

更新SCEP在用于在ISE的BYOD 2012的RA认证的Windows服务器AD

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Introduction

本文描述如何更新使用简单认证登记协议(SCEP)的两证书：Exchange登记在Microsoft Active Directory 2012的代理程序和CEP加密证明。

Prerequisites

Requirements

Cisco 建议您了解以下主题：

- Microsoft Active Directory配置基础知识
- 基础知识公共密钥Infrastructure (PKI)
- 基础知识身份服务引擎(ISE)

Components Used

本文档中的信息基于以下软件和硬件版本：

- 思科身份服务引擎版本2.0
- Microsoft Active Directory 2012 R2

问题

Cisco ISE支持私有设备已注册的用途SCEP协议(onboarding的BYOD)。当曾经外部SCEP CA时，此CA由在ISE的一个SCEP RA配置文件定义。当SCEP RA配置文件被创建时，两证书自动地被添加到信任证书存储：

- CA根证明，
- 由CA签字的RA (注册审批机构)认证。

RA对收到和验证请求从注册的设备转发发行客户端证书的它负责到CA。

当RA认证到期时，在CA边(在本例中的Windows服务器2012没有自动地被更新)。应该由活动Directory/CA administrator手工完成那。

这是示例如何达到那在Windows服务器2012 R2。

最初的SCEP证书可视在ISE：

Edit SCEP RA Profile

* Name

Description

* URL

Certificates

▼ LEMON CA

Subject	CN=LEMON CA,DC=example,DC=com
Issuer	CN=LEMON CA,DC=example,DC=com
Serial Number	1C 23 2A 8D 07 71 62 89 42 E6 6A 32 C2 05 E0 CE
Validity From	Fri, 11 Mar 2016 15:03:48 CET
Validity To	Wed, 11 Mar 2026 15:13:48 CET

▼ WIN2012-MSCEP-RA

Subject	CN=WIN2012-MSCEP-RA,C=PL
Issuer	CN=LEMON CA,DC=example,DC=com
Serial Number	<u>7A 00 00 00 0A 9F 5D C3 13 CD 7A 08 FC 00 00 00 00 0A</u>
Validity From	<u>Tue, 14 Jun 2016 11:46:03 CEST</u>
Validity To	<u>Thu, 14 Jun 2018 11:46:03 CEST</u>

假定是MSCEP-RA认证过期，并且必须被更新。

解决方案

警告：在Windows服务器的所有更改应该首先与其管理员协商。

1. 识别老专用密钥

查找私有键产生关联与在激活目录的RA证书使用certutil工具。以后那找出**关键容器**。

```
certutil -store MY %COMPUTERNAME%-MSCEP-RA
```

