■ NetApp

監控Astra資料儲存區 Astra Data Store

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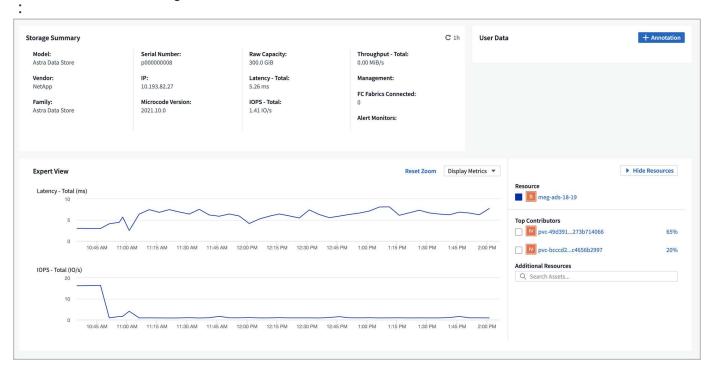
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監控Astra資料儲存區

利用功能表監控指標Cloud Insights

您可以使用Cloud Insights 支援功能來監控Astra Data Store指標。

以下是一些展示Cloud Insights 在《支援》中的Astra Data Store指標範例



您也可以使用、顯示Astra Data Store中產生的度量清單 [Open Metrics API help]。

您可以完成下列工作:

- [Complete Cloud Insights connection prerequisite tasks]
- [Acquisition Unit storage]
- [Download and run the installation script]
- [Edit the Cloud Insights connection]
- [Disconnect from Cloud Insights]

完成Cloud Insights 連線先決條件工作

在將Astra Data Store與Cloud Insights 支援功能整線之前、您必須先完成下列工作:

- "安裝Astra Data Store監控操作員" 這是Astra Data Store安裝說明的一部分。
- "安裝kubecl-astrads二進位檔" 這是Astra Data Store安裝說明的一部分。
- "建立Cloud Insights 一個不一樣的帳戶"。
- 請確認下列命令可用:「awk、curl、grep」和「iq」

收集下列資訊:

- * Cloud Insights 具備類別讀寫權限的API存取權杖*:擷取單元、資料收集、資料擷取和記錄擷取。這將用於 讀取/寫入作業、設定擷取單位、以及設定資料擷取程序。
- * Kubernetes API伺服器IP位址和連接埠*。這是用來監控Astra Data Store叢集。
- * Kubernetes API權杖*。這是用來呼叫Kubernetes API。
- 持續磁碟區組態。有關如何配置持續磁碟區的資訊。

擷取單元儲存

擷取單元需要三個持續磁碟區來儲存安裝檔案、組態資料和記錄。監控操作員使用預設儲存類別來建立持續的Volume宣告。您可以在執行安裝程式指令碼時、使用「-s」選項來指定不同的儲存類別名稱。

如果您的Kubernetes叢集沒有儲存資源配置程式(例如NetApp Trident)、您可以在執行安裝程式指令碼時、使用「-r」選項來提供本機檔案系統路徑。設定「-r」選項時、安裝程式指令碼會在所提供的目錄內建立三個持續磁碟區。此目錄需要至少150 GB的可用空間。

下載並執行安裝指令碼

提供Bash指令碼、可透過監控操作員啟用Astra Data Store監控功能。Cloud Insights安裝指令碼會安裝擷取單元、其中含有Astra Data Store收集器和一個Fluent位元代理程式。

下載時、將會在安裝程式指令碼中內嵌選定的「更新網域名稱」和「選定的更新API存取權杖」Cloud Insights Cloud Insights。

然後、會以下列方式傳送指標:

- 這個部門將會將指標傳送到這個數據湖。Cloud Insights Cloud Insights
- Fluent位元會將記錄傳送至記錄擷取服務。

顯示安裝程式指令碼說明

安裝程式指令碼的完整說明文字如下所示:

顯示安裝程式指令碼說明文字:

