Data Monitoring

Version 3.4 Release Notes

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Contents

1.0 Introduction 1
2.0 Documentation 2
3.0 Prerequisites 3
3.1 Software 3
4.0 System Installation 4
5.0 Overview of Data Monitoring 3.4 5
6.0 Direct Software Support 6

1.0. Introduction

The Data Monitoring provides Ada, C, and Fortran callable services for nonintrusive monitoring of variables in executing processes.

Data monitoring is effected through the use of the **`usermap(3rt)`** service, which employs the **`/proc`** file system (**`proc(4)`**) to read and write the address space of executing processes. Data monitoring services require symbolic information from the executable files of the processes to be monitored; thus, portions of the executable files must be built with the **`-g`** (debug) compilation option (C, Fortran, and Ada).

Data monitoring includes the following general capabilities:

- Retrieve values of variables (or components of variables) in a target process
- Modify variables (or components of variables) in a target process
- Retrieve/modify user-specified memory locations in a target process
- Retrieve information about variables (or components of variables) in a target process (type, address, dimensions, constraints, etc.)
- List the components of a composite variable (e.g. record, structure, array)
- Scan an executable file for variables that can be monitored

The following variables are eligible for monitoring:

- Variables in library-level Ada packages (including nested packages)
- C variables whose storage class is `static` or `extern`
- Fortran variables within subroutines
- Fortran common block members

The following variables are **not** eligible for monitoring:

- Variables allocated on a program stack

  Examples include Ada variables within subprograms, C variables with storage class `auto`, and `procedure`, `function`, and `subroutine` parameters
- Variables whose base address cannot be statically determined
- Elements of array variables whose offsets are variable (for example, array[variable])

Values are expressed in symbolic formats appropriate for their respective variables. For example, Ada variables of enumerated types are expressed in terms of their enumeration image rather than their underlying integer representation. In addition to the services that return and expect values expressed in symbolic format, a low-level interface that reads and writes variables without symbolic formatting is provided.

The C and Fortran interface services are available in a single library, **`/usr/lib/libdm.a`**. The Ada interface is available in the MAXAda™ environment **`/usr/ada/default/rtdm`** and is shipped with the MAXAda product.

2.0. Documentation

Table 2-1 lists the Data Monitoring 3.4 documentation available from Concurrent.

Table 2-1. Data Monitoring Version 3.4 Documentation

Manual Name	Pub. Number
Data Monitoring Reference Manual	0890493-010
Data Monitoring Version 3.4 Release Notes	0890493-3.4

Copies of the Concurrent documentation can be ordered by contacting the Concurrent Software Support Center. The toll-free number for calls within the continental United States is 1-800-245-6453. For calls outside the continental United States, the number is 1-954-973-5354.

Additionally, the *Data Monitoring Reference Manual* and *Data Monitoring Version 3.4 Release Notes* are available online by using the X Window System utility, **`nhelp`**.

Further, the *Data Monitoring Reference Manual* and *Data Monitoring Version 3.4 Release Notes* are also available on Concurrent Computer Corporation's web site at www.ccur.com.

3.0. Prerequisites

Prerequisites for Data Monitoring Version 3.4 are as follows:

3.1. Software

- PowerMAX OS™ 4.3 or later
- MAXAda 3.3.3 (for the Ada interface only)

4.0. System Installation

The Data Monitoring product is installed as a standard PowerMAX OS software package and utilizes the standard PowerMAX OS product installation mechanism, **pkgadd** (see **pkgadd(1)**).

The package name is **datamon**. This name is case-sensitive.

Please refer to the “Installing Add-on Software” chapter in the *System Administration Volume I* (0890429) manual for instructions on software installation.

5.0. Overview of Data Monitoring 3.4

Data Monitoring Version 3.4 is a maintenance release.

In the previous release, portions of the system library **`libud.a`** were statically linked into the API library. This is no longer the case. Users of the Data Monitoring API must now add the **`-lud`** link option when linking programs.

6.0. Direct Software Support

Software support is available from a central source. If you need assistance or information about your system, please contact the Concurrent Software Support Center at our toll free number (1-800-245-6453). Our customers outside the continental United States can contact us directly at 1-954-283-1822 or 1-305-931-2408. The Software Support Center operates Monday through Friday from 8 a.m. to 7 p.m., Eastern Standard time.

Calling the Software Support Center gives you immediate access to a broad range of skilled personnel and guarantees you a prompt response from the person most qualified to assist you. If you have a question requiring on-site assistance or consultation, the Software Support Center staff will arrange for a field analyst to return your call and schedule a visit.