

tags: avinetworks

## 使用 OVFTool 工具佈署 NSX ALB Controller

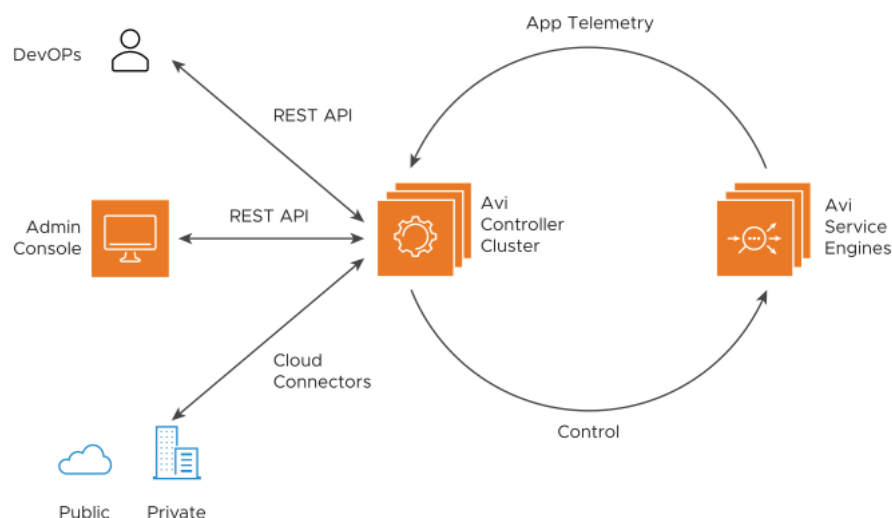
- 使用 OVFTool 工具佈署 NSX ALB Controller
  - 準備 OVA 檔案
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這裡將透過 `ovftool` 命令方式進行安裝佈署 OVA。這樣的佈署方式，之前對於 vROps, vRLI, NSX-T Mgr 等使用 OVA 方式佈署的虛擬設備也同樣適用。

最主要的使用原因，就是只要管理佈署組態檔，透過讀取組態檔，便可自動完成虛擬機佈署，可以進行多次重複性自動化佈署，免去人工輸入錯誤及佈署等待時間。

### 注意

這裡僅針對 Controller 佈署，但並不涉及後續其組態及 Service Engines 等相關佈署。上述議題應該是採用 **API** 或是以 **Ansible** 和 **Terraform** 的方式來完成為完整管理及佈署解決方案（研究中...）。



## 準備 OVA 檔案

## 1. 從 myvmware 查找 VMware NSX Advanced Load Balancer。

Networking & Security

Products	
VMware NSX Data Center for vSphere	<a href="#">View Download Components</a>   <a href="#">Drivers &amp; Tools</a>
VMware NSX-T Data Center	<a href="#">View Download Components</a>   <a href="#">Drivers &amp; Tools</a>   <a href="#">Try</a>
VMware NSX Intelligence	<a href="#">View Download Components</a>   <a href="#">Drivers &amp; Tools</a>
VMware SD-WAN	<a href="#">View Download Components</a>   <a href="#">Drivers &amp; Tools</a>
VMware AppDefense Plugin	<a href="#">View Download Components</a>   <a href="#">Drivers &amp; Tools</a>
VMware NSX Security	<a href="#">View Download Components</a>   <a href="#">Drivers &amp; Tools</a>
<b>VMware NSX Advanced Load Balancer</b>	<a href="#">View Download Components</a>   <a href="#">Drivers &amp; Tools</a>
VMware Global Network Identities	<a href="#">View Download Components</a>   <a href="#">Drivers &amp; Tools</a>
VMware Antrea	<a href="#">View Download Components</a>   <a href="#">Drivers &amp; Tools</a>

## 2. 目前最新版本為 21.1.X（2021-07-22），點擊 GO TO DOWNLOADS 繼續。

Home / VMware NSX Advanced Load Balancer

### Download VMware NSX Advanced Load Balancer

Version:

21.1.X

VMware NSX Advanced Load Balancer (Formerly Avi Networks) provides multi-cloud load balancing, web application firewall, application analytics and container ingress services across on-premises data centers and any cloud. The software-defined platform delivers applications consistently across bare metal servers, virtual machines and containers to ensure a fast, scalable, and secure application experience.

