

DOCUMENT NUMBER
MITRE TECHNICAL REPORT

MITRE

VIRD-AP

**Visio Integrated Relational
Diagram - Advanced Process**

Technical Documentation

Christopher M. Hosmer

May 2008



VIRD-AP

Visio Integrated Relational Diagram - Advanced Process

Technical Documentation

Christopher M. Hosmer
May 2008

Sponsor: Sponsor
Dept. No.: Department Number
Derived By: Derived By
Contract No.: Contract Number
Project No.: Project Task
Downgrade To: Downgrade To
Downgrade Date: Date
Declassify On: Declassify On

The views, opinions and/or findings contained in this report are those of The MITRE Corporation and should not be construed as an official government position, policy, or decision, unless designated by other documentation.

For Internal MITRE Use. This document was prepared for authorized distribution only. It has not been approved for public release.

©2008 The MITRE Corporation.
All Rights Reserved.

Abstract

7th Signal Brigade, and indeed the entire Signal Regiment, does not currently utilize automated or cohesive methods to develop or maintain network diagrams. Personnel continue to develop diagrams of interdependent networks in separate PowerPoint slides or white boards with no easy method of describing or demonstrating the relationships among the separate designs. Generally, the plans do not have a cohesive or consistent design, convey the interdependencies of the overlapping network layers, or can demonstrate to leadership a successful, workable, and consistent network mission plan. The VIRD-AP provides a process and tools for producing signal planning diagrams in a single application that can demonstrate the relationship of each layer of the network, maintain consistency in design, and permit advanced features not currently available to the military network planner. For a quick start guide, refer to [Chapter 4](#).

NOTE: VIRD-AP symbols do not implement the requirements of FM 1-02¹ or MIL-STD-2525B². The intent is to meet the requirements of these standards in future versions.

¹ FM 1-02, Operational Terms and Graphics, 21SEP04

(https://akocomm.us.army.mil/usapa/doctrine/DR_pubs/dr_aa/pdf/fm1_02.pdf) [Registration may be required]

² MIL-STD-2525B with Change 2, DoD Interface Standard, Common Warfighting Symbolology, 07MAR07

(http://assist.daps.dla.mil/quicksearch/basic_profile.cfm?ident_number=114934)

NOTE: The VIRD-AP is developed and tested under Microsoft Office Visio Professional 2003. Microsoft changed some terms, menus, and options in Microsoft Office Visio 2007. When possible, the manual provides equivalent Visio 2007 information after the Visio 2003 information, but only on the first instance. Otherwise, the manual uses Visio 2003 terms and options throughout.

Table of Contents

1	History and Purpose	1-1
1.1	Problem	1-1
1.2	Objectives	1-1
1.2.1	Cost Effectiveness	1-1
1.2.2	Simplicity	1-2
1.2.3	Open Architecture	1-3
1.2.4	Metadata Storage	1-3
2	Planning Diagrams	2-1
2.1	Necessity	2-1
2.1.1	Leadership	2-1
2.1.2	Planners	2-2
2.2	Planning Steps for the Signal Mission	2-3
2.2.1	Initiation	2-3
2.2.2	Concept Development	2-3
2.2.3	Plan Development	2-3
2.2.3.1	Communication Package Diagram	2-3
2.2.3.2	Data Network Diagram	2-4
2.2.3.3	Network Services Diagrams	2-4
2.2.4	Plan Review	2-4
2.2.5	Supporting Plans	2-4
2.2.6	Comparison	2-4
3	VIRD-AP Features	3-1
3.1	Custom Icons/Shapes, Stencils, and Super-Icon Sets	3-1
3.1.1	Custom Icons/Shapes	3-1
3.1.2	Stencils	3-1
3.1.3	Super-Icon Sets	3-2
3.2	Custom Properties/Shape Data	3-4
3.2.1	Standardization and Visual Behavior	3-4
3.2.2	Database Integration	3-5
3.2.3	Audit Data	3-6
3.3	Hyperlinks	3-7
3.3.1	Diagram Hierarchies	3-7
3.3.2	References	3-8
3.3.3	Geographical Data	3-8

3.3.4	Troubleshooting	3-9
3.3.4.1	Conditions	3-9
3.3.4.2	Symptoms	3-9
3.3.4.3	Workarounds	3-9
3.4	Layers	3-9
3.4.1	Layer Assignment	3-10
3.4.1.1	Storing	3-10
3.4.1.2	Creating and Assigning	3-10
3.4.1.3	Special Case “Service” Shapes	3-10
3.4.2	How to Use Layers	3-11
3.4.2.1	Locking	3-11
3.4.2.2	Displaying or Hiding	3-11
3.4.2.3	Selecting	3-11
3.5	Reports	3-11
3.6	Web Presence	3-12
4	User Environment	4-1
4.1	Prerequisites	4-1
4.1.1	Microsoft Office Visio	4-1
4.1.2	Supporting Applications	4-1
4.1.3	References	4-1
4.2	Quick Start	4-2
4.2.1	Archive Package	4-2
4.2.2	Stencils	4-2
4.2.3	Super-Icons	4-2
4.2.4	Report Definitions	4-3
5	Product References	5-1
5.1	Stencils	5-1
5.1.1	Communication Packages	5-1
5.1.1.1	Icons	5-2
5.1.1.2	Custom Properties	5-9
5.1.1.3	DoD SATCOM Gateways	5-28
5.1.2	Network Devices	5-29
5.1.2.1	Icons	5-30
5.1.2.2	Custom Properties	5-36
5.1.3	Information Systems, Services, and Miscellaneous	5-53
5.1.3.1	Icons	5-54

