Configuration Examples

This section provides example configurations of Adabas Fastpath with the Adabas System Coordinator. It guides you through typical configurations using the SYSAFP and SYSCOR administration tools. It is best to read through all the examples in turn because the configuration issues become more complex with each example.

- The Role of the Adabas System Coordinator

- Single System with Static Clients

- Multi System with Static Clients

- Single System with Dynamic Transaction Routing Clients

- SYSPLEX with Dynamic Transaction Routing Clients

The Role of the Adabas System Coordinator

The Adabas System Coordinator is a prerequisite technology for Adabas Fastpath, Vista, Transaction Manager and SAF Security. Traditionally these products have focused their functionality and benefit on Adabas client sessions rather than explicitly on Adabas servers. The type of Adabas session that has been required in the past can be described as "static". Static Adabas client sessions are not able to move from one job to another within the system for load balancing purposes (this is called dynamic transaction routing). However, increasing use and requirement is emerging for Adabas clients to be able to support dynamic transaction routing (DTR). One of the main purposes of the Adabas System Coordinator is to provide transparent DTR support for Adabas Fastpath, Adabas Vista, Adabas Transaction Manager and Adabas SAF Security.

These products always use Adabas System Coordinator services to support their clients. Traditional (static) clients only need to use the default (local) mode of Adabas System Coordinator services. In local mode, the Adabas System Coordinator software is embedded in the application job and provides local support for client sessions. However, DTR clients must use the Adabas System Coordinator daemon services to move client sessions around the system. In daemon mode, the local Adabas System Coordinator software works in conjunction with counterparts in the daemon to make sure the client sessions can be dynamically moved around the system. You must control these options by configuration.

Note:
You may also configure static clients to use daemon services if you wish.

The Adabas System Coordinator daemon also provides another service. The daemon is able to run the Adabas Fastpath Asynchronous Buffer Manager (FASTABM). This is totally separate from the clustered application (DTR) services. The following examples are provided for running Adabas Fastpath with the Adabas System Coordinator:

- Single System with Static Clients

  Static client support from the Adabas System Coordinator in local mode. The Adabas System Coordinator daemon is only needed to house the FASTABM service.

- Multi System with Static Clients

  Static client support from the Adabas System Coordinator in local mode. The Adabas System Coordinator daemon is only needed to house the FASTABM service.

- Single System with Dynamic Transaction Routing Clients

  DTR client support from the Adabas System Coordinator in daemon mode. The Adabas System Coordinator daemon is also needed to house the FASTABM service in each system image.

- SYSPLEX with Dynamic Transaction Routing Clients

  DTR client support from the Adabas System Coordinator in daemon mode using the IBM Coupling Facility to enable multi-systems client DTR. The Adabas System Coordinator daemon is also needed to house the FASTABM service in each system image.

Single System with Static Clients

A single system is one in which only one operating system image is used, perhaps in isolation within a larger complex site. In this type of environment, you will need to do the following:

- Obtain a new Node ID from your administrator to use for the Adabas System Coordinator daemon. In this example, Node ID 9001 is used.

- Define the Adabas System Coordinator group. This example shows a group called TESTSING.

- Define the sole member of the Adabas System Coordinator group. In this example, the member is SYSCO1.

- Define the Adabas Fastpath global buffer. This example uses the name SYSCO1.

- Define the job(s) for which Adabas Fastpath optimization is to be in effect. This example uses job CICTSING.

