1 DBDOC Introduction

1.1 DBDOC 11.5

This manual describes the components in DBDOC 11.5, released November 2024.

1.2 What is DBDOC?

DBDOC builds a **safe, read-only snapshot** of your Harmony INFI 90® DCS system, presenting an **integrated view** of the configuration, graphics and databases. From the first version handling CADEWS and SODG graphics, DBDOC has evolved to include WinCAD®, Composer®, Conductor VMS®, Conductor NT®, Process Portal B®, AutoCAD®, MicroStation®, supplementary text and even disparate control system components, such as P&IDs, WonderWare®, Honeywell® and OSISoft PI®. More recently, support for 800xA VB, 800xA PG2, PGP and SPlus graphics has been added to DBDOC. *Most* recently, AC 800M system support was added with DBDOC 11.5.

DBDOC is in many ways a cooperative project with our clients, users of ABB® Harmony INFI 90 systems. We rely heavily on your feedback to enhance and improve the tools that we provide. Many of DBDOC's present features have been developed as a direct result of client requests and feedback. G. Michaels Consulting Ltd is working in cooperation with ABB to further the development of DBDOC.

1.3 Who Can Benefit From DBDOC?

Getting DBDOC into the hands of more people that use the ABB Harmony INFI 90® system will pay off with easier and better execution of any tasks they have to do. This applies to many types of workers, including technicians, engineers, planners, managers, trainers, safety and loss prevention personnel, students, interns and operators.

1.4 How Does DBDOC Work?

The DBDOC snapshot, a single file, is like a custom website representing your system. It is an **amazing interface for troubleshooting and analysis**. Every document and resource is cross-linked, and with the DBDOC browser you can navigate using the intuitive point and click interface. Powerful search capabilities give instant access to any part of your system. Built-in tools and analysis reports can help you eliminate common misconfigurations and improve your system. The DBDOC compiler builds a representation of your system in the form of a .dbdoc (previously .M14) file. This project file can be rebuilt regularly, and is viewed using the DBDOC browser. Live data is fetched from your system and presented on the graphics and configuration diagrams displayed in the DBDOC browser. All this is completely safe and read-only.