5.1.3.2	Custom Properties	5-57
5.1.3.3	Services	5-69
5.2	Layers	5-75
5.2.1	Layer List	5-75
5.2.1.1	Communication Packages	5-75
5.2.1.2	Network Devices	5-75
5.2.1.3	Information Systems, Services, and Miscellaneous	5-75
5.2.2	Diagram Types	5-78
5.2.2.1	Site Diagram	5-78
5.2.2.2	Communication Package Diagram	5-78
5.2.2.3	Network Diagram	5-78
5.2.2.4	Service Diagram (All with Hierarchy)	5-78
5.2.2.5	Service Diagram (All, no Hierarchy)	5-79
5.2.2.6	Service Diagram (Single Service)	5-79
5.3	Reports	5-79

List of Figures

Figure 1: Deliberate Planning Process, MDMP, VIRD-AP	2-5
Figure 2: Example Super-Icon Set	3-2
Figure 3: Icon Custom Properties Example	3-4
Figure 4: Example 1 of Icon Custom Properties Visual Change Behavior	3-5
Figure 5: Example 2 of Icon Custom Properties Visual Change Behavior	3-5
Figure 6: Database Integration Data Flow (Future)	3-6
Figure 7: Custom Property Audit Fields	3-6
Figure 8: Example Hierarchical Diagram	3-7

List of Tables

Table 1: CHESS Purchase Numbers for Microsoft Office Visio	1-2
Table 2: Communication Package Icon State Table	5-1
Table 3: Communication Package Icons	5-8
Table 4: Communication Package Icon Custom Properties	5-27
Table 5: DoD SATCOM Gateways	5-28
Table 6: Classification Colors	5-29
Table 7: Network Device Icons	5-35
Table 8: Network Device Icon Custom Properties	5-52
Table 9: Information Systems, Services, and Miscellaneous Icons	5-56
Table 10: Information Systems, Services, and Miscellaneous Icon Custom Properties	5-68
Table 11: Network Services	5-74

1 History and Purpose

1.1 Problem

7th Signal Brigade, and indeed the entire Signal Regiment, does not currently utilize automated or cohesive methods to develop or maintain network diagrams. Personnel continue to develop diagrams of interdependent networks in separate PowerPoint slides or white boards with no easy method of describing or demonstrating the relationships among the separate designs. Generally, the plans do not have a cohesive or consistent design, convey the interdependencies of the overlapping network layers, or can demonstrate to leadership a successful, workable, and consistent network mission plan.

NOTE: VIRD-AP symbols do not implement the requirements of FM 1-02³ or MIL-STD-2525B⁴. The intent is to meet the requirements of these standards in future versions.

1.2 Objectives

Developing products in Microsoft Office Visio Professional meets several objectives, as outlined below. While Microsoft Office Visio is not the only network diagramming solution on the market, its availability, ease of use, and development tools make it a desirable choice for standardized network planning development in the Army.

1.2.1 Cost Effectiveness

Objective: The solution must utilize easily obtainable or available software so that it can be widely deployed.

Solution - Diagram Viewers: For personnel that need to view diagrams produced in Microsoft Office Visio, Microsoft provides two free methods for accessing the diagrams. The first is the capability to export Visio diagrams and reports as web documents. These web documents are compatible with both Internet Explorer and Mozilla-based web browsers. Although users can only access the full functionality of the web exported Vector Markup Language (VML)⁵ documents using Microsoft Internet Explorer, the latest version of Microsoft Internet Explorer, 7.0, is the current Army standard.^{15,16} Both Internet Explorer⁶ and Mozilla Firefox⁷ have Army Certificates of Networthiness and are included on the Army Golden Master (AGM)¹⁵. The second method is installation of a free Visio viewer.⁸ This viewer is an ActiveX control that permits the user to view Visio documents in their native format and provides even more functionality than the web

³ FM 1-02, Operational Terms and Graphics, 21SEP04

(https://akocomm.us.army.mil/usapa/doctrine/DR_pubs/dr_aa/pdf/fm1_02.pdf) [Registration may be required]

⁴ MIL-STD-2525B with Change 2, DoD Interface Standard, Common Warfighting Symbolology, 07MAR07

(http://assist.daps.dla.mil/quicksearch/basic_profile.cfm?ident_number=114934)

⁵ Wikipedia, "Vector Markup Language", 05MAY08

(http://en.wikipedia.org/w/index.php?title=Vector_Markup_Language&oldid=210358154)

⁶ Microsoft Internet Explorer 7.0 Army Certificate of Networthiness, 13JUL07

(<https://www.us.army.mil/suite/folder/8477171>), Army Knowledge Online (AKO) [Registration may be required]

⁷ Mozilla Firefox Army Certificate of Networthiness, 10APR07 (<https://www.us.army.mil/suite/folder/8475435>), Army Knowledge Online (AKO) [Registration may be required]

⁸ Microsoft Visio Viewer 2007 (<http://www.microsoft.com/downloads/details.aspx?FamilyId=D88E4542-B174-4198-AE31-6884E9EDD524&displaylang=en>)

document exports. Microsoft Office Visio Viewer 2007⁹ also has an Army Certificate of Networthiness and is included on the Army Golden Master.

