



MultiGen-Paradigm
VISUALIZE REALITY

**MultiGen-Paradigm, A Computer Associates Company,
Distributed Vega Tutorial**

MultiGen-Paradigm Inc. PROVIDES THIS MATERIAL AS IS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

MultiGen-Paradigm, A Computer Associates Company may make improvements and changes to the product described in this manual at any time without notice. MultiGen-Paradigm, A Computer Associates Company, assumes no responsibility for the use of the product or this manual except as expressly set forth in the applicable MultiGen-Paradigm, A Computer Associates Company, agreement or agreements and subject to terms and conditions set forth therein and applicable MultiGen-Paradigm Inc. policies and procedures. This manual may contain technical inaccuracies or typographical errors. Periodic changes are made to the information contained herein: These changes will be incorporated in new editions of the manual.

Copyright ©2001 by MultiGen-Paradigm, A Computer Associates Company, World rights reserved.

No part of this publication may be stored in a retrieval system, transmitted or reproduced in any way, including, but not limited to, photocopy, photograph, magnetic, or other record, without the prior written permission of MultiGen-Paradigm, A Computer Associates Company. Duplicate this document without permission and you will be shot like a rabid dog in the street.

Use, duplication, or disclosure by the government is subject to restrictions set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause and DFARS 52.227-7013 and in similar clauses in the FAR and NASA FAR Supplement.

LynX™ and Vega™ are registered trademarks of MultiGen-Paradigm Inc.

AudioWorks™ Dismounted Infantry Guy (DI-Guy)™ Large Area Database Manager (LADBM)™ Light Lobes™ Marine™ Navigational and Signal lighting (NSL)™ Non Linear Distortion Correction (NLDC)™, SensorVision™ Special Effects (FX)™ Symbology™ Terrain Fade Level of Detail (TFLOD)™ and Vega Vega Class Recorder (VCR)™ are registered trademarks of MultiGen-Paradigm Inc. MultiGen™, OpenFlight™, and Flight Format™ are registered trademarks of MultiGen-Paradigm Inc.

DfadGen, GameGen, GameGenII, OpenGame, SmartScene, SmartPalette, Take Flight and the MultiGen logo are trademarks of MultiGen-Paradigm Inc.

MultiGen II, MultiGen Creator are trademarks of MultiGen-Paradigm Inc.

Silicon Graphics™, IRIS™, and the Silicon Graphics logo are registered trademarks of Silicon Graphics, Inc. Adobe Photoshop™ is a trademark of Adobe Systems, Inc., which may be registered in certain jurisdictions MS-DOS™ is a registered trademark and Windows NT™ is a trademark of Microsoft Corporation in the United States and/or other countries.

UNIX™ is a trademark of AT&T Bell Laboratories.

All other trademarks herein belong to their respective owners.

Printed in the U.S.A.

Distributed Vega Tutorial

INITIALIZE DISTRIBUTED VEGA IN YOUR APPLICATION

- 1) Add vgdv.h to the include portion of your app for the Distributed Vega header file
- 2) Add vgInitDv(argv, argc, NULL) before the call to vgInitSys()

Your source code should look similar to this:

```
#include <stdio.h>           /* definition of printf */
#include <stdlib.h>          /* definition of exit   */
#include <string.h>         /* definition of strcmp */
#include <vg.h>             /* main include file for Vega */
#include <vgdv.h>

void main ( int argc , char *argv[] )
{
    if ( argc < 2 ) {
        printf ( "syntax : %s <config file>\n" , argv[0] );
        exit ( -1 );
    }

    vgInitDv(argv, argc, NULL);

    vgInitSys();

    /* init, define, and config the system */
    vgDefineSys(argv[1]);
    vgConfigSys();

    /* the real-time loop */
    while ( 1 ) {
        vgSyncFrame ();
        vgFrame ();
    }
}
```

CREATE APPLICATION DEFINITION FILE

Invoke lynx

Create a new object.