1.5 System Overview
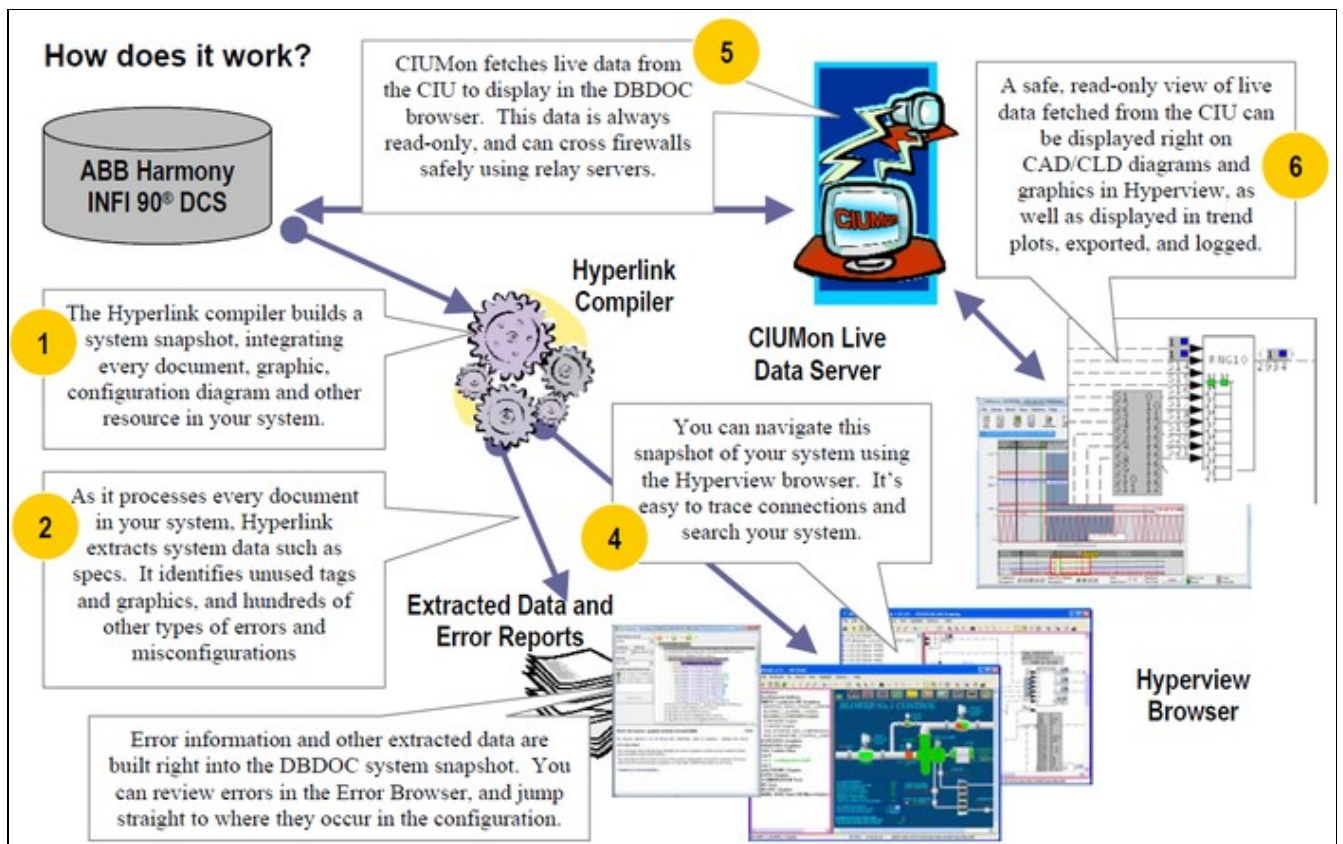
1.6 How is DBDOC Used?

DBDOC meets a variety of needs for users of Harmony INFI 90® systems:

1. **Troubleshooting:** DBDOC is an unrivalled tool for system analysis and troubleshooting.
2. **Documentation:** Integrate notes, documentation, and error reports from any source into the system snapshot. Tag names in the documentation are automatically cross-linked with the rest of the system.
3. **Development:** Check the system, use Management of Change to keep on top of updates, use DBDOC's error checks to catch problems, enjoy faster browsing of the configuration.
4. **Commissioning and Checkout:** Save time with DBDOC during the implementation of a new system or subsystem.
5. **System Simulation:** See the configuration and use emulated CIU data. Manually walk through the response to proposed inputs.
6. **Training:** Safely introduce new personnel to the configuration. Track through the logic from start to end, or to the source.
7. **Detection of Errors and Misconfigurations:** Use DBDOC's Error Browser to view your errors and eliminate potential problems.
8. **Portable System:** The DBDOC system snapshot is portable, and lets you view your system remotely.
9. **NERC Compliant Live Data on Business LAN:** DBDOC can provide a remote NERC compliant view of your system complete with live data.
10. **Collaboration Tool:** With DBDOC you can annotate drawings and graphics and integrate notes, making it easy to share
11. **Console Upgrades:** Use DBDOC to understand where various tags and fields are used.

12. **System Audits:** Check out the whole system in an easy, efficient and systematic manner.

1.6.1 DBDOC for Troubleshooting

DBDOC's unique point and click browser interface makes it easy to trace signals throughout your system. Every resource is cross-linked and at your fingertips, making for efficient and effective troubleshooting. Live data from your system is integrated into the DBDOC snapshot providing even more information for productive troubleshooting.

DBDOC increases the number of people who can safely and effectlively troubleshoot routine system problems. System experts can be freed up to focus on other tasks.

1.6.2 DBDOC as Documentation

DBDOC can integrate existing text and RTF documentation right into the system snapshot. You simply create a documentation folder and tell the Build Wizard its location. You can also build in archived error files to document fixes in your system.

DBDOC automatically links tag names mentioned in documentation into the system snapshot. This feature allows the creation of important documentation useful in the operation and support of the system with no extra effort on your part.

1.6.2.1 Uses of DBDOC for Documentation

DBDOC has been used by clients to enhance system documentation in a variety of ways, including the following:

1. **Alarm Documentation** - Simply documenting an alarm tag with its name gets a link to it that people can look up easily. Mentioning associated tag names, graphics and other documents will give you links from the information about the alarm in question to other parts of the system.
2. **Calculation Support** - A simple document describing calculated values gives you a permanent record of how the values are calculated and the tags that are involved. This can serve you well when changes are contemplated by preventing the inadvertent elimination of tags that are in use in more or less obscure ways.
3. **Logs and Reports** - Creating a text / document form of data logs and reports that mention the tagname gives you instant documentation to assist in tracking down bad values.

1.6.2.2 Optional Documentation Extensions to DBDOC

DBDOC can also be used for block number linked documentation. If you have tables of information that mention block numbers for specific reasons, we can optionally (at additional cost) extend DBDOC to compile the documentation with links on the blocks. To do this, we need a Loop / PCU / Module context. This can be created easily by folder names or document names, or by the inclusion of definitive statements in the document.

1.6.3 DBDOC During Development

DBDOC can be used to support development work in a rapidly changing environment in a number of ways:

- With DBDOC, you can build a new snapshot of your system nightly, and keep up with changes in configuration.
- Use DBDOC to browse the logic instead of Composer or WinCAD.

- Use DBDOC's powerful Management of Change capability to monitor daily changes.
- Use DBDOC's error-checking capabilities to catch problems before you compile modules.

1.6.4 DBDOC for Commissioning and Checkout

If you put DBDOC to use at the right place at the right time, it will help support the implementation of a new system or subsystem. People that have used it this way have been enthusiastic in its praise. It should be possible for a project to be done better, cheaper and faster using DBDOC.