Solution - Diagram Developers: Both Microsoft Office Visio Professional 2003¹⁰ and 2007¹¹ have Army Certificates of Networthiness. Microsoft Visio Professional is readily available to Army personnel through the Computer Hardware, Enterprise Software and Solutions (CHES) website, formerly known as Army Small Computer Program (ASCP): <https://ascp.monmouth.army.mil/>.¹² Army regulations require organizations to make software purchases through this program.¹³ CHES includes item numbers for several Microsoft products, to include Visio Professional. As of May 2008, there are at least 2 item numbers available on CHES to purchase Microsoft Office Visio Professional:

	Microsoft Visio Professional Software Assurance ¹⁴	Visio Pro Win32 Listed Languages Lic/SA MVL (Full Purchase) ¹⁴
Item #	A020AC-2	A020ABTF6-2
Program	DOD MS PRODUCTS ESA	DOD MS PRODUCTS ESA
Contract	N00104-02-A-ZE84	N00104-02-A-ZE84
Vendor	SOFTMART GOVERNMENT SERVICES INC.	SOFTMART GOVERNMENT SERVICES INC.
Price	\$0.00 (Charge to MACOM)	\$302.71

Table 1: CHES Purchase Numbers for Microsoft Office Visio

1.2.2 Simplicity

Objective: Design, deployment, and installation must be simple for the network signal planner to reduce the learning curve of users and reduce the amount of time for deployment. The solution must capitalize skill sets of the current population.

Solution: Microsoft Office Visio Professional's interface is consistent with other products in the Microsoft Office family, the standard office suite for the U.S. Army.^{15,16} Soldiers can capitalize on

⁹ Microsoft Office Visio Viewer 2007 Army Certificates of Networthiness, 15JUN07 and 13JUL07

(<https://www.us.army.mil/suite/folder/8564559> and <https://www.us.army.mil/suite/folder/8570205>), Army Knowledge Online (AKO) [Registration may be required]

¹⁰ Microsoft Office Visio 2003 Professional Army Certificate of Networthiness, 06JUN07

(<https://www.us.army.mil/suite/folder/8486119>), Army Knowledge Online (AKO) [Registration may be required]

¹¹ Microsoft Office Visio 2007 Army Certificate of Networthiness, 15JUN07

(<https://www.us.army.mil/suite/folder/8564559>), Army Knowledge Online (AKO) [Registration may be required]

¹² [Army Regulation 25-1, section 6-2 a.](#) states "Computer Hardware, Enterprise Software and Solutions Office (CHES) is the primary office for establishing commercial IT contracts."

(https://ascp.monmouth.army.mil/scp/downloads/standardspolicy_files/ar25_1.pdf#nameddest=CHES)

¹³ For additional requirement references see the documents under the "Army Enterprise Standardization" section of the "Directives, Policies, Standards & Guidelines" page on CHES

(https://ascp.monmouth.army.mil/scp/standardspolicies/directives_policies_standards.jsp#AES)

¹⁴ CHES: Visio Professional (A020AC, A020ABT)

(<https://ascp.monmouth.army.mil/scp/downloads/esi/msdesc/Visio%20Professional.pdf>)

their skills and familiarity with the Microsoft Office interface to quickly take advantage of Visio. Administrators or users can deploy VIRD-AP products through manual or automated means without administrative privileges on the target machine. Diagrams produced in Microsoft Office Visio integrate well with other Microsoft Office products such as PowerPoint, Word, and SharePoint server.

1.2.3 Open Architecture

Objective: The solution must be maintainable in the long-term; it must provide the capability for end-users or third-parties to easily modify the products and to react to changes or local network requirements.

Solution: Microsoft Office Visio includes all of the tools necessary to make changes to the VIRD-AP products. Icon, stencil, diagram (Super-Icons), and report editing capabilities all exist in the application. Report and web export functionality are also available. Users require no special software other than Microsoft Office Visio Professional, although they can add the Visio Software Development Kit (SDK) for easier development and additional references. The Visio [2003](#)¹⁷/[2007](#)¹⁸ SDK is freely available via Microsoft's website. Therefore, the end-user or a third-party can easily modify this solution without additional software purchases.

NOTE: To enable Visio's development mode, navigate to "Tools [Menu] -> Options... [Menu Item] -> Advanced [Tab] -> Advanced Options [Section] -> Run in developer mode [Checkbox]" and place a checkmark next to the "Run in developer mode" option. This path is the same for both Visio 2003 and 2007. As stated in the Visio help, "Run in developer mode: Enables certain user interface functions for the development environment. If this option is selected, the Show ShapeSheet command is added to a shape's shortcut (right-click) menu." See the Visio help files for more information on the ShapeSheet.

1.2.4 Metadata Storage

Objective: Complex diagrams that contain only visual elements or attempt to combine large amounts of textual data in the diagram become difficult to understand and use. The solution must provide the capability to store metadata about the visual components of the diagram and the capability to utilize the metadata in other applications or documents.

Solution: Microsoft Office Visio uses ShapeSheets, a worksheet style table, to store information about the diagram shapes. This permits the planner to store additional information about an object, such as IP addresses or map coordinates, inside of the object without having to display it in the diagram. This provides a better method for creating cleaner, easier to understand diagrams and puts the metadata into a format that other processes, such as report generators and databases, can access.

¹⁵ Army Golden Master (AGM) Homepage (<https://www.us.army.mil/suite/page/130061>), Army Knowledge Online (AKO) [Registration may be required]

¹⁶ ALARACT 282/2007, Army Guidance in Support of Microsoft Vista Enterprise Operating System, Office 2007, Internet Explorer 7.0, and Army Golden Master Program Changes, 04DEC07 (<https://www.us.army.mil/suite/doc/9467668>), Army Knowledge Online (AKO) [Registration may be required]

¹⁷ Visio 2003 Software Development Kit (SDK) (<http://www.microsoft.com/downloads/details.aspx?familyid=557120bd-b0bb-46e7-936a-b8539898d44d&displaylang=en>)

¹⁸ Visio 2007: Software Development Kit (<http://www.microsoft.com/downloads/details.aspx?FamilyId=373D34B8-5EF7-4E6E-A582-C8D6B5EE4E33&displaylang=en>)

This page intentionally left blank.