./cloudinsights-ads-monitoring.sh -h

回應:

```
USAGE: cloudinsights-ads-monitoring.sh [OPTIONS]
Configure monitoring of Astra Data Store by Cloud Insights.
OPTIONS:
  -h
                          Display this help message.
                          Cloud Insights tenant domain name.
  -d ci domain name
 -i kubernetes ip
                          Kubernetes API server IP address.
 -k ci api key
                          Cloud Insights API Access Token.
 -n namespace
                          Namespace for monitoring components. (default:
netapp-monitoring)
 -p kubernetes port
                         Kubernetes API server port. (default: 6443)
 -r root pv dir
                         Create 3 Persistent Volumes in this directory
for the Acquisition Unit.
                          Only specify this option if there is no Storage
Provisioner installed and the PVs do not already exist.
  -s storage class
                         Storage Class name for provisioning Acquisition
Unit PVs. If not specified, the default storage class will be used.
 -t kubernetes token Kubernetes API server token.
```

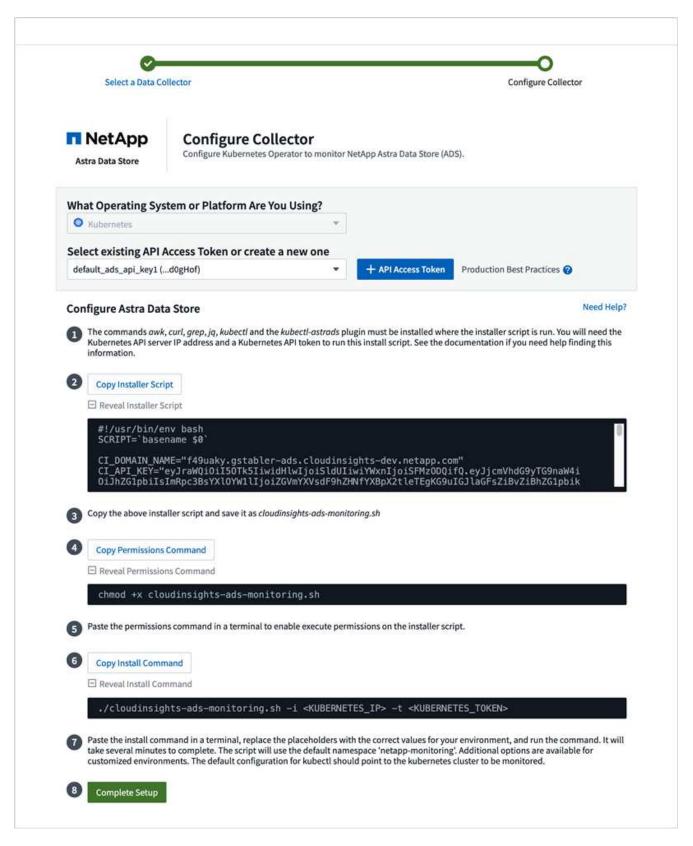
執行安裝指令碼

- 如果Cloud Insights 您還沒有這個帳戶、請建立一個這個帳戶。
- 2. 登入Cloud Insights 到
- 3. 在「支援資料」功能表中、按一下「管理」>「資料收集器」Cloud Insights 。
- 按一下「+資料收集器」以新增收集器。



- 5. 按一下「* Astra Data Store*」方塊。
- 6. 選取正確Cloud Insights 的「循環API」存取權杖、或建立新的權杖。
- 7. 請依照指示下載安裝程式指令碼、更新權限、然後執行指令碼。

此指令碼包含Cloud Insights 您的URL、以及所選Cloud Insights 的循環API存取權杖。



8. 指令碼完成後、按一下*完成設定*。

安裝指令碼完成後、Astra Data Store收集器會出現在資料集區清單中。



如果指令碼因為錯誤而結束、您可以在錯誤解決之後再次執行。如果您的環境未使用預設設定、指令碼可支援其他參數、例如監控操作員命名空間和Kubernetes API伺服器連接埠。請使用「./cloudinsights-ads-monitoring.sh -h」中的「-h」選項查看使用量和說明文字。

安裝指令碼會在組態成功時產生類似的輸出:

代理程式CR範例

以下是執行安裝程式指令碼後、「monitoring NetApp」代理程式CR的外觀範例。

```
spec:
 au:
   isEnabled: true
   storageClassName: auto-sc
 cluster-name: meg-ads-21-22-29-30
 docker-repo: docker.repo.eng.netapp.com/global/astra
 fluent-bit:
 - name: ads-tail
   outputs:
   - sink: ADS STDOUT
   substitutions:
   - key: TAG
     value: firetapems
   - key: LOG FILE
     values:
     - /var/log/firetap/*/ems/ems
     - /var/log/firetap/ems/*/ems/ems
   - key: ADS CLUSTER NAME
     value: meg-ads-21-22-28-29-30
 - name: agent
 - name: ads-tail-ci
   outputs:
   - sink: CI
   substitutions:
   - key: TAG
     value: netapp.ads
   - key: LOG FILE
     values:
     - /var/log/firetap/*/ems/ems
     - /var/log/firetap/ems/*/ems/ems
   - key: ADS CLUSTER NAME
     value: meg-ads-21-22-28-29-30
 output-sink:
 - api-key: abcd
   domain-name: bz19ngz.gst-adsdemo.ci-dev.netapp.com
   name: CI
 serviceAccount: sa-netapp-monitoring
status:
 au-pod-status: UP
 au-uuid: eddeccc6-3aa3-4dd2-a98c-220085fae6a9
```

編輯Cloud Insights 此鏈接

您稍後可以編輯Kubernetes API權杖或Cloud Insights 是使用此功能的循環API存取權杖:

- 如果您想要更新Kubernetes API權杖、您應該從Cloud Insights 這個UI編輯Astra Data Store收集器。
- 如果您想要更新Cloud Insights 遙測和記錄所用的循環API存取權杖、您應該使用kubectl命令來編輯監控操作員CR。

更新Kubernetes API權杖

- 1. 登入Cloud Insights 到
- 2. 選取*管理*>*資料收集器*以存取「資料收集器」頁面。
- 3. 尋找Astra Data Store叢集的項目。
- 4. 按一下頁面右側的功能表、然後選取*編輯*。
- 5. 使用新值更新Kubernetes API Token欄位。
- 6. 選取*儲存Collector *。

更新Cloud Insights 程式:更新程式碼

- 1. 登入Cloud Insights 到
- 2. 選取「管理>* API存取*」、然後按一下「+ API存取權杖」、即可建立新Cloud Insights 的「循環API存取權杖」。
- 3. 編輯Agent CR:

kubectl --namespace netapp-monitoring edit agent agent-monitoring-netapp

- 4. 找到"output-sink(輸出接收器)"區段、找到名稱為"CI"的項目。
- 5. 如需標籤「API-金鑰」、請將目前值改為全新Cloud Insights 的REAPI存取權杖。

此區段如下所示:

output-sink:
 - api-key: <api key value>
 domain-name: <tenant url>
 name: CI

6. 儲存並結束編輯器視窗。

監控操作員會更新Fluent位元、以使用新Cloud Insights 的更新版的解決方案API存取權杖。

中斷Cloud Insights 與該功能的連線

若要中斷Cloud Insights 與功能表的連線、您必須Cloud Insights 先從功能表上刪除Astra Data Store收集器。完成後、您可以從監控操作員移除擷取單元、Telegraf(若已設定)和Fluent位元組態。

移除Astra Data Store收集器

- 1. 登入Cloud Insights 到
- 2. 選取*管理*>*資料收集器*以存取「資料收集器」頁面。
- 3. 尋找Astra Data Store叢集的項目。
- 4. 撰取畫面右側的功能表、然後撰取*刪除*。
- 5. 按一下確認頁面上的*刪除*。

移除擷取單元、Telegraf(若已設定)和Fluent位元

1. 編輯Agent CR:

kubectl --namespace netapp-monitoring edit agent agent-monitoring-netapp

- 2. 找到「au」區段、並將「isEnabled」設為「假」
- 3. 找到「Fluent位元」區段、然後移除名為「ads tail-CI」的外掛程式。如果沒有其他外掛程式、您可以移除「Fluent位元」區段。
- 4. 如果已設定Telegraf、請找出「Telegraf」區段、然後移除名為「ads開放式指標」的外掛程式。如果沒有其他外掛程式、您可以移除「Telewraf」區段。
- 5. 找到「output-sink(輸出接收器)」區段、然後移除名為「CI」的接收器。
- 6. 儲存並結束編輯器視窗。

