Tech Note 368 Network Setup for AppEngine Redundancy

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Introduction

This *Tech Note* explains the necessary network settings for the **Redundancy Message Channel (RMC)** for a redundant AppEngine configuration.

Network Setup for PCs Hosting a Redundancy-Enabled AppEngine

Each production system computer hosting a redundancy-enabled AppEngine must have a minimum of two network cards per computer.

The first card is for the supervisory network and the second one is for the **RMC** network (Redundancy Message Channel).

The RMC network is dedicated for redundancy monitoring and data synchronization between redundant AppEngine pairs.

It is setup with an Ethernet crossover cable between two computers (Figure 1 below).



FIGURE 1: REDUNDANCY MESSAGE CHANNEL (RMC) DEPLOYMENT

Detailed Setup

The following steps explain the network configuration setup for a PC hosting redundancy enabled AppEngine.

These steps are recorded using Windows 2003 Server Operating System and apply to other operating systems as well.

- 1. From the windows Taskbar, select **Start/All Programs/Accessories/CommandPrompt.**
- 2. Enter **ipconfig** at the command prompt and press **Enter**.

The Command Prompt returns the IP settings for both Ethernet connections (Figure 2 below):



FIGURE 2: COMMAND PROMPT AND MESSAGE

- 3. Document the Local Area Connection numbers along with IP Addresses to identify the **Primary** and **RMC** networks.
- 4. Select Start/Settings/Network Connections.
- 5. Select Local Area Connection in the Network Connections dialog box.
- 6. Right-click and rename each Local Area Connection Number to **Primary-** and **RMC Networks** as appropriate (Figure 3 below):



FIGURE 3: RENAME LOCAL AREA CONNECTIONS

- 7. Select **Advanced/Advanced Settings** from the main menu.
- 8. Set the binding order to ensure **Primary Network** is the first to be accessed by network services (Figure 4 below):



FIGURE 4: PRIMARY NETWORK ORDER

9. Click **OK** to exit the **Advanced Settings** dialog box.

Ensure the **Network Connections** window is still open.

10. Right-click on **Primary Network** and select **Properties**.

The **Primary Network Properties** dialog box appears (Figure 5 below):

上 Primary Network Properties 🔋 🤰	×
General Authentication Advanced	
Connect using:	
Intel(R) PR0/1000 MT Network Connection	
<u>C</u> onfigure	l
This connection uses the following items:	L
File and Printer Sharing for Microsoft Networks Feliable Multicast Protocol	
Internet Protocol (TCP/IP)	
	L
Install Uninstall Properties	
Description	L
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.	
Sho <u>w</u> icon in notification area when connected	
	1
OK Cancel	

FIGURE 5: PRIMARY NETWORK PROPERTIES DIALOG BOX

11. Select Internet Protocol (TCP/IP) and click the Properties button.

The **Primary** network may be configured to obtain dynamic or Static IP Addresses (Figure 6 below):

Internet Protocol (TCP/IP) Properties						
General Alternate Configuration						
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.						
Obtain an IP address automatic	cally					
$\square^{igodoldsymbol{C}}$ Use the following IP address:—						
IP address:						
Sybnet mask:						
Default gateway:	· · · ·					
Obtain DNS server address automatically						
© Use the following DNS server addresses:						
Preferred DNS server:						
<u>A</u> lternate DNS server:	· · · · ·					
Ad <u>v</u> anced						
	OK Cancel					

FIGURE 6: DYNAMIC OR STATIC IP SETTINGS

12. Click the **Advanced** button.

The **Advanced TCP/IP Setting** dialog box apppears (Figure 7 below):

Advanced TCP/I	P Settings		? ×
IP Settings DN	5 WINS Option	s	
IP addresses			
IP address		Subnet mask	
DHCP Enat	bled		
	<u>A</u> dd	Edit	Remoye
Default gate	vays:		
Gateway		Metric	
	A <u>d</u> d	Edi <u>t</u> ,	Remove
Automati	: metric		
I <u>n</u> terface me	etric:		
		ОК	Cancel

FIGURE 7: ADVANCED TCP/IP SETTINGS

- 13. Select the **DNS** tab.
- 14. Verify that the **Register this connection's addresses in DNS** option is selected and that the other settings are consistent (Figure 8 below):