You can perform the required configuration by taking the following steps:

1. In this SYSCOR example the Adabas System Coordinator group name is TESTSING, the SVC is 253, and the system type is Standard (Single System Image). It is not necessary to specify a cluster facility name in this case because this is only required for running in SYSPLEX mode.

```
10:32:19                    Modify                    2003-04-14
               System Coordinator Group Member        C11230M1


Group Name: TESTSING       SVC ID: 253

System Type: X  Standard (Single-system image)
(Mark one)   _  Standard (Multi-system images)
             _  Sysplex (IBM Parallel Sysplex)
Cluster Facility Name  : _____
Automatic Pool Recovery: Y



 Command ==>
          PF1 Help         PF3 Exit         PF5 Upd
```

2. Now you must define the daemon member of the Adabas System Coordinator group in SYSCOR. There is usually one daemon running in each system image. Obviously in a single system there is only one member required. The name of the member must be the same as the job name to be run, otherwise the parameters will not be located at runtime. In addition to the name you must also specify the (database or) node number in the Software AG network to be used by the daemon member. This node number must not be currently used for any other purpose. In our example the member name will be SYSCO1. The Node ID allocated in this example is 9001. It is entered in the member definition, as shown below in the expanded group:

   Note:
   The daemon job (SYSCO1) must specify a DDCARD input for PRODUCT=AFP and PRODUCT=CAS. These identify the services that will operate in the daemon job.

```
13:29:29    ***** A D A B A S   SYSTEM COORDINATOR 7.4.1 *****    2003-04-10
                 -  System Coordinator Group Members  -          C11260M1


Runmode: Local                                          Session: Local

Group Name: TESTSING               Cluster Facility Name:
    SVC ID: 253                    Operating System     : Single

              Member
     Purge(P)    Job Name        Node ID
        _          SYSCO10          9010    <== End of List




 Command ==>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12
Help        Exit  Refr  Upd                         Add         Menu
```

3. You must now define in SYSAFP the Adabas Fastpath global buffer memory size to be managed by the Asynchronous Buffer Manager (FASTABM) service that will run in the Adabas System Coordinator daemon. There is a fixed relationship between a buffer and the daemon in which it is to run. This is more relevant for sites with multisystem images. You must use the same name as the Adabas System Coordinator Group member name defined above; in this example SYSCO1. The Adabas System Coordinator group and member must have been defined prior to defining the Adabas Fastpath buffer:

```
18:55:30                                   2003-05-20
                Add Buffer                   F11110MB


                Size(k)     : 4096

                System Coordinator
                 Group Name : TESTSING
                 Member Name: SYSCO1
                (Leave empty to select)



                Command ==>
           PF1 Help    PF3 Exit    PF5 Add
```

4. Now you must define SYSAFP job parameters for all the client applications that are to use Adabas Fastpath optimization in your system. In this example a standard CICS job with started task name CICTSING. At runtime, this CICS system produces static Adabas clients managed by the local Adabas System Coordinator (without help from the daemon). Default parameter settings are usually sufficient (and can be modified later if necessary), but there are certain parameters that need to be entered so that it is known that Adabas Fastpath is to apply these to the named job. Where optimization is to be applied to a job for the first time, you are asked to add a new set of job parameters in SYSAFP. Here you must first simply identify the job name and the type. The job type allows Adabas Fastpath to assume suitable defaults and be ready to use the correct operating system or TP system interfaces at runtime. In our example, the job name is CICTSING and the type is CICS (not CICS Cluster), as follows:

```
19:07:39          Add              2003-05-20
              Job Parameters          F11310MC

          Job Name: CICTSING
          (D = Default for Job Type)

              _       Batch
              _       COM-PLETE
              _       CICS Cluster
              X       CICS
              _       IMS/DC
              _       UTM
              _       TSO
              _       CMS
              _       TIAM
              _       None above
           Mark to Select a Job Type

          Command ==>
           PF1 Help        PF3 Exit
```

5. Now you are asked to identify the Adabas System Coordinator group containing the daemon member(s) that house the Adabas Fastpath buffer (FASTABM) service. You only identify the group, not the member, because doing so allows sites with multisystem images to run jobs in any system and to dynamically receive the optimization benefits made available by the Adabas Fastpath buffer that is available in that local system. In this example, you enter TESTSING in the buffer group name entry.