監控操作員會更新Telegraf(若已設定)和Fluent位元組態、並刪除擷取單元Pod。

7. 如果您將本機目錄用於擷取單元PV、而非儲存資源配置程式、請刪除PV:

kubectl delete pv au-lib au-log au-pv

然後、刪除正在執行擷取單元的節點上的實際目錄。

- 8. 在擷取單元Pod刪除之後、您可以從Cloud Insights 功能表中刪除擷取單元。
 - a. 在「支援資料」功能表中、選取*管理*>*資料收集器*。Cloud Insights
 - b. 按一下「擷取單位」標籤。
 - C. 按一下擷取設備Pod旁的功能表。
 - d. 選擇*刪除*。

監控操作員會更新Telegraf(若已設定)和Fluent位元組態、並移除擷取單元。

Open Metrics API說明

以下是可用來從Astra Data Store收集度量的API清單。

- 「說明」行說明指標。
- 「類型」行指出度量是量表還是計數器。
- # HELP astrads cluster capacity logical percent Percentage cluster logical capacity that is used (0-100)# TYPE astrads cluster capacity logical percent gauge # HELP astrads cluster capacity max logical Max Logical capacity of the cluster in bytes # TYPE astrads cluster capacity max logical gauge # HELP astrads cluster capacity max physical The sum of the space in the cluster in bytes for storing data after provisioning efficiencies, data reduction algorithms and replication schemes are applied # TYPE astrads cluster capacity max physical gauge # HELP astrads cluster capacity ops The IO operations capacity of the cluster # TYPE astrads cluster capacity ops gauge # HELP astrads cluster capacity physical percent The percentage of cluster physical capacity that is used (0-100) # TYPE astrads cluster capacity physical percent gauge # HELP astrads cluster capacity used logical The sum of the bytes of data in all volumes in the cluster before provisioning efficiencies, data reduction algorithms and replication schemes are applied # TYPE astrads cluster capacity used logical gauge # HELP astrads cluster capacity used physical Used Physical capacity of a cluster in bytes # TYPE astrads cluster capacity used physical gauge # HELP astrads cluster other latency The sum of the accumulated latency in seconds for other IO operations of all the volumes in a cluster. Divide by astrads cluster other ops to get the average latency per other operation # TYPE astrads cluster other latency counter # HELP astrads cluster other ops The sum of the other IO operations of all the volumes in a cluster # TYPE astrads cluster other ops counter # HELP astrads cluster read latency The sum of the accumulated latency in seconds of read IO operations of all the volumes in a cluster. Divide by astrads cluster read ops to get the average latency per read operation # TYPE astrads cluster read latency counter # HELP astrads cluster read ops The sum of the read IO operations of all the volumes in a cluster # TYPE astrads cluster read ops counter # HELP astrads cluster read throughput The sum of the read throughput of all the volumes in a cluster in bytes # TYPE astrads cluster read throughput counter # HELP astrads cluster storage efficiency Efficacy of data reduction technologies. (logical used / physical used)

```
# TYPE astrads cluster storage efficiency gauge
# HELP astrads cluster total latency The sum of the accumulated latency in
seconds of all IO operations of all the volumes in a cluster. Divide by
astrads cluster total ops to get average latency per operation
# TYPE astrads cluster total latency counter
# HELP astrads cluster total ops The sum of the IO operations of all the
volumes in a cluster
# TYPE astrads cluster total ops counter
# HELP astrads cluster total throughput The sum of the read and write
throughput of all the volumes in a cluster in bytes
# TYPE astrads cluster total throughput counter
# HELP astrads cluster utilization factor The ratio of the current cluster
IO operations based on recent IO sizes to the cluster iops capacity. (0.0
-1.0)
# TYPE astrads cluster utilization factor gauge
# HELP astrads cluster volume_used The sum of used capacity of all the
volumes in a cluster in bytes
# TYPE astrads cluster volume used gauge
# HELP astrads cluster write latency The sum of the accumulated latency in
seconds of write IO operations of all the volumes in a cluster. Divide by
astrads cluster write ops to get the average latency per write operation
# TYPE astrads cluster write latency counter
# HELP astrads cluster write ops The sum of the write IO operations of all
the volumes in a cluster
# TYPE astrads cluster write ops counter
# HELP astrads cluster write throughput The sum of the write throughput of
all the volumes in a cluster in bytes
# TYPE astrads cluster write throughput counter
# HELP astrads disk base seconds Base for busy, pending and queued.
Seconds since collection began
# TYPE astrads disk base seconds counter
\# HELP astrads disk busy Seconds the disk was busy. 100 *
(astrads disk busy / astrads disk base seconds) = percent busy (0-100)
# TYPE astrads disk busy counter
# HELP astrads disk capacity Raw Capacity of a disk in bytes
# TYPE astrads disk capacity gauge
# HELP astrads disk io pending Summation of the count of pending io
operations for a disk times time. Divide by astrads_disk_base_seconds to