[Read More](#)

Product Resources  
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**Product Downloads** | [Drivers & Tools](#) | [Open Source](#) | [Custom ISOs](#) | [OEM Addons](#)

Product	Release Date	
VMware NSX Advanced Load Balancer	2021-07-22	<a href="#">GO TO DOWNLOADS</a>

## 3. 接著會顯示產品下載說明頁，請閱讀上述步驟並點擊 DOWNLOAD NOW 進行下載。

VMware NSX Advanced Load Balancer (Hosted on Avi Networks Portal)

File size: 109 B

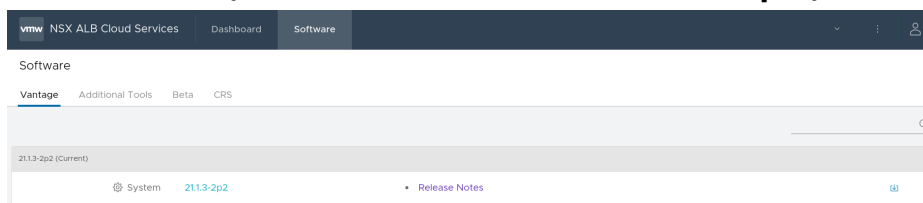
[DOWNLOAD NOW](#)


Name: VERSION.txt  
Release Date: 2020-10-12

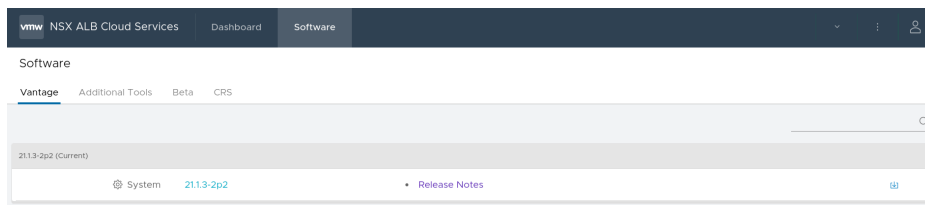
VMware NSX Advanced Load Balancer (Hosted on Avi Networks Portal)  
VMware NSX Advanced Load Balancer software images are hosted on the Avi Networks Portal. Follow these steps to get access to the software images:  
1. Click the 'DOWNLOAD NOW' link. This is a SSO redirect URL to the Avi Networks Portal. Customers should use their My VMware credentials to log into the Avi Networks Portal to access Software.  
2. Login with the My VMware Portal credentials to gain access to the Avi Networks Portal  
3. Once logged into the Avi Networks Portal  
a. Navigate to "Software -> Vantage"  
b. Select the "VERSION" to be downloaded  
c. Navigate to the "VMware" section and under Controller OVA, click the download icon  
d. Accept the EULA and click 'CONTINUE' to start download of the Avi Controller OVA image  
e. Note the 'Default Password' for the Avi Controller from the Resources  
Note:  
1. The file hosted on this page is a placeholder. Please ignore the file meta data including the MD5 checksum.  
MD5SUM: 591799f010d560a83dcbf7726317d71b  
SHA1SUM: 327b847572f5b3e13760e97cdf17e0893f171fbb  
SHA256SUM: f3e69ae396a1e80022def69b3dc6e91deta448b1ef9d8079cbfc227f006af96

## 4. 跳轉至 AVI Network Portal 頁面。依照以下步驟完成下載。

- 選擇上方導航列 **Software > Vantage**。選擇要下載的 **VERSION**。（在此選擇目前最新版本 **21.1.3-2p2**）

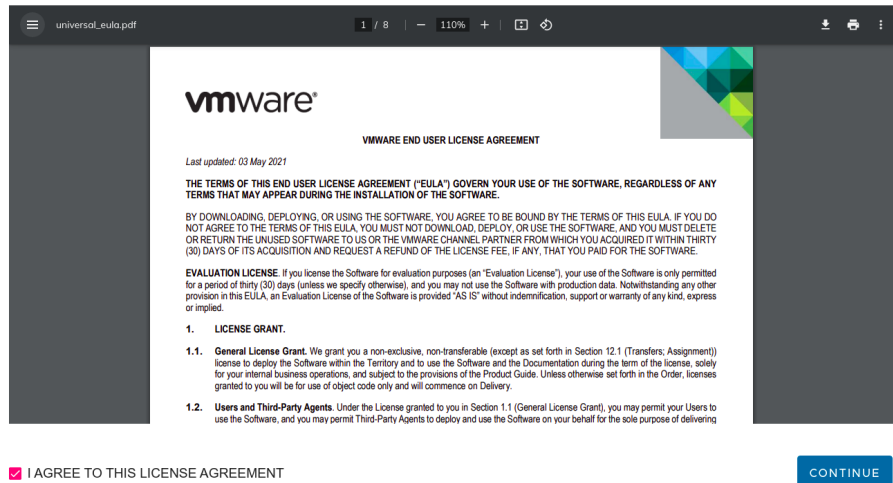


- 導航到 **VMware** 部分並在 Controller OVA 下，點擊下載圖示 .