In addition, you can also define that the job is to be run in daemon mode. This is usually for clustered applications, which is described later in other example configurations. If you do use this facility, you must use exactly the same group name (TESTSING) as mentioned for the buffer group.

Here is the example:

```
19:22:53              Add                    2003-05-20
                   Job Parameters              F11310M1


            Job Type: CICS
            Job Name: CICTSING
            (D = Default for Job Type)
             Fastpath ON/OFF for Job: ON

            Buffer Group Name: TESTSING
             (Leave empty to select)

            Optional Time Window
             Start(HH:MM): _____  End: _____
             (Leave empty for 24 hours)

            ----------- Daemon Mode ------------
            (Usually for Clustered Applications)
                        Service Name: _____
               Coordinator Group Name: _____
            ----------------------------------



       Command ==>
        PF1 Help    PF3 Exit     PF5 Add
```

Multi System with Static Clients

A multisystem is one in which multiple operating system images are used in conjunction with each other. To do this, these images must be connected by Software AG's Entire Net-Work product. In these cases, it is likely that an Adabas Fastpath buffer is to be tasked with caching data from Adabas servers where one (or more) nucleus instances run in connected system images. This configuration means modifications occur to Adabas that are not automatically visible to all the Adabas Fastpath buffers running in all the system images. In this case, you must configure Adabas Fastpath and the Adabas System Coordinator daemon so that they are able to freely communicate this type of information when necessary.

The example will use IMAGE1 and IMAGE2. Only static clients are used, so the local Adabas System Coordinator does not need the help of the daemon to manage its client sessions. The daemon is used solely to house the FASTABM service. Each connected system image must run its own instance of the Adabas System Coordinator daemon.

Here are the steps that you take:

- Define a Adabas System Coordinator group, for example, TESTMULT.

- Acquire/allocate a Node ID for each member (one per image), for example nodes 9010 and 9011 for systems IMAGE1 and IMAGE2.

- Define a member of the group for each system image, for example, SYSCO10 and SYSCO11.

- Define an Adabas Fastpath global buffer for each member (image) where a FASTABM service will be implemented. In this example, both images are included and are called SYSCO10 and SYSCO11.

● Define the static client jobs that are to use Adabas Fastpath, for example, job CICTMULT.

1. Below is the SYSCOR definition of Adabas System Coordinator Group TESTMULT using SVC number 253; the system type is Standard (Multi System Images). Cluster Facility name is not required since this is only required for running in SYSPLEX mode.

   Note:
   All members of an Adabas System Coordinator group must use the same SVC number at runtime.

```
10:38:44                 Modify                    2003-04-14
             System Coordinator Group Member        C11230M1


Group Name: TESTMULT        SVC ID: 253

System Type: -  Standard (Single-system image)
(Mark one)   X  Standard (Multi-system images)
             _  Sysplex (IBM Parallel Sysplex)
Cluster Facility Name  : _____
Automatic Pool Recovery: Y



Command ==>
          PF1 Help          PF3 Exit          PF5 Upd
```

2. The following shows the member definitions of the group when it has been expanded in SYSCOR.

   Note:
   The member names must exactly match the job name of the Adabas System Coordinator daemon.

```
13:36:23     ***** A D A B A S   SYSTEM COORDINATOR 7.4.1 *****     2003-04-10
                 -  System Coordinator Group Members  -         C11260M1

 Runmode: Local                                          Session: Local

 Group Name: TESTMULT                     Cluster Facility Name:
     SVC ID: 253                             Operating System: Multi

                   Member
     Purge(P)      Job Name          Node ID
        _          SYSCO10            9010          <== Top of List
        _          SYSCO11            9011          <== End of List
                   _____          _____
                   _____          _____



  Command ==>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12
      Help        Exit  Refr  Upd                           Add         Menu
```