Advanced TCP/IP Settings			
IP Settings DNS WINS Options			
DNS server addresses, in order of use:			
Add Edit Remo <u>v</u> e			
The following three settings are applied to all connections with TCP/IP enabled. For resolution of unqualified names:			
 Append primary and connection specific DNS suffixes Append parent suffixes of the primary DNS suffix 			
Append these DNS suffixes (in order):			
t			
Ŧ			
A <u>d</u> d Edi <u>t</u> Re <u>m</u> ove			
DNS suffix for this connection:			
 <u>Register this connection's addresses in DNS</u> <u>Use this connection's DNS suffix in DNS registration</u> 			
OK Cancel			

FIGURE 8: DNS SETTINGS

15. Click **OK** to save the settings and exit the dialog box.

Ensure the **Network Settings** window is still open.

16. Right-click **RMC Network** and select **Properties**.

The **RMC Network Properties** dialog appears (Figure 9 below):

🚣 RMC Network Properties 🔋 🕺				
General Authentication Advanced				
Connect using:				
Intel 8255x-based PCI Ethernet Adapter (10/100)				
<u>Configure</u> This connection uses the following items:				
 ✓ Pile and Printer Sharing for Microsoft Networks ✓ The Reliable Multicast Protocol ✓ The Internet Protocol (TCP/IP) 				
I <u>n</u> stall <u>U</u> ninstall P <u>r</u> operties				
Description Allows your computer to access resources on a Microsoft network. Sho <u>w</u> icon in notification area when connected				
OK Cancel				

FIGURE 9: RMC NETWORK PROPERTIES

- 17. Select Internet Protocol (TCP/IP).
- 18. Select **Properties**.

The **RMC Network** must be configured for **static** IP Address (Figure 10 below).

Note: Consult your Network Administrator for IP Address and Subnet Mask values.

Internet Protocol (TCP/IP) Properties				
General				
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.				
C Obtain an IP address automatically				
• Use the following IP address:				
IP address:	192 . 168 . 77 . 101			
S <u>u</u> bnet mask:	255 . 255 . 255 . 0			
Default gateway:	· · ·			
C Obtain DNS server address automatically				
	resses:			
Preferred DNS server:	· · ·			
<u>A</u> lternate DNS server:				
Ad <u>v</u> anced				
	OK Cancel			

FIGURE 10: STATIC IP ADDRESS CONFIGURATION

19. Click the **Advanced** button.

The Advanced TCP/IP Settings dialog box appears:

Advanced TCP/IP Sett	tings			? ×
IP Settings DNS V	VINS Options	1		
TP addresses				
				-
IP address	IP address Subnet mask			
192.168.77.101		255.255.255.0		
	<u>A</u> dd	<u>E</u> dit	Remo <u>v</u> e	
Default gateways:				
Gateway		Metric		
	A <u>d</u> d	Edi <u>t</u> ,	Remove	
Automatic metric	c			
Interface metric:]		
		ОК	Car	ncel

FIGURE 11: ADVANCED IP SETTINGS DIALOG BOX

- 20. Select the **DNS** tab.
- 21. Verify that the **Register this connection's Addresses in DNS** checkbox option is **NOT** selected for RMC Network (Figure 12 below):

Advanced TCP/IP 9	5ettings			<u>?</u> ×	
IP Settings DNS	IP Settings DNS WINS Options				
D <u>N</u> S server addre	sses, in order of	use:			
_				t	
	Add	Edit	Remove		
	<u>–</u>	Ealer	Nomoye		
The following thre enabled. For reso	The following three settings are applied to all connections with TCP/IP enabled. For resolution of ungualified names:				
Append prima	ry and connectio	n specific DNS su	uffixes		
🔽 Append p	arent suffi <u>x</u> es of	the primary DNS	5 suffix		
O Append t <u>h</u> ese	DNS suffixes (in	order):			
				t	
				Ŧ	
	A <u>d</u> d	Edi <u>t</u> ,	Re <u>m</u> ove		
DNS suffix for this connection:					
Register this connection's addresses in DNS					
□ Use this connection's DNS suffix in DNS registration					
			ок 📔 с	ancel	

FIGURE 12: DNS SETTINGS

- 22. Click OK.
- 23. Close the **Network Settings** window.

The Redundancy Message Channel (RMC) configuration is now complete.

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