# Load Balancing INFINITT PACS

Version 1.2.0



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# 1. About this Guide

This guide details the steps required to configure a load balanced INFINITT PACS environment utilizing Loadbalancer.org appliances. It covers the configuration of the load balancers and also any INFINITT PACS configuration changes that are required to enable load balancing.

For more information about initial appliance deployment, network configuration and using the Web User Interface (WebUI), please also refer to the Administration Manual.

# 2. Loadbalancer.org Appliances Supported

All our products can be used with INFINITT PACS. For full specifications of available models please refer to https://www.loadbalancer.org/products/enterprise.

Some features may not be available or fully supported in all cloud platforms due to platform specific limitations. For more details, please refer to the "Main Differences to our Standard (Non-Cloud) Product" section in the appropriate cloud platform Quick Start Guide or check with Loadbalancer.org support.

# 3. Software Versions Supported

### 3.1. Loadbalancer.org Appliance

• V8.9.1 and later

	The screenshots used throughout this document aim to track the latest Loadbalancer.org
8 Note	software version. If you're using an older version, or the very latest, the screenshots presented
	here may not match your WebUI exactly.

### **3.2. INFINITT PACS**

• All versions

# 4. INFINITT PACS

INFINITT PACS is an award-winning, web-based image management system. It provides a streamlined reading work-flow and scalable and expandable architecture, as well as optional virtualized server architecture for highest availability and disaster recovery.

# **5. Load Balancing INFINITT PACS**

NoteIt's highly recommended that you have a working INFINITT PACS environment first before<br/>implementing the load balancer.

### 5.1. Load Balancing & HA Requirements

The function of the load balancer is to distribute inbound connections across a cluster of INFINITT PACS nodes,



to provide a highly available and scalable service. Five virtual services are used to load balance the different aspects of INFINITT PACS.

### 5.2. Persistence (aka Server Affinity)

All virtual services (VIPs) should be configured to use source IP address-based server affinity in order to function correctly.

For the INFINITT PACS Web VIP, HTTP cookie-based persistence can be used in combination with source IP address. This means that, in the event that the HTTP cookie persistence method should fail, persistence will fall back to using source IP addresses.

### 5.3. Virtual Service (VIP) Requirements

To provide load balancing and HA for INFINITT PACS, the following VIPs are required:

- INFINITT Web
- DICOM
- QUERY
- MWL
- INFINITT Check

### 5.4. Port Requirements

The following table shows the ports that are load balanced:

Port	Protocols	Use
80	TCP/HTTP	Web Portal Access
104	TCP/DICOM	DICOM Communication
105	TCP/DICOM	DICOM Query Communication
137	UDP/NetBIOS	NetBIOS Name Service for Health Checking
204	ТСР	Modality Worklist Communication

### 5.5. Health Checks

The INFINITT Web service uses the *Negotiate HTTP (HEAD)* health check to confirm in a meaningful way that both the TCP port and the web service itself are running and accessible. The remaining virtual services use the *Connect to Port* health check.

A dedicated "INFINITT Check" virtual service is used to pass client NetBIOS name service health checks through to the back end INFINITT PACS servers.

# 6. Deployment Concept





VIP = **V**irtual **IP** Address

	The load balancer can be deployed as a single unit, although Loadbalancer.org recommends a
<u> </u>	clustered pair for resilience & high availability. Please refer to the section Configuring HA -
	Adding a Secondary Appliance in the appendix for more details on configuring a clustered pair.

# 7. Loadbalancer.org Appliance – the Basics

### 7.1. Virtual Appliance

A fully featured, fully supported 30 day trial is available if you are conducting a PoC (Proof of Concept) deployment. The VA is currently available for VMware, Virtual Box, Hyper-V, KVM, XEN and Nutanix AHV and has been optimized for each Hypervisor. By default, the VA is allocated 2 vCPUs, 4GB of RAM and has a 20GB virtual disk. The Virtual Appliance can be downloaded here.

8 Note	The same download is used for the licensed product, the only difference is that a license key file (supplied by our sales team when the product is purchased) must be applied using the appliance's WebUI.
ំ Note	Please refer to Virtual Appliance Installation and the ReadMe.txt text file included in the VA download for additional information on deploying the VA using the various Hypervisors.
ំ Note	The VA has 4 network adapters. For VMware only the first adapter ( <b>eth0</b> ) is connected by default. For HyperV, KVM, XEN and Nutanix AHV all adapters are disconnected by default. Use the network configuration screen within the Hypervisor to connect the required adapters.