- 接受 EULA 並點擊 **CONTINUE** 開始下載 AVI Controller OVA 映像檔。

LICENSE AGREEMENT



## 注意

1. 右上方 **資源 (Resource)** 訊息中提供 AVI Controller “預設密碼”。
2. 點選下載區域的 **MD5 CHECKSUM**，取得驗證碼資訊。

## 5. 檢驗 OVA 完整性並儲存於本地端的 NFS 空間備用。

```
$ checksum='d0c0789d8d9bf348670a4321f35cd94d'
$ file='controller-21.1.3-2p2-9049.ova'

$ echo "${checksum} ${file}" | md5sum --check
controller-21.1.3-2p2-9049.ova: OK
```

## 檢視 OVA 組態屬性

即便是相同 VMware 產品的 OVA，在不同的版本也會變動部份的佈署參數。所以在使用 `ovftool` 進行佈署前，建議還是先使用以下命令確認一下配置參數。

## 檢視 OVA

```
$ ovftool --hideEula --X:enableHiddenProperties --allowExtraConfig --disableVerificator
```



## 輸出結果

```
1  OVF version: 1.0
2  VirtualApp: false
3  Name: Avi Cloud Controller
4  Version: 21.1.3
5  Full Version: 21.1.3-9051-20211219.182134
6  Vendor: Avi Networks, Inc.
7  Product URL: www.avinetworks.com
8  Vendor URL: www.avinetworks.com
9
10 Download Size: 5.02 GB
11
12 Deployment Sizes:
13   Flat disks: 128.00 GB
14   Sparse disks: 8.91 GB
15
16 Networks:
17   Name: Management
18   Description: The Management network
19
20 Virtual Machines:
21   Name: Avi Cloud Controller
22   Operating System: ubuntu64guest
23   Virtual Hardware:
24     Families: vmx-11
25     Number of CPUs: 8
26     Cores per socket: 1
27     Memory: 24.00 GB
28
29     Disks:
30       Index: 0
31       Instance ID: 8
32       Capacity: 128.00 GB
33       Disk Types: SCSI-lsilogic
34
35     NICs:
36       Adapter Type: VmxNet3
37       Connection: Management
38
39 Properties:
40   Key: AVIOVFVERSION
41   Category: Application
42   Label: Version of the OVF
43   Type: string
44   Description: Version of the OVF
45   Value: 2
46
47   ClassId: avi
48   Key: mgmt-ip
49   InstanceId CONTROLLER
50   Category: Application
51   Label: Management Interface IP Address
52   Type: string
53   Description: IP address for the Management Interface. Leave blank if using
54   DHCP. Example: 192.168.10.4
55
56   ClassId: avi
57   Key: mgmt-mask
58   InstanceId CONTROLLER
59   Category: Application
60   Label: Management Interface Subnet Mask
61   Type: string
62   Description: Subnet mask for the Management Interface. Leave blank if using
63   DHCP. Example : 24 or 255.255.255.0
64
65   ClassId: avi
66   Key: default-gw
67   InstanceId CONTROLLER
68   Category: Application
69   Label: Default Gateway
70   Type: string
71   Description: Optional default gateway for the Management Network. Leave blank
72   if using DHCP.
73
74   ClassId: avi
75   Key: sysadmin-public-key
76   InstanceId CONTROLLER
77   Category: Application
78   Label: Sysadmin login authentication key
79   Type: string
```

```

80     Description: Sysadmin login authentication key
81
82     ClassId:      avi
83     Key:          nsx-t-node-id
84     InstanceId    CONTROLLER
85     Category:     Application
86     Label:        NSX-T Node ID
87     Type:         string
88     Description:  NSX-T Node ID to uniquely identify node in a NSX-T cluster (For
89                   modification by NSX Manager only. This field should not be
90                   filled in or modified by the user directly)
91
92     ClassId:      avi
93     Key:          nsx-t-ip
94     InstanceId    CONTROLLER
95     Category:     Application
96     Label:        NSX-T IP Address
97     Type:         string
98     Description:  IP address of the NSX-T which will manage this controller (For
99                   modification by NSX Manager only. This field should not be
100                  filled in or modified by the user directly)
101
102     ClassId:      avi
103     Key:          nsx-t-auth-token
104     InstanceId    CONTROLLER
105     Category:     Application
106     Label:        Authentication token of NSX-T
107     Type:         string
108     Description:  Authentication token of the NSX-T which will manage this
109                   controller (For modification by NSX Manager only. This field
110                   should not be filled in or modified by the user directly)
111
112     ClassId:      avi
113     Key:          nsx-t-thumbprint
114     InstanceId    CONTROLLER
115     Category:     Application
116     Label:        NSX-T thumbprint
117     Type:         string
118     Description:  Thumbprint of the MP node of NSX-T which will manage this
119                   controller (For modification by NSX Manager only. This field
120                   should not be filled in or modified by the user directly)
121
122     ClassId:      avi
123     Key:          hostname
124     InstanceId    CONTROLLER
125     Category:     Application
126     Label:        Hostname of Avi Controller
127     Type:         string
128     Description:  Hostname of Avi controller (For modification by NSX Manager
129                   only. This field should not be filled in or modified by the user
130                   directly)
131
132     References:
133     File:    controller-disk1.vmdk

