 00000220: 73
77 69 6e 2f 43 65 72 74 45 6e 72 6f 6c 6c 2f
swin/CertEnroll/ Tue Mar 4 16:46:01 2008: 00000230: 41
41 52 4f 4e 4c 41 42 2e 63 72 6c 86 27 66 69

```

AARONLAB.crl.'fi Tue Mar 4 16:46:01 2008: 00000240: 6c
65 3a 2f 2f 5c 5c 77 63 73 77 69 6e 5c 43 65
le://\wswin\Ce Tue Mar 4 16:46:01 2008: 00000250: 72
74 45 6e 72 6f 6c 6c 5c 41 41 52 4f 4e 4c 41
rtEnroll\AARONLA Tue Mar 4 16:46:01 2008: 00000260: 42
2e 63 72 6c 30 81 84 06 08 2b 06 01 05 05 07
B.crl0....+..... Tue Mar 4 16:46:01 2008: 00000270: 01
01 04 78 30 76 30 38 06 08 2b 06 01 05 4f ff
...x0v08...+...O. Tue Mar 4 16:46:01 2008: 00000280: 05
07 30 02 86 2c 68 74 74 70 3a 2f 2f 77 63 73
..0..,http://wsw Tue Mar 4 16:46:01 2008: 00000290: 77
69 6e 2f 43 65 72 74 45 6e 72 6f 6c 6c 2f 77
win/CertEnroll/w Tue Mar 4 16:46:01 2008: 000002a0: 63
73 77 69 6e 5f 41 41 52 4f 4e 4c 41 42 2e 63
cswin_AARONLAB.c Tue Mar 4 16:46:01 2008: 000002b0: 72
74 30 3a 06 08 2b 06 01 05 05 07 30 02 86 2e
rt0:...+.....0... Tue Mar 4 16:46:01 2008: 000002c0: 66
69 6c 65 3a 2f 2f 5c 5c 77 63 73 77 69 6e 5c
file://\wswin\ Tue Mar 4 16:46:01 2008: 000002d0: 43
65 72 74 45 6e 72 6f 6c 6c 5c 77 63 73 77 69
CertEnroll\wswi Tue Mar 4 16:46:01 2008: 000002e0: 6e
5f 41 41 52 4f 4e 4c 41 42 2e 63 72 74 30 0d
n_AARONLAB.crt0. Tue Mar 4 16:46:01 2008: 000002f0: 06
09 2a 86 48 86 f7 0d 01 01 05 05 00 03 82 01
..*.H..... Tue Mar 4 16:46:01 2008: 00000300: 01
00 2e a1 3f f3 52 52 97 b5 83 43 0f 61 20 64
....?.RR...C.a.d Tue Mar 4 16:46:01 2008: 00000310: 40
fd d3 16 38 4f d9 5f 64 94 a7 c2 59 53 53 52
@...80._d...YSSR Tue Mar 4 16:46:01 2008: 00000320: 90
5d ee 1c e0 2a 90 af f4 e8 51 3e 87 38 9a ce
.)...*....Q>.8.. Tue Mar 4 16:46:01 2008: 00000330: 88
0c 4f 1f ad f1 ef dd 96 44 6b 51 4e 9f 2c a1
..O.....DkQN.,. Tue Mar 4 16:46:01 2008: 00000340: 8a
c5 0e bd d0 f9 7e 34 fa 22 67 26 e1 26 e6 3e
.....~4."g&.&.> Tue Mar 4 16:46:01 2008: 00000350: bd
b8 9f 64 f0 65 6f 23 f0 67 40 60 0f 4b f1 ff
...d.eo#.g@`.K.. Tue Mar 4 16:46:01 2008: 00000360: c1
9c 3c 11 81 be b2 7a 45 b6 bd f2 26 76 2a 3a
..<....zE...&v*: Tue Mar 4 16:46:01 2008: 00000370: 52
32 65 cf 62 0b 47 65 b4 b5 fa db b4 4f ff 07
R2e.b.Ge.....O.. Tue Mar 4 16:46:01 2008: 00000380: ae
54 58 11 d8 52 8f f8 e3 e5 00 f1 c4 1d 2a a4
.TX..R.....*.

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