2 Planning Diagrams

2.1 Necessity

Communication networks have always been important to military organizations; however, as modern networks provide more and more of the critical storage, retrieval, and transport methods that commanders use to relay orders, obtain intelligence, and access data the networks become more critical in mission planning and execution. The use of symbols is an important method to help simplify complex concepts. Networks continue to become more intricate and harder to represent. It is important to have processes and consistent representations to aid audience comprehension. Quick, effective comprehension is critical in fast paced operational environments. "Standardization of military symbols is essential if operational information is to be passed among military units without misunderstanding."¹⁹

2.1.1 Leadership

Diagrams are a critical tool for the commander. They help the commander understand if the staff comprehends and can meet his intent, provide a visual representation of progress made in the planning process, and assist the commander in visualizing the complex signal battlefield. Without diagrams, the commander is unable to effectively meet his leader obligations as described in one of the two Army capstone doctrinal publications, FM 3-0²⁰:

5-9. Battle command is the art and science of understanding, visualizing, describing, directing, leading, and assessing forces to impose the commander's will on a hostile, thinking, and adaptive enemy. Battle command applies leadership to translate decisions into actions—by synchronizing forces and warfighting functions in time, space, and purpose—to accomplish missions. Battle command is guided by professional judgment gained from experience, knowledge, education, intelligence, and intuition. It is driven by commanders.

5-14. Effective battle command requires commanders to continuously assess and lead. Assessment helps commanders better understand current conditions and broadly describe future conditions that define success.

5-16. Understanding is fundamental to battle command. It is essential to the commander's ability to establish the situation's context. Analysis of the enemy and the operational variables provides the information senior commanders use to develop understanding and frame operational problems.

5-19. Commander's visualization is the mental process of developing situational understanding, determining a desired end state, and envisioning the broad sequence of events by which the force will achieve that end state. It involves discussion and debate between commanders and staffs. During planning, commander's visualization provides the basis for developing plans and orders. During execution, it helps commanders determine if, when, and what to decide as they adapt to changing conditions. Commanders and staffs

¹⁹ FM 1-02, Operational Terms and Graphics, Chapter 4, 21SEP04

(https://akocomm.us.army.mil/usapa/doctrines/DR_pubs/dr_aa/pdf/fm1_02.pdf) [Registration may be required]

²⁰ FM 3-0, Operations, 27FEB08 (https://akocomm.us.army.mil/usapa/doctrines/DR_pubs/dr_aa/pdf/fm3_0.pdf)

[Registration may be required]

continuously assess the progress of operations toward the desired end state. They plan to adjust operations as required to accomplish the mission.

5-20. Subordinate, supporting, adjacent, and higher commanders communicate with one another to compare perspectives and visualize their environment. Commanders increase the breadth and depth of their visualizations by collaborating with other commanders and developing a shared situational understanding. Likewise, staff input, in the form of running estimates, focuses analysis and detects potential effects on operations. Commanders direct staffs to provide the information necessary to shape their visualization.

5-21. Commanders consider the elements of operational design as they frame the problem and describe their visualization. However, the utility and applicability of some elements are often limited at the tactical level. Commanders use the elements that apply to their echelon and situation.

2.1.2 Planners

Diagrams are a tool to assist the planner in developing viable courses of action that can achieve the mission and meet the commander's intent. They provide a method to communicate plans of action to the leadership and to those trusted with mission execution. As leaders, it is critical that military signal planners be able to construct clear, concise, and effective plans that can be easily understood. As stated in paragraph 7-2 of FM 6-22²¹, effective communication skills are part of the four leader competencies:

Communicates ensures that leaders attain a clear understanding of what needs to be done and why within their organization. This competency deals with maintaining clear focus on the team's efforts to achieve goals and tasks for mission accomplishment. It helps build consensus and is a critical tool for successful operations in diverse multinational settings. Successful leaders refine their communicating abilities by developing advanced oral, written, and listening skills. Commanders use clear and concise mission orders and other standard forms of communication to convey their decisions to subordinates.

FM 5-0 addresses problem solving and the Military Decision Making Process (MDMP) in depth. "The ability to recognize and effectively solve problems is an essential skill for Army leaders... It is a systematic approach to defining a problem, developing possible solutions to solve the problem, arriving at the best solution, and implementing it."²² "Commanders normally direct their staff or subordinate leaders to recommend solutions to problems. In formal situations, they present their recommendations as staff studies, decision papers, and decision briefings."²³ Network diagrams are a critical tool for the planner in their task to both construct viable mission plans and to communicate those plans to the leadership and the executors. As leaders themselves, military network planners have a duty to clearly articulate and convey their recommendations to the commander.