### 7.2. Initial Network Configuration

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After boot up, follow the instructions on the appliance console to configure the management IP address, subnet mask, default gateway, DNS servers and other network and administrative settings.

(!) Important Be sure to set a secure password for the load balancer, when prompted during the setup routine.

### 7.3. Accessing the Appliance WebUI

The WebUI is accessed using a web browser. By default, users are authenticated using Apache authentication. Users can also be authenticated against LDAP, LDAPS, Active Directory or Radius - for more information, please refer to External Authentication.

<b>Note</b> There are certain differences when accessing the WebUI for the cloud appliances please refer to the relevant Quick Start / Configuration Guide.	. For details,
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#### 1. Using a browser, navigate to the following URL:

#### https://<IP-address-configured-during-the-network-setup-wizard>:9443/lbadmin/

ំ Note	You'll receive a warning about the WebUI's SSL certificate. This is due to the default self signed certificate that is used. If preferred, you can upload your own certificate - for more information, please refer to Appliance Security Features.
ំ Note	If you need to change the port, IP address or protocol that the WebUI listens on, please refer to Service Socket Addresses.

#### 2. Log in to the WebUI using the following credentials:

#### Username: loadbalancer

Password: <configured-during-network-setup-wizard>

1 Note To change the password, use the WebUI menu option: *Maintenance > Passwords*.

Once logged in, the WebUI will be displayed as shown below:

#### IL LOADBALANCER

#### Enterprise VA Max

	Primary Secondary Active Passive Link 85
em Overview	
Configuration	WARNING: YOUR TRIAL IS DUE TO EXPIRE IN 30 DAYS.
Configuration	Buy with confidence. All purchases come with a 90 day money back guarantee.
nce	
uration	вий иом
	System Overview 2025-05-08 12:37:2
	Would you like to run the Setup Wizard?
	Accept Dismiss
	Network Bandwidth         100 k           200 k         150 k           21 100 k         100 k
	Image: Solution of the second seco
	System Load Average
	Im average       0.00 Min,       0.08 Avg,       0.68 Max         5m average       0.00 Min,       0.04 Avg,       0.30 Max         15m average       0.00 Min,       0.02 Avg,       0.12 Max
	Memory Usage

3. You'll be asked if you want to run the Setup Wizard. Click **Dismiss** if you're following a guide or want to configure the appliance manually. Click **Accept** to start the Setup Wizard.

និ Note	The Setup Wizard can only be used to configure Layer 7 services.	
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#### 7.3.1. Main Menu Options

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System Overview - Displays a graphical summary of all VIPs, RIPs and key appliance statistics
Local Configuration - Configure local host settings such as IP address, DNS, system time etc.
Cluster Configuration - Configure load balanced services such as VIPs & RIPs
Maintenance - Perform maintenance tasks such as service restarts and creating backups
View Configuration - Display the saved appliance configuration settings
Reports - View various appliance reports & graphs
Logs - View various appliance logs
Support - Create a support download, contact the support team & access useful links

Live Chat - Start a live chat session with one of our Support Engineers

### 7.4. Appliance Software Update

We recommend that the appliance is kept up to date to ensure that you benefit from the latest bug fixes, security updates and feature improvements. Both online and offline update are supported.

ဒီ Note	For full details, please refer to Appliance Software Update in the Administration Manual.
8 Note	Services may need to be restarted/reloaded after the update process completes or in some cases a full appliance restart may be required. We therefore recommend performing the update during a maintenance window.

#### 7.4.1. Online Update

The appliance periodically contacts the Loadbalancer.org update server (**update.loadbalancer.org**) and checks for updates. This is the default behavior and can be disabled if preferred. If an update is found, a notification similar to the example below will be displayed at the top of the WebUI:

Information: Upda	te 8.13.1 is now available for this app	bliance.	
Online Update			

Click **Online Update**. A summary of all new features, improvements, bug fixes and security updates included in the update will be displayed. Click **Update** at the bottom of the page to start the update process.

(!) Important Do not navigate away whilst the update is ongoing, this may cause the update to fail.

The update can take several minutes depending on download speed and upgrade version. Once complete, the following message will be displayed:



If services need to be reloaded/restarted or the appliance needs a full restart, you'll be prompted accordingly.

#### 7.4.2. Offline Update

If the appliance does not have access to the Internet, offline update can be used.

To check for the latest version, please refer to our product roadmap page available here. To obtain the latest offline update files contact support@loadbalancer.org.