请注意：，如果您最初的MSCEP-RA认证的名字是不同的然后在此请求应该调整它。默认情况下然而，它应该包含计算机名称。

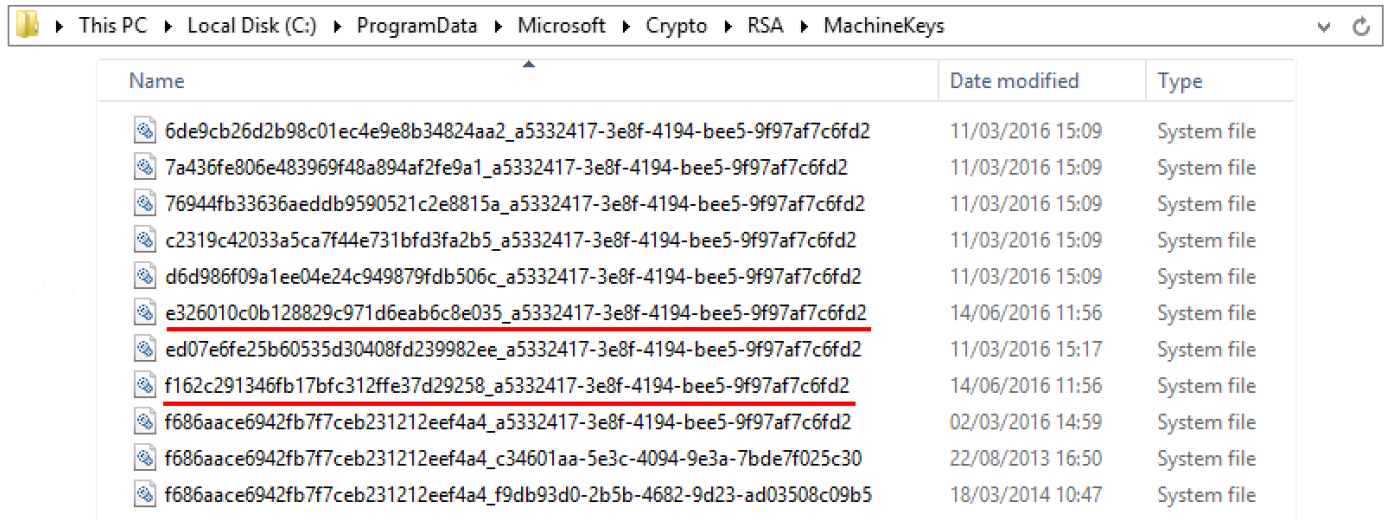
```
C:\Users\Administrator>certutil -store MY %COMPUTERNAME%-MSCEP-RA
MY "Personal"
===== Certificate 0 =====
Serial Number: 7a0000000940c8eb5d5aa4e373000000000009
Issuer: CN=LEMON CA, DC=example, DC=com
NotBefore: 14/06/2016 11:46
NotAfter: 14/06/2018 11:46
Subject: CN=WIN2012-MSCEP-RA, C=PL
Certificate Template Name (Certificate Type): EnrollmentAgentOffline
Non-root Certificate
Template: EnrollmentAgentOffline, Exchange Enrollment Agent (Offline request)
Cert Hash(sha1): f3 3a b8 a7 ae ba 8e b5 c4 eb ec 07 ec 89 eb 58 1c 5a 15 ca
Key Container = f162c291346fb17bfc312ffe37d29258_a5332417-3e8f-4194-bee5-9f97af7c6fd2
Simple container name: le-84278304-3925-4b49-a5b8-5a197ec84920
Provider = Microsoft Strong Cryptographic Provider
Private key is NOT exportable
Signature test passed

===== Certificate 3 =====
Serial Number: 7a0000000a9f5dc313cd7a08fc00000000000a
Issuer: CN=LEMON CA, DC=example, DC=com
NotBefore: 14/06/2016 11:46
NotAfter: 14/06/2018 11:46
Subject: CN=WIN2012-MSCEP-RA, C=PL
Certificate Template Name (Certificate Type): CEPEncryption
Non-root Certificate
Template: CEPEncryption, CEP Encryption
Cert Hash(sha1): 0e e1 f9 11 33 93 c0 34 2b bd bd 70 f7 e1 b9 93 b6 0a 5c b2
Key Container = e326010c0b128829c971d6eab6c8e035_a5332417-3e8f-4194-bee5-9f97af7c6fd2
Simple container name: le-0955b42b-6442-40a8-97aa-9b4c0a99c367
Provider = Microsoft Strong Cryptographic Provider
Private key is NOT exportable
Encryption test passed
CertUtil: -store command completed successfully.
```

2. 删除老专用密钥

从下面文件夹删除手工参考键：

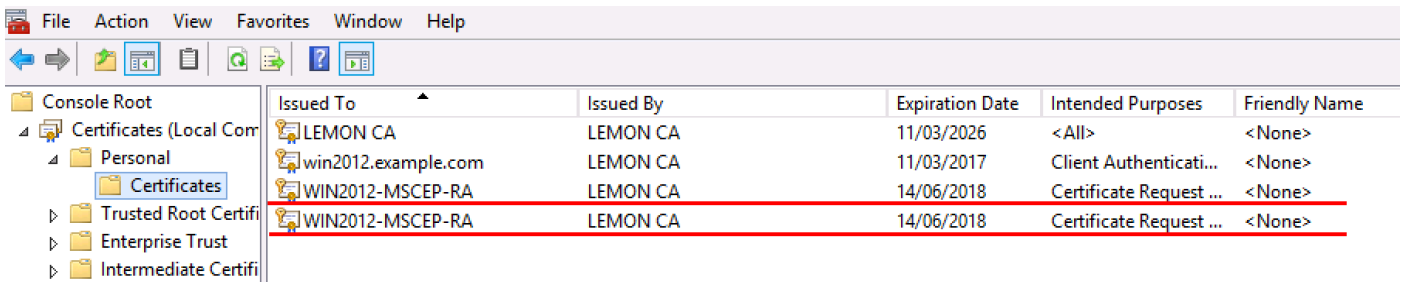
```
C:\ProgramData\Microsoft\Crypto\RSA\MachineKeys
```