²¹ FM 6-22, Army Leadership, paragraph 7-2, 19OCT06

(https://akocomm.us.army.mil/usapa/doctrine/DR_pubs/dr_aa/pdf/fm6_22.pdf) [Registration may be required]

²² FM 5-0, Army Planning and Orders Production, paragraph 2-1, 20JAN05

(https://akocomm.us.army.mil/usapa/doctrine/DR_pubs/dr_aa/pdf/fm5_0.pdf) [Registration may be required]

²³ FM 5-0, Army Planning and Orders Production, paragraph 2-3, 20JAN05

(https://akocomm.us.army.mil/usapa/doctrine/DR_pubs/dr_aa/pdf/fm5_0.pdf) [Registration may be required]

2.2 Planning Steps for the Signal Mission

Signal planners can easily integrate the VIRD-AP into the Military Decision Making Process (MDMP) and deliberate planning process. The following list of steps follows the Deliberate Planning Process doctrine of FMI 6-02.45, Signal Support to Theater Operations Chapter 2, page 2-20 that states, “The five phases are initiation, concept development, plan development, plan review, and supporting plans, which must be completed in sequence...”

2.2.1 Initiation

Determine the objectives of the mission and the units requiring support. This may come from a Warning Order (WARNORD), Operation Order (OPORD), Fragmentary Order (FRAGO), or from commander requirements. Information required in this step includes organization structures and network service requirements such as explicit service requirements like e-mail and collaboration services; implicit service requirements like NTP, DNS, and authentication services; and overhead services like network protection (firewalls, IPS), network monitoring, and update services. VIRD-AP products can assist in modeling most all of the signal requirements identified in this step. VIRD-AP symbols can provide a visual representation of the required assets stipulated in the received orders to help planners gain an initial understanding of the breadth of the required plan.

2.2.2 Concept Development

Identify the equipment required to support the mission objectives. The available equipment will be limited based on capabilities and availability according to other missions and combat effectiveness. The Operations Officer and planners usually rely on the results of the Combat Status Report (CSR) or Deployable Equipment Status Report (DESR) to determine available equipment and soldiers; this report is usually due weekly from subordinate units. Planners can exploit the capabilities of the VIRD-AP products to maintain the CSR or DESR and then use the data during concept and plan development to determine the operational state of each major end item.

2.2.3 Plan Development

Plan development is the main step where the VIRD-AP product capabilities provide faster, easier, and more consistent processes for the military signal planner. The VIRD-AP provides tailored symbols, custom properties, pre-defined layers, and reports all suitable for producing the following network diagrams:

2.2.3.1 Communication Package Diagram

A Communication Package Diagram is also a Transmission Diagram and includes primary systems of systems for a large picture overview of how these end items deploy and connect on the battlefield.

2.2.3.2 Data Network Diagram

All communication payloads are essentially data, so this includes all devices used to transport data, voice, video, etc. to depict data flow, connectivity, and protection. This diagram should show how the network will provide confidentiality, integrity, and availability.

2.2.3.3 Network Services Diagrams

These diagrams depict the available services provided by the data network(s) and their hierarchical state, if any. Depicting services permits the planners and leaders to visualize how movement and operational state changes of communication packages and data networks will affect critical network services.

2.2.4 Plan Review

Diagrams created with VIRD-AP products can help increase understanding and reduce confusion during plan briefs and rehearsals, such as Rehearsal of Concept (ROC) drills. Gathering input from subordinate units is easier when all parties are utilizing common tools, symbols, and data. Planners can easily integrate other organization's diagrams into a single product that has a consistent look and feel, common symbols, and compatible data. Making changes and finalizing the plan can take less time and produce more effective results.

2.2.5 Supporting Plans

Current and future VIRD-AP capabilities could support other plans and products by producing reports, application input files as output from planning diagrams, or initial status models. Planners can use reports generated from Visio diagrams in OPORD annexes or as technical sheets for plan implementation. In future versions of the VIRD-AP, network management applications could use diagram output as digital input to construct initial network models.

2.2.6 Comparison

The following table shows the steps of the deliberate planning process from FMI 6-02.45, the MDMP steps from FM 5-0, and how the planner can use the VIRD-AP in each method.

Phase	Operational Status ²⁴	Seven Step Problem-Solving Model ²⁵	VIRD-AP Use
Phase 1	Garrison Operations		Deployable Equipment Status Report (DESR)
Phase 2 Deliberate Planning Process	Initiation	ID The Problem	Map out mission requirements and unit locations.
		Gather Information	
		Develop Criteria	
	Concept Development	Generate Possible Solutions	Communication Package readiness status and availability
	Plan Development		Diagram development
Phase 3	Plan Review	Analyze Possible Solutions	Diagrams used for leader briefings and Rehearsal of Concept (ROC) drills
		Compare Possible Solutions	
	StartEx	Make and Implement the Decision	Metadata exported from planning diagrams into format suitable for import into management applications
	Mission Execution		Diagrams used for status tracking and FRAGO planning

Figure 1: Deliberate Planning Process, MDMP, VIRD-AP

²⁴ FMI 6-02.45, Signal Support to Theater Operations, Chapter 2, page 2-20, 05JUL07

(https://akocomm.us.army.mil/usapa/doctrine/DR_pubs/dr_aa/pdf/fmi6_02x45.pdf) [Registration may be required]

²⁵ FM 5-0, Army Planning and Orders Production, Figure 2-1, 20JAN05

(https://akocomm.us.army.mil/usapa/doctrine/DR_pubs/dr_aa/pdf/fm5_0.pdf) [Registration may be required]

This page intentionally left blank.

3 VIRD-AP Features

3.1 Custom Icons/Shapes, Stencils, and Super-Icon Sets

There are currently 39 icons²⁶ that represent 83 different Communication Packages, Network Devices, Links, Capabilities, and Boundaries. The Service icon can represent 69 defined network services bringing the total representation to 151 objects. When possible, Field Manuals (FM), Technical Manuals (TM), Standard Operating Procedures (SOP), and industry recognized symbols provided the reference for many of the icons. However, current Army doctrine²⁷ does not adequately address standardized symbols for signal communication equipment. This required many of the symbols to inherit visual styles based on older MSE symbols and many to have no supporting reference.

