Software Product Description

PRODUCT NAME: BASEstar Open Client Version 2.0 **SPD 47.80.02**

DESCRIPTION

BASEstar Open software facilitates the integration of manufacturing applications and plant equipment. Accelerated development of integrated manufacturing systems is assured through an architecture that also encourages consistency of application development.

BASEstar Open takes advantage of the client/server computing architecture. While the server software library supplies all supported services, the client software library allows client applications to access the same services from any network Node on which BASEstar Client is installed. Client and server communications within BASEstar Open are provided through TCP/IP network communications.

For a description of the BASEstar Open Server product, refer to SPD 47.87.01.

The BASEstar Open Client allows applications to have transparent access to BASEstar Open objects regardless of their physical location in the distributed BASEstar Open environment. The Application Programming Interface provided allows applications to:

- Define, reference, and access Data_Point objects
- Define, reference, notify, subscribe, and receive event objects
- Define, reference, and exchange Packet data objects
- Access the Application Management Services[1]
- Access the Configuration Management Services[2]

Features

The following features are those that a BASEstar Open Client can request from a BASEstar Open Server:

Application Integration

- Data Management

  BASEstar Open Data Services provide a standard mechanism for defining, organizing, and accessing data in a distributed manufacturing environment from a variety of sources including plant devices and area, plant, and work cell applications.

  BASEstar Open defines discrete data elements (Data_Points) to manage manufacturing information. Data_Point definitions can be of various types, ranging from scalar data elements to user-defined data structures. This maximizes the flexibility of data definition and acquisition.

  Since each Data_Point is referenced by name, applications become independent of their data sources and, consequently, do not require alteration as data sources change. In addition, simple Data_Points can have a predefined value specified at startup time. Data Services allow applications to define and manage datapoints.

  Each Data_Point can be associated with one or more Triggers. A Trigger defines a relationship between a Data_Point, a filter, and an event. Each time the value of a triggered Data_Point changes, associated filter expressions are evaluated. Whenever the Boolean result of an evaluated filter expression is TRUE, the associated Event is declared.

  One or more versions of a Data_Point value can be stored. In addition to the value, each Data_Point version includes the time when the Data_Point value changed and its status at that time.

  A new version is generated each time the value of a Data_Point changes. A user can request the current version, and thus the current value, or alternatively the value associated with any cached version.

- Event Services

  BASEstar Open Event Services allow users to subscribe to one or more Events. Events are occurrences that are of interest to an application program—threshold exceeding, alarms, job completion, and so on. Users define the occurrence of

[1] Not available with BASEstar Open Client on MS Windows or Windows NT.

[2] For BASEstar Open Client on PC, the Configuration Management Services are only available via the API, and are subject to limitations.

such Events and specify the context information that should be passed. This context information can also include data and their types.

To be notified of the occurrence of a specific Event, the application must issue a subscription to the Event.

When an Event is declared, Event Services create and deliver the notifications that can be received by subscribers. A single Event declaration can generate many notifications on a one-to-many relationship, depending on the number of active subscriptions.

- Packet Services

  BASEstar Open Packet Services allow users to directly exchange Packets of information. Two users can establish direct communication through a Port to be used to send a Packet, and to which a user can connect to receive it.

  A Packet contains a description of information that must be exchanged. Each Packet input and output parameter is described by a datatype.

  BASEstar Open delivers a Packet to a Port in a protocol-independent manner and also independent of the location of the users and Ports involved.

- Application Services[1]

  BASEstar Open Application Services provide all the functions required to manage and coordinate manufacturing applications. These applications may be standalone or distributed across the Nodes of a network.

  Application Services allow users to organize application activities into hierarchical structures that support the execution startup and shutdown of synchronized activities, and user-defined error recovery policies.

  An application Activity can be executed, suspended, resumed, and terminated. All Activity states are monitored. If an Activity (or Node) fails, several recovery policies can be applied. For instance, in case of Node failure, an application can be restarted on an alternative Node.

- Application Development Support[1]

  To assist in developing applications, especially when debugging or troubleshooting, a Source Trace Tool is provided. This tool is used internally by BASEstar Open and is also available to users for monitoring the execution flow of an application.

  Trace facilities can be dynamically enabled or disabled by specifying different granularity levels; it is not required that the user stops and restarts the tracing process. The output of the trace tool can be routed to several kinds of output devices—memory, files, terminals, and so on.