3. 删除老MSCEP-RA certificates

在删除专用密钥以后，从MMC控制台请取消MSCEP-RA certificates。

MMC > File>添加/去除卡扣式...>Add "Certificates" >计算机帐户>本地计算机



4. 生成SCEP的新的证书

4.1. 生成Exchange登记认证

4.1.1. 用下面内容创建一个文件cisco_ndes_sign.inf。certreq.exetool以后用于此信息为了生成认证署名请求(CSR)：

```
[NewRequest]
Subject = "CN=NEW-MSCEP-RA,OU=Cisco,O=Systems,L=Krakow,S=Malopolskie,C=PL"
Exportable = TRUE
KeyLength = 2048
KeySpec = 2
KeyUsage = 0x80
MachineKeySet = TRUE
ProviderName = "Microsoft Enhanced Cryptographic Provider v1.0"
ProviderType = 1

[EnhancedKeyUsageExtension]
OID = 1.3.6.1.4.1.311.20.2.1

[RequestAttributes]
CertificateTemplate = EnrollmentAgentOffline
```

提示：如果复制此文件模板，请保证根据您的需求调整它和检查所有字符是否适当地被复制(包括引号)。

4.1.2. 用此命令创建根据.INF文件的CSR：

```
certreq -f -new cisco_ndes_sign.inf cisco_ndes_sign.req
```

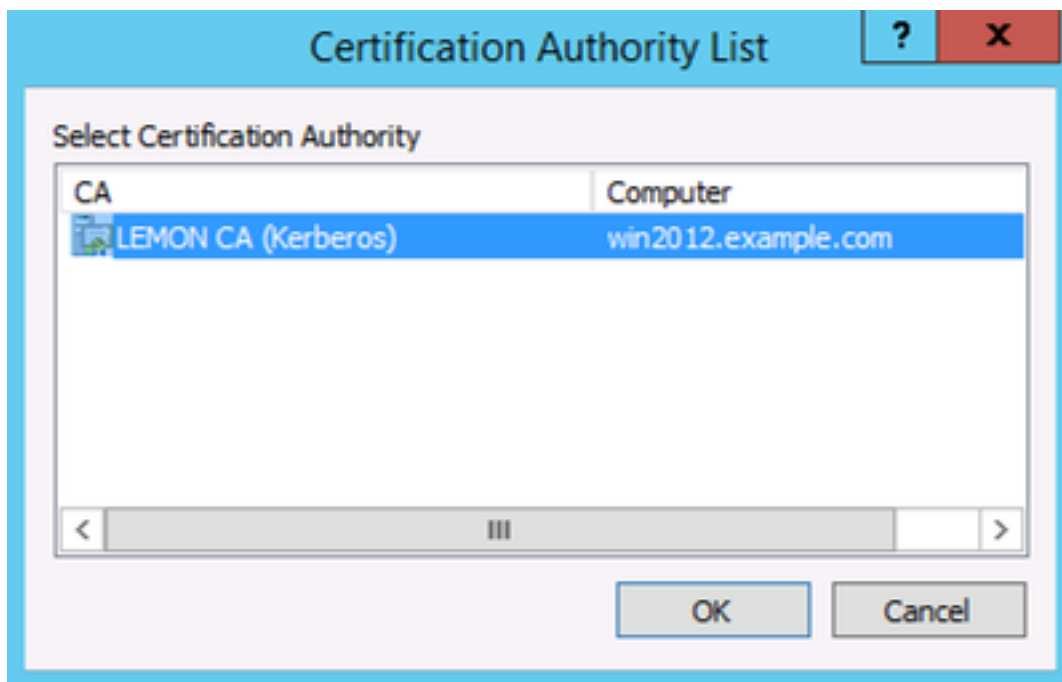
如果警告对话框与机器上下文相冲突的上下文冒出，点击OK键。此警告可以被忽略。

```
C:\Users\Administrator\Desktop>certreq -f -new cisco_ndes_sign.inf cisco_ndes_si
gn.req
Active Directory Enrollment Policy
<55845063-8765-4C03-84BB-E141A1DFD840>
ldap:
User context template conflicts with machine context.
CertReq: Request Created
C:\Users\Administrator\Desktop>
```