To perform an offline update:

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- 1. Using the WebUI, navigate to: *Maintenance > Software Update*.
- 2. Select Offline Update.
- 3. The following screen will be displayed:

#### Software Update

#### Offline Update

The following steps will lead you through offline update.

- 1. Contact Loadbalancer.org support to obtain the offline update archive and checksum.
  - 2. Save the archive and checksum to your local machine.
  - 3. Select the archive and checksum files in the upload form below.
- 4. Click Upload and Install to begin the update process.

Archive: Choose File No file chosen Checksum: Choose File No file chosen

Upload and Install

- 4. Select the Archive and Checksum files.
- 5. Click Upload and Install.
- 6. If services need to be reloaded/restarted or the appliance needs a full restart, you'll be prompted accordingly.

### 7.5. Ports Used by the Appliance

By default, the appliance uses the following TCP & UDP ports:

Protocol	Port	Purpose
ТСР	22 *	SSH
TCP & UDP	53 *	DNS / GSLB
TCP & UDP	123	NTP
TCP & UDP	161 *	SNMP
UDP	6694	Heartbeat between Primary & Secondary appliances in HA mode
ТСР	7778	HAProxy persistence table replication
ТСР	9000 *	Gateway service (Centralized/Portal Management)
ТСР	9080 *	WebUI - HTTP (disabled by default)
ТСР	9081 *	Nginx fallback page
ТСР	9443 *	WebUI - HTTPS
ТСР	25565 *	Shuttle service (Centralized/Portal Management)

8 Note

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The ports used for SSH, GSLB, SNMP, the WebUI, the fallback page, the gateway service and the shuttle service can be changed if required. For more information, please refer to Service Socket

### 7.6. HA Clustered Pair Configuration

Loadbalancer.org recommend that load balancer appliances are deployed in pairs for high availability. In this guide a single unit is deployed first, adding a secondary unit is covered in the section Configuring HA - Adding a Secondary Appliance of the appendix.

# 8. Appliance Configuration for INFINITT PACS

### 8.1. The Duplicate Service Function

The instructions throughout this section make use of the *Duplicate Service* function. This allows an existing virtual service to be "duplicated", along with all real servers associated to that service. This can save a considerable amount of time when configuring the load balancer to work with a product like INFINITT PACS, where multiple virtual services are required which all share the same pool of back end servers.

# ▲ Warning Care must be taken as the Duplicate Service function is a double-edged sword: configuration errors can easily propagate throughout an entire deployment. A misconfigured virtual service that is "duplicated" can spread misconfiguration throughout the whole setup.

### 8.2. Configuring VIP 1 – INFINITT Web

#### 8.2.1. Configuring the Virtual Service (VIP)

- Using the web user interface, navigate to *Cluster Configuration > Layer 7 Virtual Services* and click on Add a new Virtual Service.
- 2. Define the *Label* for the virtual service as required, e.g. **INFINITT\_Web**.
- 3. Set the Virtual Service IP Address field to the required IP address, e.g. 192.168.85.150.
- 4. Set the *Ports* field to 80.

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- 5. Set the Layer 7 Protocol to HTTP Mode.
- 6. Click Update to create the virtual service.

#### Layer 7 - Add a new Virtual Service

Virtual Service		[Advanced +]	
Label	INFINITT_Web		?
IP Address	192.168.85.150		?
Ports	80		?
Protocol			
Layer 7 Protocol	HTTP Mode 🗸		?
		Cancel	Undate

- 7. Click Modify next to the newly created VIP.
- 8. Set Persistence Mode to HTTP Cookie and Source IP.
- 9. Set Health Checks to Negotiate HTTP (HEAD).
- 10. Leave *Request to send* empty as the load balancer will by default look for a "200 OK" response, which is desired in this instance.

#### 11. Click Update.

Persistence		[Advanced +]	
Persistence Mode	HTTP Cookie and Source IP 🔹 🗸		?
HTTP Cookie Name	SERVERID		8
Health Checks		[Advanced +]	
Health Checks	Negotiate HTTP (HEAD)		?
Request to send			?

#### 8.2.2. Defining the Real Servers (RIPs)

- Using the web user interface, navigate to *Cluster Configuration > Layer 7 Real Servers* and click on Add a new Real Server next to the newly created VIP.
- 2. Define the *Label* for the real server as required, e.g. **INF\_PACS1**.
- 3. Set the Real Server IP Address field to the required IP address, e.g. 192.168.85.200.
- 4. Click Update.