Configuration Management[2]

- Named Objects

  The BASEstar Open environment is a collection of named objects which represent plant devices and Data_Points—alarms, data status, production counts, and so on. Manufacturing applications can therefore access these resources using meaningful functional names, rather than in a system-dependent manner which would require, for instance, information on physical locations.

  BASEstar Open objects reside in Domains. Domains are hierarchically linked to form a BASEstar Open Realm. Several Realms can be active at the same time.

- Local and Remote Objects Access

  BASEstar Open objects can be directly accessed within a Realm by using the object's full pathname. The full pathname includes the local name preceded by the relevant Domain names. Alternatively, the user can set the default Domain and access objects in that Domain using local names, and objects in lower Domains using partial pathnames.

- System Configuration and Tuning

  BASEstar Open software provides command procedures that can be used to tune object configurations. A system manager can use the suggested values as guidelines in setting parameter values to optimize the usage of system resources.

- Logging

  In addition to error and diagnostic information, BASEstar Open allows the logging of significant Events. For example, the creation of an object definition.

BASEstar Open Interfaces

The BASEstar Open Client provides the following interface:

- Application Programming Interface (API)

  The BASEstar Open Client API provides callable services for creating new applications and integrating existing manufacturing applications.

- Graphic Configuration Utility (GCU)[1]

  The Graphic Configuration Utility can be accessed via the BASEstar Open Client interface. It is a graphical tool intended for configuring objects in the Permanent Object Database (PODB). Depending on the operating system, it is:

  – VMS DECwindows Motif-based on OpenVMS VAX and OpenVMS Alpha

– OSF/Motif-based on OSF/1 AXP

Development and Runtime Versions

Users who intend to develop BASEstar Open applications will need the BASEstar Open development version. This will allow C language programs containing BASEstar Open API calls to be compiled and linked with the BASEstar Open libraries. Users who already have available a compiled and linked BASEstar Open application only need a runtime version of BASEstar Open.

Documentation

BASEstar Open Client includes the following documentation:

- *BASEstar Open Introduction* provides an overview of the services and concepts within BASEstar Open.
- *BASEstar Open Reference Guide* provides the definition and specification of the object model within BASEstar Open.
- *BASEstar Open Application Programming Interface* provides the specification of the callable interface to access BASEstar Open services.
- *BASEstar Open Messages* provides the definition and the description of BASEstar Open error messages and suggested solutions.
- An installation guide specific to each operating system version, for installing BASEstar Open on the selected operating system. It provides instructions on how to install BASEstar Open and platform-specific information.
- *Release Notes* describes new features provided with BASEstar Open Client and details any functional and documentation errors.
- Software Product Description—this document

INSTALLATION

Before attempting to install the software, the customer must have all the prerequisite hardware and software installed. Digital recommends that a customer's first purchase of this software include Digital Installation Services.

Connectivity to all other Nodes within the network is the responsibility of the customer. Delays caused by any failure to meet these responsibilities will be charged at the prevailing rate for time and materials.

SUPPORTED VERSIONS

This SPD covers the following versions of the BASEstar Open Client product:

- BASEstar Open Client for OpenVMS VAX V2.0A
- BASEstar Open Client for OpenVMS Alpha V2.0
- BASEstar Open Client for OSF/1 AXP V2.0A
- BASEstar Open Client for Windows NT V2.0
- BASEstar Open Client for MS Windows V2.0A

HARDWARE REQUIREMENTS

Processors Supported

BASEstar Open Client for OpenVMS VAX:
VAX processors supporting OpenVMS VAX Version 5.5-2 and Version 6.1, except the following:

Processors Not Supported

VAX:	VAX–11/725
	VAX–11/730
	VAX–11/750
	VAX–11/782
MicroVAX:	MicroxVAX I
VAXstation:	VAXstation I
	VAXstation 8000

BASEstar Open Client for OpenVMS Alpha:
AXP processors supporting OpenVMS Alpha Version 6.1

BASEstar Open Client for OSF/1 AXP:
AXP processors supporting OSF/1 AXP Version 3.0

BASEstar Open Client for Windows NT and BASEstar Open Client for MS Windows:

- Intel 386 processors
- Intel 486 processors
- Intel Pentium processors

DISK SPACE REQUIREMENTS

BASEstar Open for OpenVMS VAX

Disk space required for installation:

- 30,000 blocks

Disk space required for use (permanent):

- 28,100 blocks

BASEstar Open for OpenVMS Alpha

Disk space required for installation:

- 60,000 blocks

Disk space required for use (permanent):

- 50,000 blocks

BASEstar Open for OSF/1 Alpha

Disk space required for installation and subsequent use:

- 120 Mbytes

BASEstar Open Client for Windows NT

Disk space required for installation and subsequent use:

- 1.5 MBytes

BASEstar Open Client for MS Windows

Disk space required for installation and subsequent use:

- 1.5 MBytes

The values refer to the disk space required on the system disk. The sizes are approximate; actual sizes may vary depending on the user's system environment, configuration, and software options.

SOFTWARE REQUIREMENTS

BASEstar Open for OpenVMS VAX

- OpenVMS VAX Operating System V5.5-2 (SPD 25.01.xx), V6.1

Layered Products

- DEC TCP/IP Services for OpenVMS (SPD 25.A4.xx)

For systems using DECwindows terminals the following software is also required:

- VMS DECwindows Motif (SPD 36.09.xx)

BASEstar Open Client for OpenVMS Alpha

- OpenVMS Alpha Operating System V6.1

Layered Products

- DEC TCP/IP Services for OpenVMS V3.1
- DEC RdB for OpenVMS Alpha V6.0 (optional)

BASEstar Open Client for OSF/1 AXP

- OSF/1 AXP Operating System V3.0

BASEstar Open Client for Windows NT

- Windows NT V3.1

BASEstar Open Client for MS Windows

- MS Windows V3.1x

Layered Products

One of the following TCP/IP implementations:

- PATHWORKS V5.1
- MS Windows V3.11 for Workgroups with TCP/IP

GROWTH CONSIDERATIONS

The minimum hardware/software requirements for any future version of this product may be different from the requirements for the current version.

DISTRIBUTION MEDIA

This product is available on the Digital CD-ROM Layered Products Software Library (Consolidated Software distribution) for OSF/1 AXP, OpenVMS Alpha and OpenVMS VAX. It is also available for:

- BASEstar Open Client for OpenVMS VAX on TK50 Streaming tape
- BASEstar Open Client for Windows NT on RX23 floppy diskettes
- BASEstar Open Client for MS Windows on RX23 floppy diskettes

ORDERING INFORMATION

BASEstar Open Client for OpenVMS VAX:

Software Licenses: QL-0Y8A9-AA
Software Documentation: QA-0Y8AA-GZ
Software Media: QA-0Y8AA-**
Software Product Services: QT-0Y8A*-**

BASEstar Open Client for OpenVMS Alpha:

Software Licenses: QL-0Y9A9-AA
Software Documentation: QA-0Y9AA-GZ
Software Product Services: QT-0Y9A*-**

BASEstar Open Client for OSF/1 AXP:

Software Licenses: QL-0YBA9-AA
Software Documentation: QA-0YBAA-GZ
Software Product Services: QT-0YBA*-**

BASEstar Open Client for Windows NT:

Software Licenses : QM-2WVAA-AA
Software Media and 1st License (Intel): QB-2WVAB-SA
Software Documentation: QA-2WVAA-GZ

BASEstar Open Client for MS Windows:

Software Licenses : QL-0YCAW-AA
Software Media: QA-0YCAA-HC
Software Documentation: QA-0YCAA-GZ

The above information is valid at the time of release. Please contact your local Digital office for the most up-to-date information.

SOFTWARE LICENSING

This software is furnished only under a license. For more information about Digital's licensing terms and policies, contact your local Digital office.

BASEstar Open Client is licensed for ''Unlimited System Use''. To use the BASEstar Open Client you must have a BASEstar Open Server license installed on a server Node. The BASEstar Open Server is available for both VAX and Alpha AXP processors.

SOFTWARE PRODUCT SERVICES

A variety of service options are available from Digital. For more information, contact your local Digital office.

SOFTWARE WARRANTY

Warranty for this software product is provided by Digital with the purchase of a license for the product as defined in the Digital Standard Terms and Conditions of this SPD.

The above information is valid at time of release. Please contact your local Digital office for the most up-to-date information.