```

佈署參數大致上與先前 VMware 取得的 OVA 檔類似，接著編寫佈署組態檔。

有關詳細佈署資訊，請參考 **[Deploying Avi Controller**

**OVA]** ([https://docs.vmware.com/en/VMware-NSX-Advanced-Load-Balancer/20.1.5/Installation\\_Guide/GUID-](https://docs.vmware.com/en/VMware-NSX-Advanced-Load-Balancer/20.1.5/Installation_Guide/GUID-F1F9CD95-C9FF-4F6D-ACE8-D38E5A5FE04C.html)

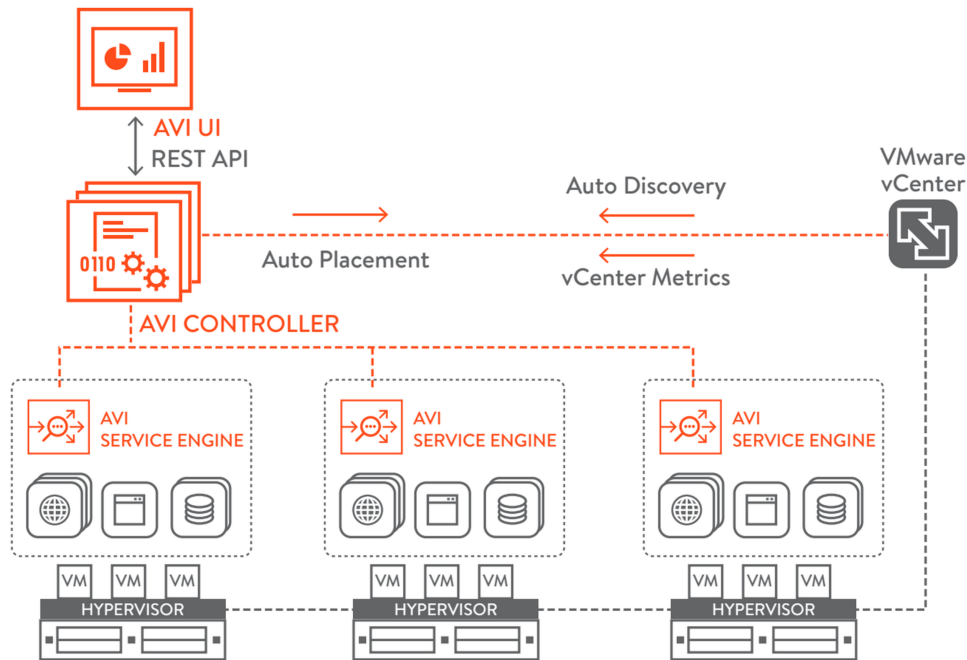
[F1F9CD95-C9FF-4F6D-ACE8-D38E5A5FE04C.html](https://docs.vmware.com/en/VMware-NSX-Advanced-Load-Balancer/20.1.5/Installation_Guide/GUID-F1F9CD95-C9FF-4F6D-ACE8-D38E5A5FE04C.html)) 說明。