1.6.4.1 Experiences with DBDOC for Commissioning and Checkout

DBDOC has been widely used as an aid to the commissioning and checkout process. The following are the experiences of several sites:

- **Hibernia Oil Platform, Newfoundland, Canada** - Our first implementation. They claimed that DBDOC saved them one month in startup time in a multi-billion dollar project.
- **Aluminum Partners of Jamaica, Nain, St. Elizabeth, Jamaica** - In this case, DBDOC was actually purchased before the INFI 90 system. DBDOC was used to explain the methodology implemented at a partner aluminum plant using INFI 90.
- **Yallourn "W" Power Station, Yallourn, Victoria, Australia** - DBDOC was used over a number of years as this plant was implemented unit by unit.

1.6.5 Using DBDOC with a Simulator

DBDOC is a powerful aid in simulation projects as you are able to see the logic. Simulations that include emulated CIU support gain a great deal from its use. This topic has significant potential for application in many systems:

- Before you download a new or changed module, build it in DBDOC.
- See how typical live values look in your new logic.
- Use DBDOC's error-checking and nitpicking to find and fix problems before they're online.

Note: This capability is based on the existence of a simulation system such as TRAX that uses a CIU style interface to logic that gets valid block values.

1.6.6 DBDOC as a Training Tool

DBDOC's read-only unified presentation of the consoles and configuration make it a powerful, safe, and easy-to use training tool for new personnel ranging from operators to engineers. Other training-friendly features include:

- Built-in help for function codes.
- A flattened view of the databases to make it possible to become more familiar with tags in the system.
- Unparalleled support for signal tracing in order to become familiar with a system.

1.6.7 DBDOC for Error Detection

DBDOC checks your system for hundreds of types of errors and misconfigurations, with more added in each update. In addition to actual errors, ambiguous non-error situations in your system such as extra wires, constant blocks in ladder logic and unused tags are reported. Usually these non-errors cause no trouble, but sometimes they can mask real problems.

DBDOC makes it easy to clean up your system, identifying undefined tags, tags with no source, missing or out of order adapted blocks, graphics that cannot be triggered by the operators, and hundreds of other misconfigurations and potential issues of varying severity.

DBDOC can make it possible to find parts of the logic that are unused. If you walk through the AO/L and DO/L blocks, for example, you will find a subset that are not used. If you also find that they are not alarm points, you might choose to re-evaluate the logic that creates them. Similarly, tags often become unused without being removed.

The DBDOC Error Browser, part of Hyperview, allows you to walk through these errors, automatically display error locations in Hyperview, filter, group, and sort errors in various ways, and hide or mark off errors as "reviewed" so you don't have to be repeatedly checking the same set of errors once you have reviewed them once. You can even share the process of reviewing errors, with error flags set by others automatically displayed in the Error Browser.

1.6.8 DBDOC as a Portable System

DBDOC enables you to put a copy of your system on your laptop so that you are able to:

- Troubleshoot from home
- Support the system when you are on the road
- Laptops, notebooks, and tablet PCs, coupled with wireless LANs, give you the ability to put DBDOC out in the field, far from AC power and networks and use DBDOC anywhere in your plant for troubleshooting and other analysis.
- With a WAN or dial-in, you can even monitor live data remotely.
- DBDOC allows you to do a static analysis of you system anywhere, offline.

The Serial Port Module is a relatively inexpensive way to get realtime data directly to your laptop at a PCU. We went to the trouble of marking data that comes from another PCU in blue so you do can see values you cannot get directly in that PCU.

1.6.9 DBDOC for NERC Compliant Live Data on Business LAN

DBDOC allows you to safely troubleshoot, perform system analysis, and train support staff on your business LAN, as well as read-only access to your system, at home, on courses, and in other parts of the plant. For total NERC compliance, a relay server can be used to pass live data via an intermediate LAN.

1.6.10 DBDOC as a Collaboration Tool

DBDOC can be used as a collaboration tool in many ways. It can be used to:

- Send your consultants a copy of your system as built.
- Mark up your system with annotations and bookmarks.
- Share your annotations and bookmark files with your colleagues via e-mail.

1.6.11 DBDOC for Console Upgrades

With DBDOC you are able to build your old console and new console together in a single project. You can then use DBDOC's Audit Window feature to verify that the new graphic accesses the same tags as the old one.

1.6.12 DBDOC for System Audits

DBDOC gives you unprecedented capability to check things easily. When you have something to do, just think of the old way that you had to do it, before DBDOC. For example, one client told us that a significant safety audit was completed by an engineer in ten days instead of the estimated thirty days.

DBDOC allows you to walk through all function blocks of particular types to check them. You can check parameters, tag names, documentation that should be linked and a multitude of other things. This capability extends to checking ABB software revisions directly by walking through the blocks with a particular function code.

The Audit Window allows you to look at the blocks and tags being used on graphics or CAD/CLD sheets. Sometimes, this shows incorrectly entered data. Asserting the hotspots (**Ctrl+Tab**) is a useful feature in looking for "dead spots" on graphics.