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5. Repeat these steps to add additional INFINITT PACS nodes as real servers as required.

#### Layer 7 Add a new Real Server - INFINITT\_Web

Label	INF_PACS1	0
Real Server IP Address	192.168.85.200	0
Real Server Port		0
Re-Encrypt to Backend		0
Enable Redirect		0
Weight	100	0
		Canaal

### 8.3. Configuring VIP 2 - DICOM

#### 8.3.1. Configuring the Virtual Service (VIP)

- Using the web user interface, navigate to *Cluster Configuration > Layer 7 Virtual Services* and click Modify next to the previously created <u>INFINITT Web</u> VIP.
- 2. Click Duplicate Service and confirm when prompted.



- 3. Define the Label for the new virtual service as required, e.g. DICOM.
- 4. Set the Virtual Service IP Address field to the required IP address, e.g. 192.168.85.150.
- 5. Set the *Ports* field to **104**.

#### Layer 7 - Modify Virtual Service

Virtual Service		[Advanced +]
Label	DICOM	0
IP Address	192.168.85.150	0
Ports	104	0

- 6. Set *Persistence Mode* to **Source IP**.
- 7. Set *Health Checks* to **Connect to port**.
- 8. Set the Layer 7 Protocol to TCP Mode.

Protocol		[Advanced +]
Layer 7 Protocol	TCP Mode 🗸	?
Connection Distribution Method		
Balance Mode	Weighted Least Connections $$	?
Persistence		[Advanced +]
Persistence Mode	Source IP 🗸	?
Health Checks		[Advanced +]
Health Checks	Connect to port 🗸 🗸	?

It is **important to verify** that the *Persistence Mode, Health Checks*, and *Layer 7 Protocol* have been correctly set. If these steps are skipped then these configuration errors will propagate throughout the rest of the configuration.

9. Click Update.

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A Caution

### 8.4. Configuring VIP 3 – QUERY

#### 8.4.1. Configuring the Virtual Service (VIP)

- Using the web user interface, navigate to *Cluster Configuration > Layer 7 Virtual Services* and click Modify next to the previously created <u>DICOM</u> VIP.
- 2. Click **Duplicate Service** and confirm when prompted.

**Duplicate Service** 

- 3. Define the Label for the new virtual service as required, e.g. QUERY.
- 4. Set the Virtual Service IP Address field to the required IP address, e.g. 192.168.85.150.
- 5. Set the *Ports* field to **105**.
- 6. Click Update.

#### Layer 7 - Modify Virtual Service

Virtual Service		[Advanced +]
Label	QUERY	0
IP Address	192.168.85.150	0
Ports	105	0

### 8.5. Configuring VIP 4 - MWL

#### 8.5.1. Configuring the Virtual Service (VIP)

- Using the web user interface, navigate to *Cluster Configuration > Layer 7 Virtual Services* and click Modify next to the previously created <u>QUERY</u> VIP.
- 2. Click Duplicate Service and confirm when prompted.

**Duplicate Service** 

- 3. Define the *Label* for the new virtual service as required, e.g. MWL.
- 4. Set the Virtual Service IP Address field to the required IP address, e.g. 192.168.85.150.
- 5. Set the *Ports* field to **204**.
- 6. Click Update.

#### Layer 7 - Modify Virtual Service

Virtual Service		[Advanced +]
Label	MWL	•
IP Address	192.168.85.150	•
Ports	204	0

### 8.6. Configuring VIP 5 – INFINITT Check

#### 8.6.1. Configuring the Virtual Service (VIP)

- Using the web user interface, navigate to *Cluster Configuration > Layer 4 Virtual Services* and click on Add a new Virtual Service.
- 2. Define the *Label* for the virtual service as required, e.g. **INFINITT\_Check**.
- 3. Set the Virtual Service IP Address field to the required IP address, e.g. 192.168.85.150.

- 4. Set the Ports field to 137.
- 5. Set the *Protocol* to **TCP/UDP**.
- 6. Leave the *Forwarding Method* set to **SNAT**.
- 7. Click **Update** to create the virtual service.

#### Layer 4 - Add a new Virtual Service

Virtual Service			
Label	INFINITT_Check		9
IP Address	192.168.85.150		9
Ports	137		•
Protocol			
Protocol	TCP/UDP V		?
Forwarding			
Forwarding Method	SNAT 🗸		?
		Cancel	Update

#### 8.6.2. Defining the Real Servers (RIPs)

- Using the web user interface, navigate to *Cluster Configuration > Layer 4 Real Servers* and click on Add a new Real Server next to the newly created VIP.
- 2. Define the *Label* for the real server as required, e.g. **INF\_PACS1**.
- 3. Set the Real Server IP Address field to the required IP address, e.g. 192.168.85.200.
- 4. Click Update.