3.1.1 Custom Icons/Shapes

The following is a short list of features built-into the VIRD-AP icons:

- Specific icons include visual indicators that display status information based on unit SOPs.
- Applicable icons have classification color markers built-in.
- A single icon can represent numerous equipment types such as different Communication Packages, Network Devices, or Services; this reduces the amount of development work and icon maintenance while increasing standardization of symbols.
- Some icons include special markers to visually display device capabilities.
- All icons include custom properties that are specific to military planning needs.

3.1.2 Stencils

A “Stencil” is a grouping of master icons. Stencils provide an effective means of grouping, storing, distributing, and using Visio icons. By using the master icons in a stencil, Visio can keep the individual diagram icons linked to master icons on a page and only store differences between a single icon instance in the diagram and the master. This reduces file sizes and presents some other opportunities for easily modifying all of the same icons in a diagram in batch. The VIRD-AP includes three stencils to facilitate grouping, managing, distributing, and using the various icons:

- Communication Packages
- Network Diagram Symbols
- Information Systems, Services, and Miscellaneous

See [Section 4.2.2](#) for information on how to load and use the VIRD-AP stencils.

See [Chapter 5](#) for a list of the icons in each stencil.

²⁶ The Visio GUI and documentation use the terms “icon” and “shape” interchangeably; however, Visio 2007 is more consistent and prefers the term “shape.”

²⁷ Although FM 1-02, [Operational Terms and Graphics](#), contains signal symbols, the symbols do not represent current signal practices or equipment. Much of the symbols are for legacy Mobile Subscriber Equipment (MSE).

3.1.3 Super-Icon Sets

Super-Icon Sets take time saving one step further for the military signal planner. These sets combine individual icons into a predefined group to represent all of the elements of a Communication Package. The following image is an example of what a Super-Icon Set looks like:

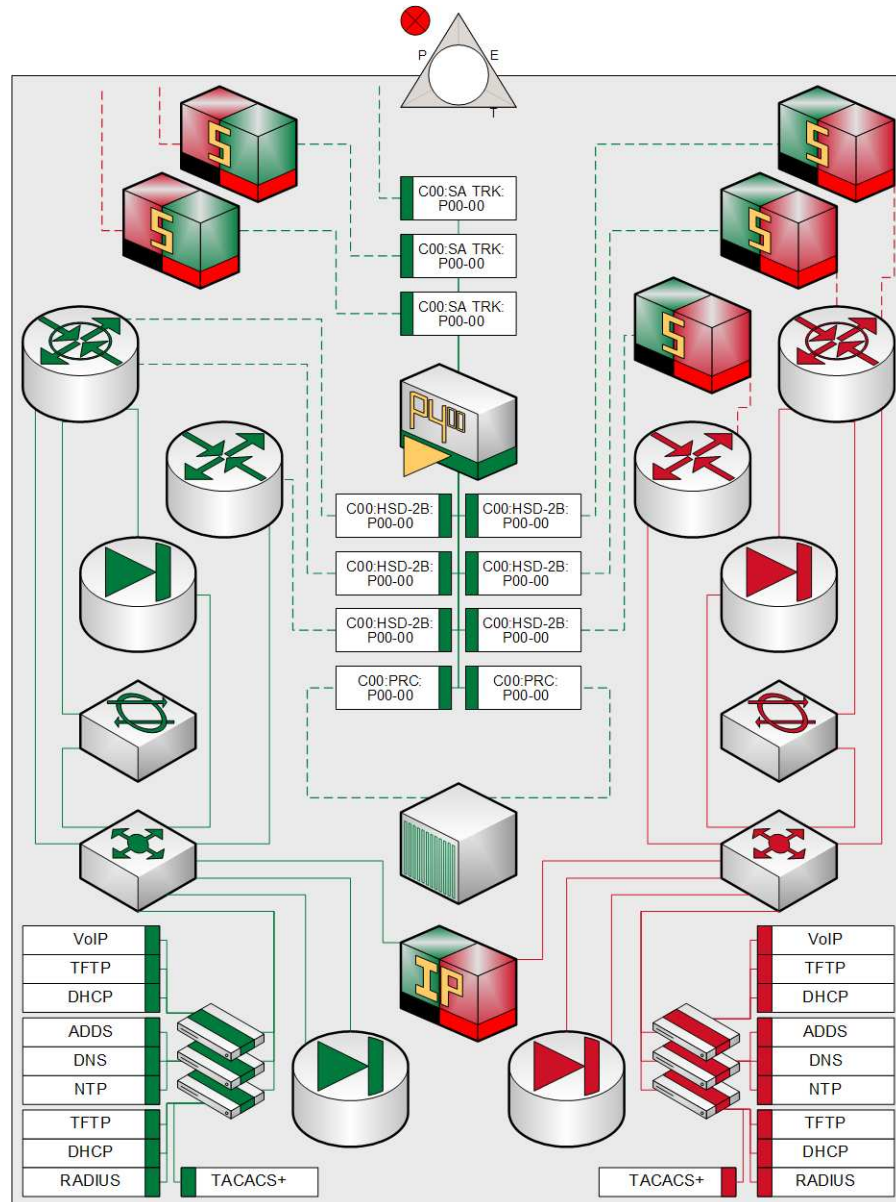


Figure 2: Example Super-Icon Set

When building network diagrams, the planner need only copy and paste an entire communication package (Super-Icon Set) onto the diagram, thereby eliminating the need to create an entire “mini-diagram” from scratch. The planner can then make minor corrections based on the mission requirements.