get the average pending operation count
# TYPE astrads disk io pending counter
# HELP astrads disk io queued Summation of the count of queued io
operations for a disk times time. Divide by astrads disk base seconds to
get the average queued operations count
# TYPE astrads disk io queued counter
# HELP astrads disk read latency Total accumulated latency in seconds for
disk reads. Divide by astrads disk read ops to get the average latency per
```

```
read operation
# TYPE astrads disk read latency counter
# HELP astrads disk read ops Total number of read operations for a disk
# TYPE astrads disk read ops counter
# HELP astrads disk read throughput Total bytes read from a disk
# TYPE astrads disk read throughput counter
# HELP astrads disk write latency Total accumulated latency in seconds for
disk writes. Divide by astrads disk write ops to get the average latency
per write operation
# TYPE astrads disk write latency counter
# HELP astrads disk write ops Total number of write operations for a disk
# TYPE astrads disk write ops counter
# HELP astrads disk write throughput Total bytes written to a disk
# TYPE astrads disk write throughput counter
# HELP astrads value scrape duration Duration to scrape values
# TYPE astrads value scrape duration gauge
# HELP astrads volume capacity available The minimum of the available
capacity of a volume and the available capacity of the cluster in bytes
# TYPE astrads volume capacity available gauge
# HELP astrads volume capacity available logical Logical available
capacity of a volume in bytes
# TYPE astrads volume capacity available logical gauge
# HELP astrads volume capacity percent Percentage of volume capacity
available (0-100). (capacity available / provisioned) * 100
# TYPE astrads volume capacity percent gauge
# HELP astrads volume capacity provisioned Provisioned capacity of a
volume in bytes after setting aside the snapshot reserve. (size - snapshot
reserve = provisioned)
# TYPE astrads volume capacity provisioned gauge
# HELP astrads volume capacity size Total capacity of a volume in bytes
# TYPE astrads volume capacity size gauge
# HELP astrads volume capacity snapshot reserve percent Snapshot reserve
percentage of a volume (0-100)
# TYPE astrads volume capacity snapshot reserve percent gauge
# HELP astrads volume capacity snapshot used The amount of volume snapshot
data that is not in the active file system in bytes
# TYPE astrads volume capacity snapshot used gauge
# HELP astrads volume capacity used Used capacity of a volume in bytes.
This is bytes in the active filesystem unless snapshots are consuming more
than the snapshot reserve. (bytes in the active file system + MAX(0,
snapshot used-(snapshot reserve percent/100*size))
# TYPE astrads volume capacity used gauge
# HELP astrads volume other latency Total accumulated latency in seconds
for operations on a volume that are neither read or write. Divide by
astrads volume other ops to get the average latency per other operation
# TYPE astrads volume other latency counter
```

```
# HELP astrads volume other ops Total number of operations for a volume
that are neither read or write
# TYPE astrads volume other ops counter
# HELP astrads volume read latency Total accumulated read latency in
seconds for a volume. Divide by astrads volume read ops to get the average
latency per read operation
# TYPE astrads volume read latency counter
# HELP astrads volume read ops Total number of read operations for a
volume
# TYPE astrads volume read ops counter
# HELP astrads volume read throughput Total read throughput for a volume
in bytes
# TYPE astrads volume read throughput counter
# HELP astrads volume total latency Total accumulated latency in seconds
for all operations on a volume. Divide by astrads volume total ops to get
the average latency per operation
# TYPE astrads volume total latency counter
# HELP astrads volume total ops Total number of operations for a volume
# TYPE astrads volume total ops counter
# HELP astrads volume total throughput Total thoughput for a volume in
bytes
# TYPE astrads volume total throughput counter
# HELP astrads volume write latency Total accumulated write latency in
seconds for volume. Divide by astrads volume write ops to get the average
latency per write operation
# TYPE astrads volume write latency counter
# HELP astrads volume write ops Total number of write operations for a
volume
# TYPE astrads volume write ops counter
# HELP astrads volume write throughput Total write thoughput for a volume
in bytes
# TYPE astrads_volume write throughput counter
```