4.1.3. 提交CSR用此命令：

```
certreq -submit cisco_ndes_sign.req cisco_ndes_sign.cer
```

在此程序期间窗口冒出，并且适当的CA必须被选择。



```
C:\Users\Administrator\Desktop>certreq -submit cisco_ndes_sign.req cisco_ndes_sign.cer
Active Directory Enrollment Policy
<55845063-8765-4C03-84BB-E141A1DFD840>
ldap:
RequestId: 11
RequestId: "11"
Certificate retrieved<Issued> Issued
C:\Users\Administrator\Desktop>
```

4.1.4接受认证被发行在上一步。由于此命令，新证书被导入并且被搬到本地计算机私有存储：

```
certreq -accept cisco_ndes_sign.cer
C:\Users\Administrator\Desktop>certreq -accept cisco_ndes_sign.cer
C:\Users\Administrator\Desktop>
```

4.2. 生成CEP加密证明

4.2.1. 创建一个新的文件cisco_ndes_xchg.inf：

```
[NewRequest]
Subject = "CN=NEW-MSCEP-RA,OU=Cisco,O=Systems,L=Krakow,S=Malopolskie,C=PL"

Exportable = TRUE
KeyLength = 2048
KeySpec = 1
KeyUsage = 0x20
MachineKeySet = TRUE
ProviderName = "Microsoft RSA Schannel Cryptographic Provider"
ProviderType = 12

[EnhancedKeyUsageExtension]
```

OID = 1.3.6.1.4.1.311.20.2.1

[RequestAttributes]

CertificateTemplate = CEPEncryption

遵从同样步骤正如4.1所描述。

4.2.2. 生成根据新的.INF文件的CSR :

```
certreq -f -new cisco_ndes_xchg.inf cisco_ndes_xchg.req
```

4.2.3. 提交请求 :

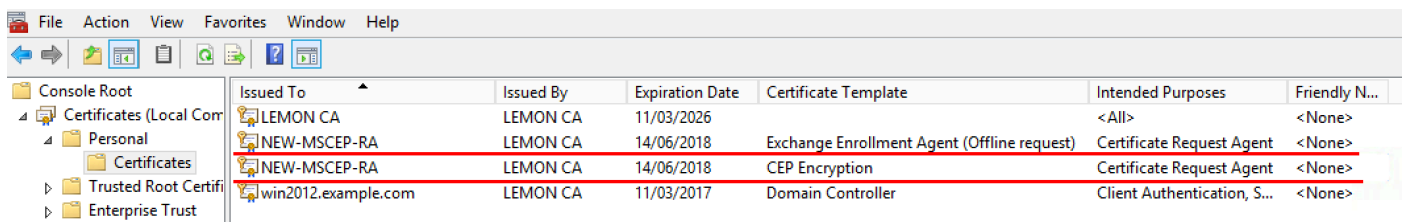
```
certreq -submit cisco_ndes_xchg.req cisco_ndes_xchg.cer
```

4.2.4 : 通过搬入它接受新证书本地计算机私有存储 :

```
certreq -accept cisco_ndes_xchg.cer
```

5. Verify

在完成以后第4步，两新的MSCEP-RA证书于本地计算机私有存储将出现：



The screenshot shows the Windows Certificate Manager interface. The left pane shows the 'Certificates (Local Computer)' tree with 'Personal' > 'Certificates' selected. The right pane displays a table of certificates:

Issued To	Issued By	Expiration Date	Certificate Template	Intended Purposes	Friendly N...
LEMON CA	LEMON CA	11/03/2026		<All>	<None>
NEW-MSCEP-RA	LEMON CA	14/06/2018	Exchange Enrollment Agent (Offline request)	Certificate Request Agent	<None>
NEW-MSCEP-RA	LEMON CA	14/06/2018	CEP Encryption	Certificate Request Agent	<None>
win2012.example.com	LEMON CA	11/03/2017	Domain Controller	Client Authentication, S...	<None>