To preserve custom properties and master relationships, Super-Icons come packaged as a diagram library with each super-icon residing on a separate page of a single Visio document. If the super-icons are stored in stencils Visio automatically groups the component icons. When the user drags the group onto the diagram Visio creates a master of the group rather than masters for each of the individual icons. This is problematic for the user as it makes it difficult or impossible to manipulate the icons unless the icons are ungrouped. However, once ungrouped the relationship to the master is broken. The solution is to store the super-icons in a diagram library and use a copy/paste operation to place the super-icon onto a new diagram.

The following super-icon sets are available in the VIRID-AP:

- SATCOM Gateway
- Joint Network Node (JNN)
- Single Shelter Switch (SSS)
- Battalion Command Post Node (BnCPN)
- Coalition Wide Area Network (CWAN)
- AN/TYQ-127
- NETOPS Package 4NM and 21NM
- NETOPS Package 4IA and 21IA
- NETOPS Package 6
- NETOPS Package 10
- NETOPS Package 12
- NETOPS Package 22
- NETOPS Package 24
- NETOPS Package Laptop Platforms
- NETOPS Other Components

NOTE: These Super-Icon Sets are specific to 7th Signal Brigade and may need modification for use by other units.

See [Section 4.2.3](#) for information on how to access and use the VIRID-AP super-icons.

3.2 Custom Properties/Shape Data

NOTE: The Microsoft Visio team changed the Microsoft Office Visio 2003 term “Custom Properties” to “Shape Data” in Microsoft Office Visio 2007.

Users can access Custom Properties/Shape Data for each icon in several ways. Each icon will present the most critical custom properties when dropped onto the page. This includes new icons from stencils and copy/paste operations. However, the Custom Property editor that Visio presents to the user during these operations can only display a finite number of properties and will not update the icon after each value change in real time. Icon data will only update after the user presses the “OK” button.

The preferred method for editing all of the Custom Properties is by using the Custom Properties window in Visio 2003 or the Shape Data window in Visio 2007. Planners can access this window by using the “View [Menu] -> Custom Properties Window [Menu Item]” in Visio 2003 or the “View [Menu] -> Shape Data Window [Menu Item]” in Visio 2007. Visio will allow the user to float or dock the window. For a full list of all the custom properties defined for each icon, please refer to the custom property tables in [Chapter 5](#).

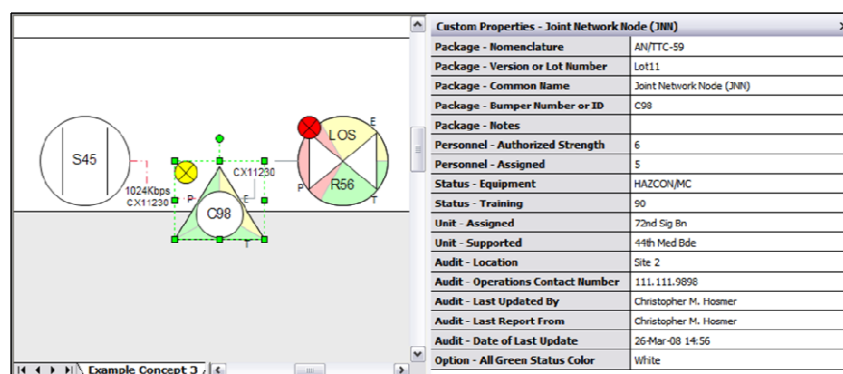


Figure 3: Icon Custom Properties Example

3.2.1 Standardization and Visual Behavior

Custom properties for all VIRD-AP icons are military specific and standardized across the shapes. This permits the diagram maker to select multiple homogeneous or heterogeneous shapes and modify the properties in bulk. For example, if all of the icons selected have the “Configuration - Classification” property in common the classification can be changed and all of the icons will receive the update. Visio will only display the properties that are common among the shapes. Only modified values update on the selected objects. This is important if selected shapes have common properties, but must have some uncommon values. For example, “Configuration - Classification” and “Device - Manufacturer” may both be common, but the planner can update the classification on all selected shapes without destroying the manufacturer values.

Custom property values can also modify the icon without further interaction required from the user. This reduces planning time and increases effectiveness by allowing the planner to concentrate on the plan, rather than how to manipulate the images to convey an idea. Two examples of how the icons react to custom property values are ID numbers and Personnel,

Equipment, Training (PET) values for Communication Packages²⁸. The screenshots below demonstrate this behavior. Providing the intelligence in the shape to modify certain visual attributes of the icon provides consistency and reduces the planner's time to complete a finished product.