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5. Repeat these steps to add additional INFINITT PACS nodes as real servers as required.

#### Layer 4 Add a new Real Server - INFINITT\_Check

Label	INF_PACS1	0	
Real Server IP Address	192.168.85.200	0	
Real Server Port		0	
Weight	100	0	
Minimum Connections	0	0	
Maximum Connections	0	0	
		Cancel Updat	te

### 8.7. Finalizing the Configuration

To apply the new settings, HAProxy must be reloaded. This can be done using the button in the "Commit changes" box at the top of the screen or by using the *Restart Services* menu option:

- 1. Using the WebUI, navigate to: Maintenance > Restart Services.
- 2. Click Reload HAProxy.

## 9. Testing & Verification

8 Note For additional guidance on diagnosing and resolving any issues you may have, please also refer to Diagnostics & Troubleshooting.

### 9.1. Using System Overview

The System Overview can be viewed in the WebUI. It shows a graphical view of all VIPs & RIPs (i.e. the INFINITT PACS nodes) and shows the state/health of each server as well as the state of the each cluster as a whole. The example below shows that all INFINITT PACS nodes are healthy and available to accept connections:

#### System Overview 👔

2023-06-02 17:40:41 UTC

	VIRTUAL SERVICE 🗢	IP 🖨	PORTS 🗢	CONNS 🗢	PROTOCOL 🗢	METHOD	♦ MODE ♦	
<b>†</b>	INFINITT_Check	192.168.85.150	137	0	TCPUDP	Layer 4	SNAT	8.41
	REAL SERVER	IP	PORTS	WEIGHT	CONNS			
+	INF_PACS1	192.168.85.200	137	100	0	Drain	Halt	8.11
<b>+</b>	INF_PACS2	192.168.85.201	137	100	0	Drain	Halt	8.41
+	INF_PACS3	192.168.85.202	137	100	0	Drain	Halt	8.41
<b>•</b>	INFINITT_Web	192.168.85.150	80	0	НТТР	Layer 7	Proxy	1.11
	REAL SERVER	IP	PORTS	WEIGHT	CONNS			
+	INF_PACS1	192.168.85.200	80	100	0	Drain	Halt	8.48
+	INF_PACS2	192.168.85.201	80	100	0	Drain	Halt	8.41
+	INF_PACS3	192.168.85.202	80	100	0	Drain	Halt	8.41
	DICOM	192,168,85,150	104	0	TCP	Laver 7	Proxy	la.al
	REAL SERVER	IP	PORTS	WEIGHT	CONNS	Lujery	. roxy	
+	INF_PACS1	192.168.85.200	104	100	0	Drain	Halt	8.41
+	INF_PACS2	192.168.85.201	104	100	0	Drain	Halt	8.11
+	INF_PACS3	192.168.85.202	104	100	0	Drain	Halt	8.4
•	OUERY	192.168.85.150	105	0	ТСР	Laver 7	Proxv	10.10
	REAL SERVER	IP	PORTS	WEIGHT	CONNS	,		
+	INF_PACS1	192.168.85.200	105	100	0	Drain	Halt	8.11
+	INF_PACS2	192.168.85.201	105	100	0	Drain	Halt	8.11
+	INF_PACS3	192.168.85.202	105	100	0	Drain	Halt	8.41
•	MWL	192.168.85.150	204	0	ТСР	Layer 7	Proxy	10.11
	REAL SERVER	IP	PORTS	WEIGHT	CONNS			
+	INF_PACS1	192.168.85.200	204	100	0	Drain	Halt	8.11
+	INF_PACS2	192.168.85.201	204	100	0	Drain	Halt	8.41
1	INF_PACS3	192.168.85.202	204	100	0	Drain	Halt	8.4

# 10. Technical Support

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For more details about configuring the appliance and assistance with designing your deployment please don't hesitate to contact the support team using the following email address: support@loadbalancer.org.

# 11. Further Documentation

For additional information, please refer to the Administration Manual.