## 準備部署組態檔

對於第一組 Controller 的佈署，專注於以下設定即可：

- 提供 **Datastore** 空間。
- 由於是測試環境佈署，Disk format 選擇 **Thin**，生產環境選用 **Thick Provision Lazy Zeroed**。

- 網路配置的 Port Group，需能跟 vCenter Server 正常連線。
- 指定管理 IP 位址及預設閘道資訊。若採用 DHCP 配置，則將欄位空白即可。



除了 **ovftool** 工具，還搭配 **Ansible** 組態管理工具協助佈署。完成以下相關的 YAML 組態檔。

佈署組態檔：**alb\_config.yml**

```

1  ---
2  # information for avicontroller
3  alb_ovftool: "/usr/bin/ovftool"
4  alb_vmname: "alb01"
5  alb_datastore: "VNxe_Datastore_Sales2"
6  alb_disk_mode: "thin"
7  alb_network: "LAB-10.7.150.0"
8  #alb_type: "Static"
9  alb_ipaddress: "10.7.150.77"
10 alb_netmask: "255.255.255.0"
11 alb_gateway: "10.7.150.254"
12 #alb_dns: "10.7.160.31"
13 #alb_password: "VMware1!"
14 alb_poweron: true
15 # information for avicontroller ova file
16 ## my usb drive
17 # alb_ova_location: "/run/media/richard/4133B34A1FD8CC1F/VMware/AVI_Networks"
18 ## nfs
19 alb_ova_location: "/mnt/ovaPath/vmware_ova"
20 #alb_ova: "controller-21.1.3-9051.ova"
21 alb_ova: "controller-21.1.3-2p2-9049.ova"
22 # information for vcenter server or esxi host
23 mgmt_vc: "vc5a67.sysagelab.com"
24 mgmt_vc_username: "administrator@vsphere.local"
25 mgmt_vc_password: "P@ssw0rd"
26 mgmt_vc_port: "443"
27 mgmt_vc_datacenter: "Datacenter"
28 mgmt_vc_cluster: "Cluster"
29 esxi_host: "10.7.150.5"

```

佈署劇本檔：**alb\_deploy.yml**

```

1  ---
2  - hosts: local
3    gather_facts: false
4    connection: local
5
6    tasks:
7      - name: '讀取預設參數'
8        include_vars: alb_config.yml
9
10     - name: '佈署 AVI Controller OVA'
11       shell: >
12         {{ alb_ovftool }}
13         '--name={{ alb_vmname }}'
14         --X:injectOvfEnv
15         --acceptAllEulas
16         --allowExtraConfig
17         --skipManifestCheck
18         --noSSLVerify
19         '--datastore={{ alb_datastore }}'
20         '--diskMode={{ alb_disk_mode }}'
21         '--net:Management={{ alb_network }}'
22         '--prop:avi.mgmt-ip.CONTROLLER={{ alb_ipaddress }}'
23         '--prop:avi.mgmt-mask.CONTROLLER={{ alb_netmask }}'
24         '--prop:avi.default-gw.CONTROLLER={{ alb_gateway }}'
25         '--powerOn={{ alb_poweron | string }}'
26         '{{ alb_ova_location }}/{{ alb_ova }}'
27         'vi://{{ mgmt_vc_username | urlencode }}:{{ mgmt_vc_password | urlencode }}

```

差不多就這樣囉。

似乎不需要先在佈署環境中的 DNS 設定該虛擬設備的紀錄設定。佈署完成後，DNS 名稱會自動以管理 IP 位址進行配置。

例如：

管理 IP 位址是 **10.7.150.77**，DNS 名稱會是 **10-7-150-77**。

## 開始佈署

只要組態檔內容確認沒有問題，應該就會按照劇本完成虛擬設備的佈署。接著開啟終端機輸入以下命令，就會開始自動進行佈署 NSX ALB Controller 作業。

```
$ ansible-playbook -vvv alb_deploy.yml
```