3. In this example, an Adabas Fastpath buffer will be run in each system image (one per member). The example below shows the creation of the buffer definition to run as a service in the SYSCO10 member; a similar buffer definition would also be made for SYSCO11.

```
19:35:43                          2003-05-20
            Add Buffer           F11110MB


         Size(k)    : 40960

         System Coordinator
          Group Name : TESTMULT
          Member Name: SYSCO10
        (Leave empty to select)



         Command ==>
        PF1 Help    PF3 Exit    PF5 Add
```

4. Below is the view of the second screen for the new Adabas Fastpath job parameters for CICTMULT that will run in the same image as SYSCO10. This is a standard CICS job that does not require daemon mode for dynamic transaction routing. You must identify the Adabas System Coordinator group containing the daemon member(s) that house the Adabas Fastpath buffer (FASTABM) service. You only identify the group, not the member. Doing so allows sites with multisystem images to run jobs in any system and to dynamically receive the optimization benefits made available by the Adabas Fastpath buffer that is available in that local system. In this example, TESTMULT is the Buffer Group Name entry:

```
19:22:53            Add          2003-05-20
              Job Parameters      F11310M1


        Job Type: CICS
        Job Name: CICTMULT
        (D = Default for Job Type)
        Fastpath ON/OFF for Job: ON

        Buffer Group Name: TESTMULT
        (Leave empty to select)

        Optional Time Window
        Start(HH:MM): _____  End: _____
        (Leave empty for 24 hours)

        ----------- Daemon Mode ------------
        (Usually for Clustered Applications)
                 Service Name: _____
          Coordinator Group Name: _____
        -----------------------------------


         Command ==>
        PF1 Help    PF3 Exit    PF5 Add
```

Single System with Dynamic Transaction Routing Clients

The following are examples of technologies that offer dynamic transaction routing (DTR) in a single system image:

- CICS/MRO

- IMS TM

- UTM

Note:
The activation and use of DTR in the technologies listed above is under the control of the system administrator. You may be able to use these technologies without necessarily using DTR. Please be sure to check.

DTR is the most flexible implementation of load balancing and fault tolerance for these technologies. This is where multiple jobs run together to provide a single service. We refer to DTR-enabled technologies as clustered applications. Clustered applications allow client sessions to move from running in one job to another (within the same service) at any time a message pair completes. Consequently, Adabas Fastpath, Adabas Vista, Adabas Transaction Manager and Adabas SAF Security must all be ready to react to this event, on demand. The Adabas System Coordinator provides an internal service to enable DTR support for these products.

Here are the steps that you take if you wish to use Adabas Fastpath optimization in DTR jobs within a single system:

- Define an Adabas System Coordinator group, for example, TESTDTR.

- Acquire/allocate a Node ID for the daemon, for example, 9020.

- Define the member of the group, for example, member SYSCO20.

- Define an Adabas Fastpath global buffer for the member (image). This must be named SYSCO20.

- Define the client jobs that are to use Adabas Fastpath, for example, job CICSDTR* that includes job names CICSDTR1 and CICSDTR2 that run together as a single DTR service.

1. Below is the definition of Adabas System Coordinator Group TESTDTR using SVC number 253. The System Type is Standard (Single System Image). Cluster Facility name is not required since this is only required for running in SYSPLEX mode:

```
10:39:46              Modify                  2003-04-14
            System Coordinator Group Member        C11230M1


Group Name: TESTDTR       SVC ID: 253

System Type: X   Standard (Single-system image)
(Mark one)   -   Standard (Multi-system images)
             _   Sysplex (IBM Parallel Sysplex)
Cluster Facility Name  : _____
Automatic Pool Recovery: Y




Command ==>
          PF1 Help         PF3 Exit        PF5 Upd
```