使用Prometheus和Grafana監控指標

您可以使用Prometheus和Grafana監控Astra Data Store指標。您可以設定Prometheus從Astra Data Store Kubernetes叢集度量端點收集度量、也可以使用Grafana來視覺化度量資料。

您需要的是#8217;需要的是什麼

- 請確定您已在Astra Data Store叢集或其他可與Astra Data Store叢集通訊的叢集上下載並安裝Prometheus 和Grafana套件。請依照正式文件中的指示安裝每個工具:
 - 。"安裝Prometheus"
 - 。"安裝Grafana"
- Prometheus和Grafana需要能夠與Astra Data Store Kubernetes叢集通訊。如果未在Astra Data Store叢集上 安裝Prometheus和Grafana、您必須確保它們能與Astra Data Store叢集上執行的度量服務通訊。

設定Prometheus

Astra Data Store在Kubernetes叢集中的TCP連接埠9341上提供度量服務。您必須設定Prometheus、才能從此服務收集指標。

步驟

- 1. 編輯Prometheus安裝的「Prometheus.yml」組態檔案。
- 2. 新增指向Astra Data Store服務名稱及其連接埠的服務目標。例如:

```
scrape_configs:
static_configs:
- targets: ['astrads-metrics-service.astrads-system:9341']
```

3. 啟動Prometheus服務。

設定Grafana

您可以設定Grafana以顯示Prometheus收集的指標。

步驟

- 1. 編輯Grafana安裝的「datasourses.yaml」組態檔。
- 2. 將Prometheus新增為資料來源。例如:

```
apiVersion: 1

datasources:
    - name: astradatastore-prometheus
    type: prometheus
    access: proxy
    url: http://localhost:9090
    jsonData:
        manageAlerts: false
```

- 3. 啟動Grafana服務。
- 4. 請依照Grafana文件中的指示進行 "開始使用"。

匯入Grafana儀表板範本

您下載以安裝Astra Data Store的套裝組合檔案包含Grafana儀表板範本檔案、可從Grafana匯入。這些儀表板範本可協助您查看Astra Data Store提供的度量類型、以及如何檢視這些資料。

步驟

- 1. 開啟Astra Data Store「.tar.gz」套裝組合。
- 2. 開啟「manifest」目錄。

- 3. 擷取「grafana cluster·json」和「grafana volume·json」檔案。
- 4. 使用Grafana網路UI、"將儀表板範本檔案匯入至Grafana"。

設定及監控事件記錄

若要監控事件管理系統(EMS)記錄、您可以執行下列高層級工作:

- [Configure monitoring in the Astra Data Store cluster custom resource (CR)]
- [Set up Cloud Insights]
- [Stream event logs to Elastic] •

在Astra Data Store叢集自訂資源(CR)中設定監控

如果尚未在Astra Data Store叢集CR上設定監控選項、您可以使用「astrads」擴充功能來設定。

輸入:

kubectl astrads monitoring setup -n <NAMESPACE OF AGENT INSTALLED> -r
<DOCKER REPO TO FIND FLUENT/TELEGRAF ETC IMAGES>

其中:

- 安裝代理程式的命名空間:輸入監控代理程式的命名空間、這是監控操作員監控NetApp CR的預設名稱。
- 您可以選擇在Docker登錄中設定Fluent或Telegraf影像所在的位置。根據預設、路徑會設為「docker.repo.eng.netapp.com/global/astra`」、您可以變更此路徑。

設定Cloud Insights 功能

若要檢視記錄、Cloud Insights 可選用設定功能不需使用;不過、使用Cloud Insights 畫面來檢視資料是很有幫助的。請參閱 "如何設定NetApp Cloud Insights 解決方案" 適用於Astra Data Store。

串流事件記錄至Elastic

若要將EMS事件和其他Pod記錄串流至第三方端點(例如Elastic)、請使用「astrads」延伸功能。

輸入:

kubectl astrads monitoring --host <ELASTIC HOST NAME> --port <ELASTIC HOST
PORT> es



彈性主機名稱可以是IP位址。

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