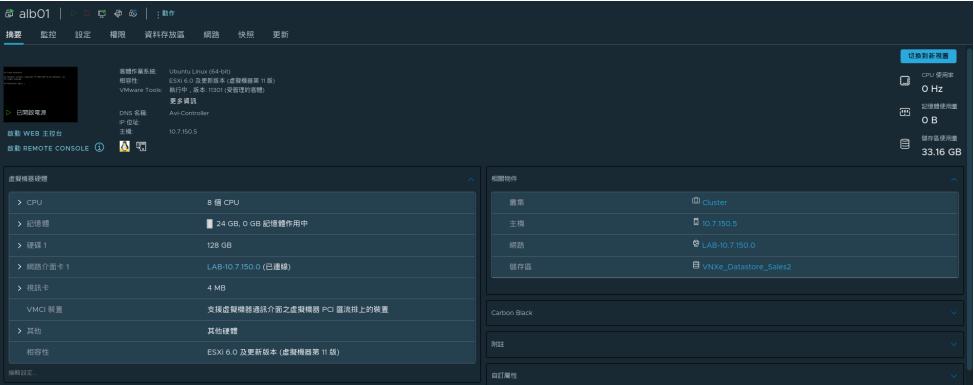
透過 vSphere Client 可以檢視安裝狀態

工作名稱	對象	狀態	詳細資料	啟動器
部署 OVF 範本	Cluster	6%	正在複製虛擬機器組態	VSPHERE.LOCAL\Administrator

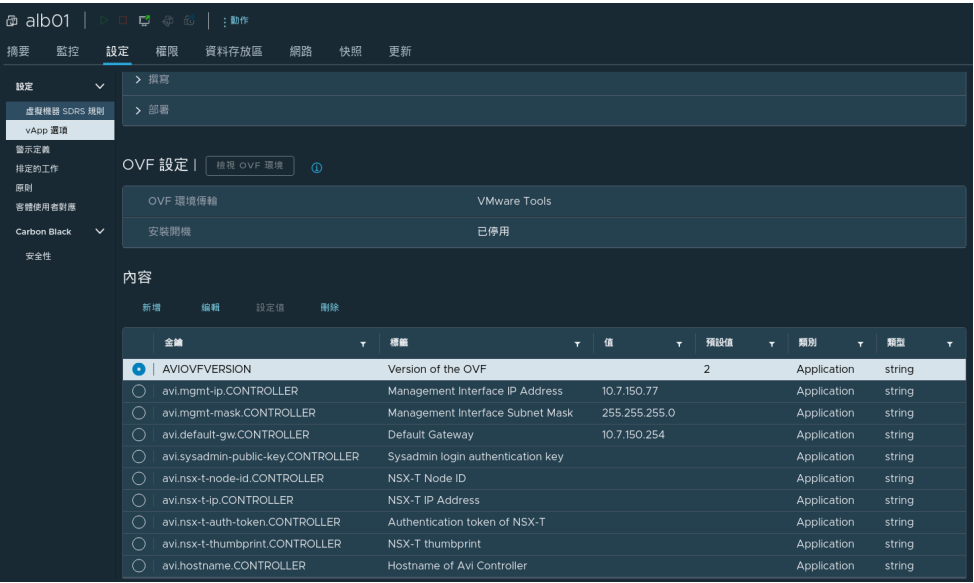
完成部署會自動開機，因為組態檔中已啟用開啟電源。

工作名稱	對象	狀態	詳細資料	啟動器
重新設定虛擬機器	alb01	已完成	正在重新設定目的地主機上的虛擬機器	VSPHERE.LOCAL\Administrator
開啟虛擬機器電源	alb01	已完成	正在開啟新虛擬機器的電源	VSPHERE.LOCAL\Administrator
部署 OVF 範本	alb01	已完成	正在複製虛擬機器組態	VSPHERE.LOCAL\Administrator

檢視佈署完成的虛擬機器。



選擇虛擬機 alb01 > 設定 (Configure) > 設定 (Settings) > vApp 選項 (vApp Options)。檢視 內容 (Properties)，相關參數皆根據佈署組態檔配置對應的數值。