## 12. Appendix

### 12.1. Configuring HA - Adding a Secondary Appliance

Our recommended configuration is to use a clustered HA pair of load balancers to provide a highly available and resilient load balancing solution. We recommend that the Primary appliance is fully configured first, then the Secondary appliance can be added to create an HA pair. Once the HA pair is configured, load balanced services must be configured and modified on the Primary appliance. The Secondary appliance will be automatically kept in sync.

និ Note	For Enterprise Azure, the HA pair should be configured first. For more information, please refer
	to the Azure Quick Start/Configuration Guide available in the documentation library

The clustered HA pair uses Heartbeat to determine the state of the other appliance. Should the active device (normally the Primary) suffer a failure, the passive device (normally the Secondary) will take over.

### 12.1.1. Non-Replicated Settings

A number of settings are not replicated as part of the Primary/Secondary pairing process and therefore must be manually configured on the Secondary appliance. These are listed by WebUI menu option in the table below:

WebUI Main Menu Option	Sub Menu Option	Description
Local Configuration	Hostname & DNS	Hostname and DNS settings
Local Configuration	Network Interface Configuration	Interface IP addresses, bonding configuration and VLANs
Local Configuration	Routing	Default gateways and static routes
Local Configuration	System Date & time	Time and date related settings
Local Configuration	Physical – Advanced Configuration	Various appliance settings
Local Configuration	Portal Management	Portal management settings
Local Configuration	Security	Security settings
Local Configuration	SNMP Configuration	SNMP settings
Local Configuration	Graphing	Graphing settings
Local Configuration	License Key	Appliance licensing
Maintenance	Backup & Restore	Local XML backups
Maintenance	Software Updates	Appliance software updates
Maintenance	Fallback Page	Fallback page configuration
Maintenance	Firewall Script	Firewall (iptables) configuration
Maintenance	Firewall Lockdown Wizard	Appliance management lockdown settings

#### 12.1.2. Configuring the HA Clustered Pair

8 Noto	If you have already run the firewall lockdown wizard on either appliance, you'll need to ensure
a mole	that it is temporarily disabled on both appliances whilst performing the pairing process.

- 1. Deploy a second appliance that will be the Secondary and configure initial network settings.
- 2. Using the WebUI on the Primary appliance, navigate to: *Cluster Configuration > High-Availability Configuration*.

Create a Clustered Pair	
	Local IP address
	192.168.110.40 ~
	IP address of new peer
	192.168.110.41
	Password for loadbalancer user on peer
	•••••
	Add new node

- 3. Specify the IP address and the *loadbalancer* user's password for the Secondary (peer) appliance as shown in the example above.
- 4. Click Add new node.

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**Create a Clustered Pair** 

5. The pairing process now commences as shown below:

IL LOADBALANCER Primary	Local IP address	
,	192.168.110.40 🗸	
<b>IP:</b> 192.168.110.40	IP address of new peer	
Attempting to pair	192.168.110.41	
	Password for loadbalancer user on peer	
LUADBALANCER Secondary	••••••	
IP: 192 168 110 41		
1.192.100.110.41	configuring	

6. Once complete, the following will be displayed on the Primary appliance:

#### High Availability Configuration - primary

바 LOADBALANCER	Primary	Break Clustered Pair
	<b>IP:</b> 192.168.110.40	
바 LOADBALANCER	Secondary	
	<b>IP:</b> 192.168.110.41	

7. To finalize the configuration, restart heartbeat and any other services as prompted in the "Commit changes" message box at the top of the screen.

8 Note	Clicking the <b>Restart Heartbeat</b> button on the Primary appliance will also automatically restart heartbeat on the Secondary appliance.
8 Note	For more details on configuring HA with 2 appliances, please refer to Appliance Clustering for HA.
ំ Note	For details on testing and verifying HA, please refer to Clustered Pair Diagnostics.



# 13. Document Revision History

Version	Date	Change	Reason for Change	Changed By
1.0.0	17 December 2019	Initial version		IBG
1.0.1	1 September 2020	New title page	Branding update	АН
		Updated Canadian contact details	Change to Canadian contact details	
1.1.0	20 April 2023	Converted the document to AsciiDoc Significant updates to bring the document into line with current documentation	Document updates required moving it to the new documentation	АН
		format New document theme	system Branding update	
		Modified diagram colours		
1.2.0	5 June 2023	Added new "INFINITT Check" virtual service Rewrote the load balancer configuration	Support load balancing the latest versions of INFINITT PACS	AH
		instructions to make use of the duplicate service feature	Save time during load balancer	
		Retook all screenshots	configuration by duplicating services	
			Refresh document with new branding across all screenshots	

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