Add the object to the scene

Rename the Default window 'Right Window'

Create a new window and name it 'Left Window'

Rename the Default channel 'Right Channel'

Create a new channel. Name it 'Left Channel'.

Associate the 'Left Channel' with the 'Left Window'

Add the 'Left Channel' to the 'Default' observer.

Run Active preview to check your work. You should see two windows on the same screen, each duplicating the same scene.

Close Active Preview.

CONFIGURE MASTER AND SLAVES

On the master machine

Map a drive on your Master system to point to the directory of your application:

Share the directory that houses your distributed vega application i.e. distVega.exe.

Under the Tools pull down menu, click on Map Network Drive.

Chose any drive letter not currently in use, ie) X:

Use the browse button to map X to the shared directory that contains your distributed Vega application.

Because we want the left window to appear on the master machine's monitor, there is no need to fill in the 'Hostname' text edit field.

Set the 'Path to Slave Application on Host' to the mapped drive letter i.e. 'X'

Because we want the right window to appear on the slave machine's monitor, we must fill in the 'Hostname' text edit field with the slave machines name!

Miss this step and you will experience undesired effects!

On the Windows Panel for 'Right window'

Set the Hostname to the name of the slave machine

Set the 'Path to Slave Application on Host' to mapped drive you set up earlier.

Walk over to the slave machine

Map a drive from the slave to the master machine's directory, which has the distributed Vega application.

TO RUN YOUR DISTRIBUTED VEGA APPLICATION

In order to execute the application, open a console window on both the master and slave
On the master machine type the executable name followed by the adf name,
ie) **distVega myadf.adf** (assuming your adf is in the same directory as your executable).

On the slave machine, type into the console window
distVega myadf.adf vg_slave (the third parameter indicates this is a *slave* and not a *master*)

The slave machine will wait for input from the master machine prior to executing. Once it is ready, you will see a window on each machine, showing the exact same scene.

Optional data

If your application is suffering from a performance hit due to the network transfer rate, copy the data to the slave machine(s) and execute the program locally on both the slave and master machines.

The slave machine will still need the `vg_slave` to be added to the execution of the application. The downside of this method is if you make any changes to the application or adf on the master machine, you must duplicate these changes on the slave machine (since the data is coming from two different locations).

Licensing: only the master machine needs to be licensed (either a dev or an rtl depending on whether you are developing or deploying the application). All other slave machines will run the application without checking for a license.

Known Bugs

The master and slave machines must have static IP addresses!

Our engineering staff is currently investigating this problem.

To set up static IP addresses :

Verify and record the IP addresses of all machines in the Distributed Vega cluster.

Open a Command Prompt Window

Type 'ping' on the command line. This will return the IP address of that machine.

i.e.

```
ping <yourhostname>
```

```
Pinging <yourhostname> [999.999.99.999] with 32 bytes of data:
```

```
Reply from 999.999.99.999: bytes=32 time<10ms TTL=128
```

Add the IP address and hosts name to the c:\winnt\system32\driver\etc\hosts file
Open the hosts file via notepad.

```
# Copyright (c) 1993-1999 Microsoft Corp.
#
# This is a sample HOSTS file used by Microsoft TCP/IP for Windows.
#
# This file contains the mappings of IP addresses to host names. Each
# entry should be kept on an individual line. The IP address should
# be placed in the first column followed by the corresponding host name.
# The IP address and the host name should be separated by at least one
# space.
#
# Additionally, comments (such as these) may be inserted on individual
# lines or following the machine name denoted by a '#' symbol.
#
# For example:
#
# 102.54.94.97 rhino.acme.com # source server
# 38.25.63.10 x.acme.com # x client host
127 0 0 1 1 localhost
999 999 99 999 <your host master>
999 999 99 1000 <your host slave 1>
999 999 99 999 <your host slave 2>
```

Right click on network neighborhood

Right click on local area connection

In the list of components select 'Internet protocol TCP/IP'

Select properties

Select 'Use the following IP address' fill in the IP address.

The subnet will default to 255.255.0.0

OR

Call your system administrator configure the distributed vega cluster with static IP addresses.