2. The following shows the example member definition for the group expanded in SYSCOR:

Note:
The started task for the SYSCO DAEMON will specify a DDCARD parameter `PRODUCT=AFP`, as well as `PRODUCT=CAS`. This is because the SYSCO daemon will host the service for the Adabas Fastpath ABM. The Node ID reserved for the SYSCO Daemon is 9020.

```
 15:27:08     ***** A D A B A S   SYSTEM COORDINATOR 7.4.1 *****     2003-04-10
                     -  System Coordinator Group Members  -          C11260M1


 Runmode: Local                                          Session: Local

 Group Name: TESTDTR                      Cluster Facility Name:
    SVC ID: 253                              Operating System: Single

                    Member
     Purge(P)       Job Name          Node ID
        _           SYSCO20             9020          <== End of List
                  _____          _____
                  _____          _____



  Command ==>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12
      Help        Exit  Refr  Upd                           Add         Menu
```

3. In this example, an Adabas Fastpath buffer is run in the Adabas System Coordinator member. The example below shows the definition of a new buffer to run as a service in member SYSCO20.

```
 19:46:49                              2003-05-20
                 Add Buffer            F11110MB

           Size(k)     : 100000

           System Coordinator
            Group Name : TESTDTR
            Member Name: SYSCO20
           (Leave empty to select)

            Command ==>
           PF1 Help   PF3 Exit   PF5 Add
```

4. The following shows the second screen during the addition of a new job parameter for all the CICS/MRO jobs that are to run together as a single (clustered) DTR service. The "*" wildcard is used to reduce the number of job definitions required. The Adabas Fastpath optimization is based upon the Adabas System Coordinator group used to house the Adabas Fastpath buffer service. In this case, TESTDTR is used as the buffer group name.

Clustered applications that operate as a DTR service must be defined to run in daemon mode. Therefore, CICSDTR is entered as the common service name, and the Adabas System Coordinator group TESTDTR is also identified (this must be the same as the buffer group name above):

Note:
It is important that all jobs of the same service have an identical setting for Clustered Application Service Name, especially when the wildcard option is not used. This is the only thing that relates jobs together as a single service.

```
19:22:53            Add                2003-05-20
               Job Parameters          F11310M1


       Job Type: CICS
       Job Name: CICTDTR*
       (D = Default for Job Type)
       Fastpath ON/OFF for Job: ON

       Buffer Group Name: TESTDTR
       (Leave empty to select)


       Optional Time Window
       Start(HH:MM): _____  End: _____
       (Leave empty for 24 hours)


       ----------- Daemon Mode ------------
       (Usually for Clustered Applications)
               Service Name: CICSDTR
       Coordinator Group Name: TESTDTR
       -----------------------------------



       Command ==>
        PF1 Help    PF3 Exit    PF5 Add
```

SYSPLEX with Dynamic Transaction Routing Clients

CICS in a Parallel Sysplex is an example of a technology that offers dynamic transaction routing (DTR) in a Clustered Operating System running in multiple images.

Note:
The activation and use of DTR in these technologies is under the control of the system administrator. You may be able to use these technologies without necessarily using DTR. Please be sure to check.

DTR is the most flexible implementation of load balancing and fault tolerance for these technologies. This is where multiple jobs run together to provide a single service. We refer to DTR-enabled technologies as clustered applications. Clustered applications allow client sessions to move from running in one job to another (within the same application service) at any time a message pair completes. Consequently, Adabas Fastpath, Adabas Vista, Adabas Transaction Manager and Adabas SAF Security must all be ready to react to this event, on demand. The Adabas System Coordinator provides an internal service to enable DTR support for these products.

In a SYSPLEX configuration it is possible for a client session to be routed from one system image to another within the SYSPLEX. In order to facilitate this DTR, the Clustered Application Service running in the Adabas System Coordinator daemons must communicate in order to negotiate the transfer of the client session context from one system image to the other. This system level communication is assisted by use of the IBM Coupling Facility.

Here are the steps that you take if you wish to use Fastpath optimization in DTR jobs within a SYSPLEX:

- Define a Cache Structure in the Coupling Facility, for example, TESTMDTR-CFN.

- Define an Adabas System Coordinator group, for example, TESTMDTR.

- Acquire/allocate a Node ID for each member, for example, nodes 9030 and 9031.

