

Creating a MAC Address Pool

VMware ACE 2

This document describes how to manually add a MAC address pool to the database of an ACE master.

When a MAC address pool is added to an ACE master, all new instances from all packages of this ACE master receive a MAC address from the ACE management server. If the pools are exhausted, no new ACE instances can be created unless another pool is added.

MAC address pool ranges are not validated by ACE Management Server. You can add pools with the same or overlapping ranges to the same ACE master or different ACE masters. The administrator must verify that the pools work in his network environment.

MAC address pools can only be added from a specific, pre-defined range, which is defined in the following article:

http://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=507

Adding MAC address pools from outside this range results in ACE instances that cannot be powered on.

Only the first NIC of an ACE instance can be assigned a MAC address.

Adding a MAC Address Pool to the Database

The MAC address pool feature works with the following databases:

- Microsoft SQL Server 2000 or later
- SQLite
- PostgreSQL 7.4 or higher

This feature does not work with Oracle 10g.

The following procedure describes how to add a MAC address pool to the database.

To add a MAC address pool to the database

- 1 Find the universal unique identifier (UUID) of the ACE master that you want to add a MAC address pool to.

See [“Finding the ACE Master UUID”](#) on page 2.

- 2 Determine the properties of the new MAC address pool. See [“Determining the Properties of the MAC Address Pool”](#) on page 2.

These properties include the UUID, its name, description, and the range boundaries.

- 3 Convert the MAC address range boundaries from MAC format (ab:cd:ef:gh:ij:kl) to a number that can be stored in the database.

See [“Converting the MAC Address Range Boundaries to a Decimal Number”](#) on page 2.

- 4 Add the new pool to the database.

See [“Adding the MAC Address Pool to the Database”](#) on page 2.

Finding the ACE Master UUID

To find the ACE master UUID from the ACE master name, query the table PolicyDb_Ace. The two columns and fields of interest in this table are aceUID and aceName. The ACE master name is the same name you set for the ACE master in VMware Workstation. To get the aceUID, you can use SQL similar to the following:

```
SELECT aceUID from PolicyDb_Ace where aceName='ACE_NAME'
```

Determining the Properties of the MAC Address Pool

Determine the following MAC address pool properties before adding the pool to the database:

- **MAC address pool UUID** – This is the UUID for the MAC address pool. This UUID must be unique among all MAC pools. Ensure that the UUID is unique by using some variation of the ACE master UUID. For this example, use aa-ab-ac.
- **ace UID** – The ACE UID from [“Finding the ACE Master UUID”](#) on page 2. The MAC pool belongs to this ACE UID. For this example use aa-ab-ac-ae.
- **MAC address pool name** – The name of the MAC address pool. For example, “Engineering MAC Address Pool.” This name must be 128 characters or fewer.
- **Mac address description** – A description of the MAC address pool. For example, “MAC pool used for engineers’ computers.”
- **Range start** – The first address in the range. For example, 00:50:56:00:00:01.
- **Range end** – The last address in the range (the range is inclusive); for example, 00:50:56:00:01:00 (255 addresses overall).
- **Last MAC address used** – The MAC address that precedes the first MAC address in the pool (in this example it is 00:50:56:00:00:00). The server uses this number to generate the next MAC address from the pool.

Converting the MAC Address Range Boundaries to a Decimal Number

Convert a MAC address in the format, ab:cd:ef:gh:ij:kl, to a number.

To convert a MAC address to a decimal number

- 1 Convert the ab:cd:ef:gh:ij:kl string to a string without any colons. For example, abcdefghijkl. This gives you a string representing a hexadecimal number.

Convert the string from its hex representation to its decimal representation. See [“Converting a MAC Address String into a Decimal Number”](#) on page 3.

Adding the MAC Address Pool to the Database

To add the MAC address pool to the database, you can use a SQL INSERT statement similar to the following:

```
INSERT INTO PolicyDb_MacPool (macPoolUUID, aceUID, macPoolName, description, rangeStart, rangeEnd,
                             lastAssigned)
VALUES: ('aa-ab-ac', 'aa-ab-ac-ae', 'Engineering MAC Address Pool', 'MAC pool used for engineers
        computers', '345040224257', '345040224512', '345040224256')
```

Converting a MAC Address String into a Decimal Number

The following pseudo C code example shows how to convert a MAC address string into a decimal number:

```
int64 ConvertMACString(const char *macAddrStr)
{
    int64 ret = 0;
    int i, j = 0;
    char buf[13];

    if (macAddrStr && strlen(macAddrStr) == 17) {
        for (i = 0; i < 17; i++) {
            unsigned char c = macAddrStr[i];
            if (i%3 == 2) {
                if (c != ':') {
                    // We expect every three characters to have a colon, if there
                    // isn't one, abort.
                    goto exit;
                }
            } else if (isxdigit(c)) {
                buf[j++] = c;
            } else {
                // The string contains a non hexadecimal character, abort.
                goto exit;
            }
        }
        buf[12] = 0;
        sscanf(buf, "%I64x", &ret);
    }

exit:
    return ret;
}
```

The following is a Visual Basic Script pseudo code example:

```
function ConvertMACString(MACString)
{
    ConvertMACString = Cdbl("&H" & Replace(MACString, ":", ""))
}

```

Perform the following steps to convert a MAC address string to a decimal number using the MS Windows calculator.

To convert a MAC address string to a decimal number using the MS Windows calculator

- 1 Start the calculator application.
- 2 Select **View > Scientific**.
- 3 Select **Hex**.
- 4 Enter the MAC address string without any colons and without leading zeros.
For example, 00:50:56:00:00:00 becomes 5056000000.
- 5 Select **Dec**.
- 6 Copy the number (in this example, the number is 345040224256).