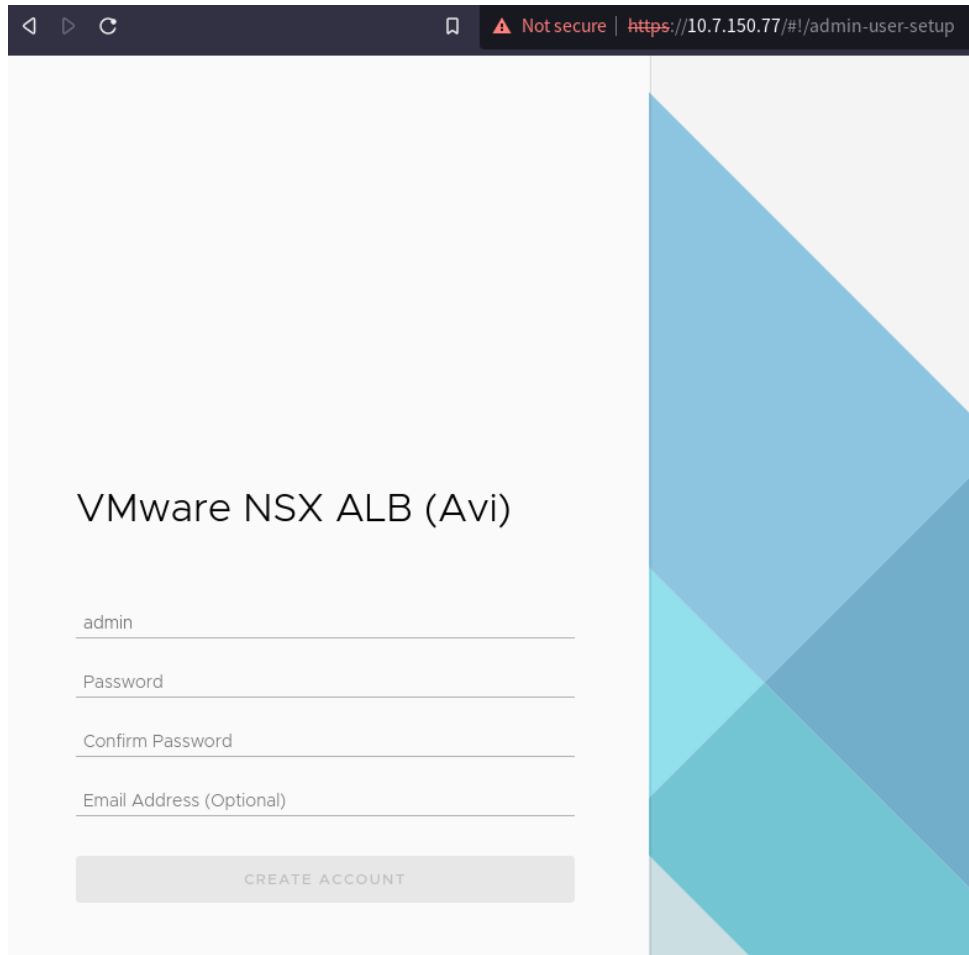


## 登入 Controller 完成初始化設定

系統啟動時，可能會出現空白網頁或 503 狀態代碼。等待大約 5 到 10 分鐘，確認連線初始化設定頁面，再按照設定指南的說明進行操作。



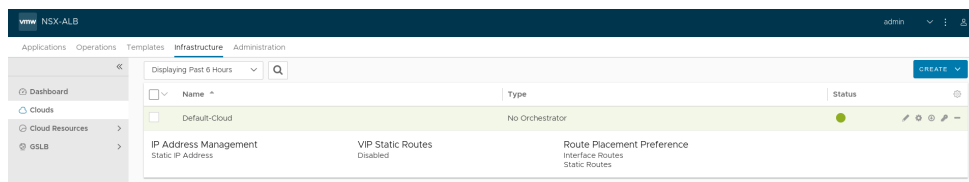
開啟瀏覽器輸入佈署的 IP 位址，進行初始化設定。



後續步驟請參考 **[Performing the Avi Controller Initial setup]** ([https://docs.vmware.com/en/VMware-NSX-Advanced-Load-Balancer/20.1.5/Installation\\_Guide/GUID-BE2AEB3C-7B69-4C75-A482-361ED946C50C.html](https://docs.vmware.com/en/VMware-NSX-Advanced-Load-Balancer/20.1.5/Installation_Guide/GUID-BE2AEB3C-7B69-4C75-A482-361ED946C50C.html))，在此將不贅述。

最好的佈署方式，應該還是透過 API 或是 Ansible/Terraform。不過，目前還沒任何頭緒跟資訊！

完成相關組態後，導航至 **InfrastructureClouds > Clouds**，選擇 **Default-Cloud**。確認 **Status** 燈號為綠燈，則成功完成安裝作業。