- Define the member of the group, for example, members SYSCO30 and SYSCO31.

- Define an Adabas Fastpath global buffer for the member (image). This must be named SYSCO30.

- Define the client jobs that are to use Adabas Fastpath. In the example, SYSPLEX DTR with jobs CICMDTR1 and CICMDTR2 working together as a single service.

1. Below is the SYSCOR definition of Adabas System Coordinator Group TESTMDTR using SVC number 253; the System Type is SYSPLEX (IBM Parallel Sysplex). The IBM Coupling Facility is used in this configuration. In the example, this is a cache structure called TESTMDTR-CFN. Your system administrator must define the actual structure, too:

```
10:51:54                 Modify                    2004-04-14
          System Coordinator Group Member          C11230M1


Group Name: TESTMDTR      SVC ID: 253

System Type: -  Standard (Single-system image)
(Mark one)   -  Standard (Multi-system images)
             X  Sysplex (IBM Parallel Sysplex)
Cluster Facility Name  : _____
Automatic Pool Recovery: Y



Command ==>
          PF1 Help        PF3 Exit        PF5 Upd
```

2. The following shows the member definitions of the expanded group in SYSCOR.

   Note:
   The member names must exactly match the job name of the Adabas System Coordinator daemon.

```
10:55:58      ***** A D A B A S   SYSTEM COORDINATOR 7.4.1 *****      2004-04-14
                   -  System Coordinator Group Members  -          C11260M1

 Runmode: Daemon / 9020                               Session: Daemon / 9020

 Group Name: TESTMDTR                  Cluster Facility Name: TESTMDTR-CFN
     SVC ID: 253                            Operating System: Multi


                    Member
     Purge(P)      Job Name          Node ID
        _           SYSCO30            9030           <== Top of List
        _           SYSCO31            9031           <== End of List
                   _____          _____
                   _____          _____


  Command ==>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12
      Help            Exit  Refr  Upd                          Add         Menu
```

3. In this SYSAFP example, an Adabas Fastpath buffer is run in each system image (one per daemon member). The screen below shows the definition of the new buffer to run as a service in the member SYSCO30. A similar buffer definition would also be made for member SYSCO31.

```
19:46:49                              2003-05-20
             Add Buffer              F11110MB


         Size(k)     : 100000

         System Coordinator
          Group Name : TESTMDTR
          Member Name: SYSCO30
         (Leave empty to select)


          Command ==>
         PF1 Help   PF3 Exit   PF5 Add
```

4. The following shows, in SYSAFP, the second screen during the addition of a new job parameter for all the CICS/PLEX jobs that are to run together as a (clustered) DTR service. The "*" wildcard is used to reduce the number of job definitions required. The Adabas Fastpath optimization is based upon the Adabas System Coordinator group used to house the Adabas Fastpath buffer service. In this example, TESTMDTR is used as the buffer group name. Clustered applications that operate as a DTR service must be defined to run in daemon mode. Therefore, CICSMDTR is entered as the common service name, and the Adabas System Coordinator group TESTMDTR is also identified. This must be the same as the buffer group name above.

Note:
It is important that all jobs of the same service have an identical setting for Clustered Application Service Name, especially when the wildcard option is not used. This is the only setting that relates jobs together as a single service.

```
19:22:53            Add            2003-05-20
              Job Parameters         F11310M1


      Job Type: CICS
      Job Name: CICTDTR*
      (D = Default for Job Type)
      Fastpath ON/OFF for Job: ON

      Buffer Group Name: TESTDTR
      (Leave empty to select)

      Optional Time Window
      Start(HH:MM): _____  End: _____
      (Leave empty for 24 hours)

      ----------- Daemon Mode ------------
      (Usually for Clustered Applications)
                  Service Name: CICSDTR
          Coordinator Group Name: TESTDTR
      -----------------------------------


      Command ==>
         PF1 Help     PF3 Exit     PF5 Add
```