并且您能验证证书用**certutil.exe**工具(请确定您使用正确的新证书名字)。应该显示MSCEP-RA证书用新的普通的名字和新的序列号：

```
certutil -store MY NEW-MSCEP-RA
```

```

C:\Users\Administrator\Desktop>certutil -store MY NEW-MSCEP-RA
MY "Personal"
===== Certificate 2 =====
Serial Number: 7a0000000cb250f5a9d6c1113500000000000c
Issuer: CN=LEMON CA, DC=example, DC=com
NotBefore: 14/06/2016 13:40
NotAfter: 14/06/2018 13:40
Subject: CN=NEW-MSCEP-RA, OU=Cisco, O=Systems, L=Krakow, S=Malopolskie, C=PL
Certificate Template Name (Certificate Type): CEPEncryption
Non-root Certificate
Template: CEPEncryption, CEP Encryption
Cert Hash(sha1): 31 4e 83 08 57 14 95 e9 0b b6 9a e0 4f c6 f2 cf 61 0b e8 99
Key Container = 1ba225d16a794c70c6159e78b356342c_a5332417-3e8f-4194-bee5-9f97a
f7c6fd2
Simple container name: CertReq-CEPEncryption-f42ec236-077a-40a9-b83a-47ad6cc8d
a0e
Provider = Microsoft RSA SChannel Cryptographic Provider
Encryption test passed

===== Certificate 3 =====
Serial Number: 7a0000000b2813070a2b3616f000000000000b
Issuer: CN=LEMON CA, DC=example, DC=com
NotBefore: 14/06/2016 13:35
NotAfter: 14/06/2018 13:35
Subject: CN=NEW-MSCEP-RA, OU=Cisco, O=Systems, L=Krakow, S=Malopolskie, C=PL
Certificate Template Name (Certificate Type): EnrollmentAgentOffline
Non-root Certificate
Template: EnrollmentAgentOffline, Exchange Enrollment Agent (Offline request)
Cert Hash(sha1): 12 44 ba e6 4c 4e f8 78 7a a6 ae 60 9b b0 b2 ad e7 ba 62 9a
Key Container = 320e64806bd159eca7b12283f3f67ee6_a5332417-3e8f-4194-bee5-9f97a
f7c6fd2
Simple container name: CertReq-EnrollmentAgentOffline-0ec8b0c4-8828-4f09-927b-
c2f869589cab
Provider = Microsoft Enhanced Cryptographic Provider v1.0
Signature test passed
CertUtil: -store command completed successfully.

C:\Users\Administrator\Desktop>

```

6. [重新启动 IIS](#)

重新启动互联网信息服务(IIS)服务器为了应用更改：

```
iisreset.exe
```

```

C:\Users\Administrator\Desktop>iisreset.exe
Attempting stop...
Internet services successfully stopped
Attempting start...
Internet services successfully restarted

```

7. 创建新的SCEP RA配置文件

在ISE请创建一个新的SCEP RA配置文件(与服务器URL和老一个一样)，因此新的证书下载并且被添加到信任证书存储：

External CA Settings

SCEP RA Profiles (SCEP-Simple Certificate Enrollment Protocol)

<input type="checkbox"/>	Name	Description	URL	CA Cert Name
<input type="checkbox"/>	External_SCEP		http://10.0.100.200/certsrv/mscep	LEMON CA,WIN2012-MSCEP-RA
<input type="checkbox"/>	New_External_Scep		http://10.0.100.200/certsrv/mscep	LEMON CA,NEW-MSCEP-RA

8. 修改认证模板

确定新的SCEP RA配置文件在BYOD使用的认证模板指定(您在 *管理>System>证书>认证机关>认证模板* 能检查它) :

The screenshot shows the 'Edit Certificate Template' configuration page in the Cisco ISE GUI. The left sidebar shows the navigation menu with 'Certificate Management' expanded. The main content area is titled 'Edit Certificate Template' and contains the following fields:

- Name:** EAP_Authentication_Certificate_Template
- Description:** This template will be used to issue certificates for EAP Authentication
- Subject:**
 - Common Name (CN): \$UserName\$
 - Organizational Unit (OU): Example unit
 - Organization (O): Company name
 - City (L): City
 - State (ST): State
 - Country (C): US
- Subject Alternative Name (SAN):** MAC Address
- Key Size:** 2048
- * SCEP RA Profile:** New_External_Scep (selected from a dropdown menu that also includes ISE Internal CA, New_External_Scep, and External_SCEP)

参考

1. [Microsoft Technet区域条款](#)
2. [Cisco ISE配置指南](#)