## 備註

因為是測試環境，可以使用 Ansible 搭配以下 YAML 檔，執行後可將先前部署的 Controller 虛擬設備關機並移除，輕鬆管理測試環境。

刪除劇本檔：**alb\_remove.yml**

```

1  ---
2  - name: '使用 Ansible 進行 AVI Controller VM 移除作業'
3    hosts: local
4    gather_facts: false
5    connection: local
6
7    tasks:
8      - name: '讀取預設參數'
9      # 在移除VM作業前，請先確認以下yaml組態檔
10       include_vars: alb_config.yml
11
12      - name: '移除虛擬主機'
13        vmware_guest:
14          hostname: "{{ mgmt_vc }}"
15          username: "{{ mgmt_vc_username }}"
16          password: "{{ mgmt_vc_password }}"
17
18      ## for esxi
19      #   hostname: "{{ esxi_hostname }}"
20      #   username: "{{ esxi_user }}"
21      #   password: "{{ esxi_pass }}"
22      name: "{{ alb_name }}"
23      validate_certs: false
24      state: absent
25      force: yes
26      delegate_to: localhost

```

## 參考

- VMware

- **NSX ALB 產品資訊** (<https://www.vmware.com/products/nsx-advanced-load-balancer.html>).
- **NSX ALB 官方說明文檔** (<https://docs.vmware.com/en/VMware-NSX-Advanced-Load-Balancer/index.html>).
  - **Installation Guide** ([https://docs.vmware.com/en/VMware-NSX-Advanced-Load-Balancer/20.1.5/Installation\\_Guide/GUID-42C44E34-2338-4EF9-9FAC-6D58D556DA62.html](https://docs.vmware.com/en/VMware-NSX-Advanced-Load-Balancer/20.1.5/Installation_Guide/GUID-42C44E34-2338-4EF9-9FAC-6D58D556DA62.html)).
  - **Administration Guide** ([https://docs.vmware.com/en/VMware-NSX-Advanced-Load-Balancer/20.1.4/Administration\\_Guide/GUID-D435B849-0563-48CF-A14E-38AC59DCC39F.html](https://docs.vmware.com/en/VMware-NSX-Advanced-Load-Balancer/20.1.4/Administration_Guide/GUID-D435B849-0563-48CF-A14E-38AC59DCC39F.html)).
  - **Configuration Guide** ([https://docs.vmware.com/en/VMware-NSX-Advanced-Load-Balancer/20.1.4/Configuration\\_Guide/GUID-9E7B700B-4446-490C-830A-1371EBAA3250.html](https://docs.vmware.com/en/VMware-NSX-Advanced-Load-Balancer/20.1.4/Configuration_Guide/GUID-9E7B700B-4446-490C-830A-1371EBAA3250.html)).
  - **GSLB Guide** ([https://docs.vmware.com/en/VMware-NSX-Advanced-Load-Balancer/20.1.4/GSLB\\_Guide/GUID-6AAE35A1-4757-4A07-BD20-E5AE8D1962C8.html](https://docs.vmware.com/en/VMware-NSX-Advanced-Load-Balancer/20.1.4/GSLB_Guide/GUID-6AAE35A1-4757-4A07-BD20-E5AE8D1962C8.html)).
  - **WAF Guide** ([https://docs.vmware.com/en/VMware-NSX-Advanced-Load-Balancer/20.1.4/WAF\\_Guide/GUID-732EF516-76A9-4754-91FA-E0076EFA4029.html](https://docs.vmware.com/en/VMware-NSX-Advanced-Load-Balancer/20.1.4/WAF_Guide/GUID-732EF516-76A9-4754-91FA-E0076EFA4029.html)).

- AVI Networks

- **產品文件** (<https://avinetworks.com/docs/>).
- **NSX Advanced Load Balancer 21.1.X Release Notes** (<https://avinetworks.com/docs/21.1/release-notes/#whats-new-in-2113-2p2>).

- **Installing Avi Vantage for VMware vCenter**

(<https://avinetworks.com/docs/21.1/installing-avi-vantage-for-vmware-vcenter/>).

- **Configuring Ansible for Avi Vantage**

(<https://avinetworks.com/docs/21.1/configuring-ansible-for-avi-vantage/>).

- Terraform

- **AVI Controller Deployment on vSphere**

**Terraform module** (<https://registry.terraform.io/modules/slarimore02/avi-controller-vsphere/vsphere/latest>).

- Ansible

- **avi\_network – Module for setup of Network Avi RESTful Object**

([https://docs.ansible.com/ansible/2.9/modules/avi\\_network\\_module.html](https://docs.ansible.com/ansible/2.9/modules/avi_network_module.html)).