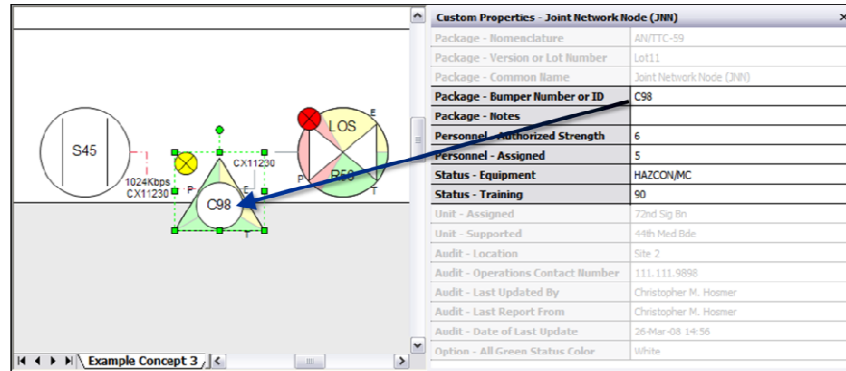


Figure 4: Example 1 of Icon Custom Properties Visual Change Behavior

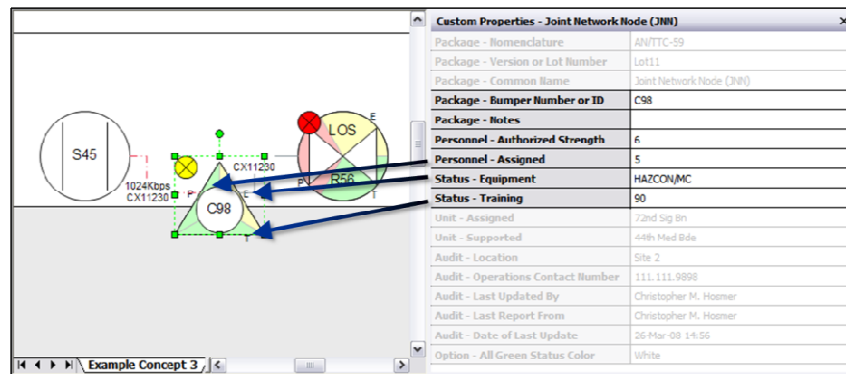


Figure 5: Example 2 of Icon Custom Properties Visual Change Behavior

3.2.2 Database Integration

The custom properties for the VIRD-AP icons provide the possibility for further database integration. The VIRD-AP currently stores all data inside of Visio. However, integrating the custom properties with database table columns could provide opportunities for mashups that can provide even more utility and effectiveness for the military signal planner and commander. An example of this would be for the shapes to pull current PET data from a database that platoon leaders populate through a web form. The icon could not only update the PET data, but provide an audit trail as well.

²⁸ See Section 5.1.1 for more information on how icons display PET information.

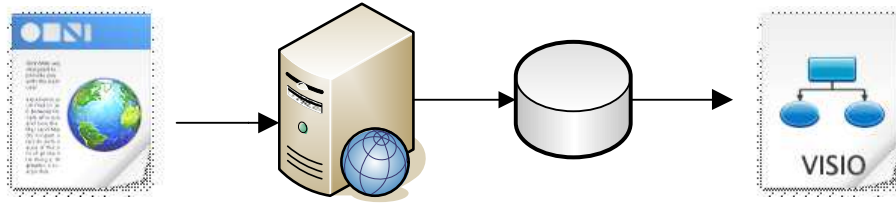


Figure 6: Database Integration Data Flow (Future)

3.2.3 Audit Data

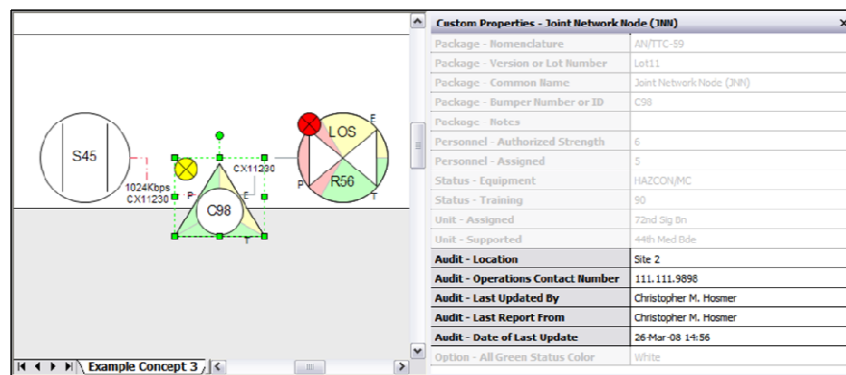


Figure 7: Custom Property Audit Fields

Most all VIRD-AP icons include audit properties for maintaining accountability for data input and updates. This is currently a manual update process. However, as mentioned previously, icons have consistent and standard custom property definitions, so the users can update audit data in bulk by selecting multiple shapes and modifying the audit properties once.

3.3 Hyperlinks

The user can assign one or more hyperlinks to any icon by simply selecting the icon and pressing “CTRL+K” or by using the menu option “Insert -> Hyperlinks...” However, many of the icons have a pre-built shortcut menu that the user can access by right-clicking the icon and choosing “Edit Hyperlink...” Online documents, websites, and even other Visio diagrams are all possible targets for hyperlinks. Many of the icons have pre-built hyperlinks for the convenience of the user. The three primary types of pre-built hyperlinks are for diagram linking, reference manual access, and geographic data access.

3.3.1 Diagram Hierarchies

The “Diagram Link” icon provides visual indicators for links to other diagrams and planning documents. For example, the network planner can create a hierarchical network plan in a single Visio document by creating separate diagrams in separate “pages” of the Visio document. The first page could be a JNN with its network stacks and the second and third pages different TOCs that get network access from the JNN. Using the “Diagram Link” icon, the user can then assign the Visio document as the hyperlink address (leave blank) and a “page” as the sub-address. The first page of the Visio document could have two “Diagram Link” icons, one for each TOC, which link to page 2 and page 3, respectively. The “Configuration - Link Direction” value would be “Lower Level Diagram” and show a downward arrow. Pages 2 and 3 would each have a “Diagram Link” icon that is linked back to page 1 and a “Configuration - Link Direction” value of “Higher Level Diagram” to show an upward arrow. “Configuration - Link Direction” can also be set to a value of “Reference Document” and the icon linked to a document such as an OPORD, annex, or additional technical data.

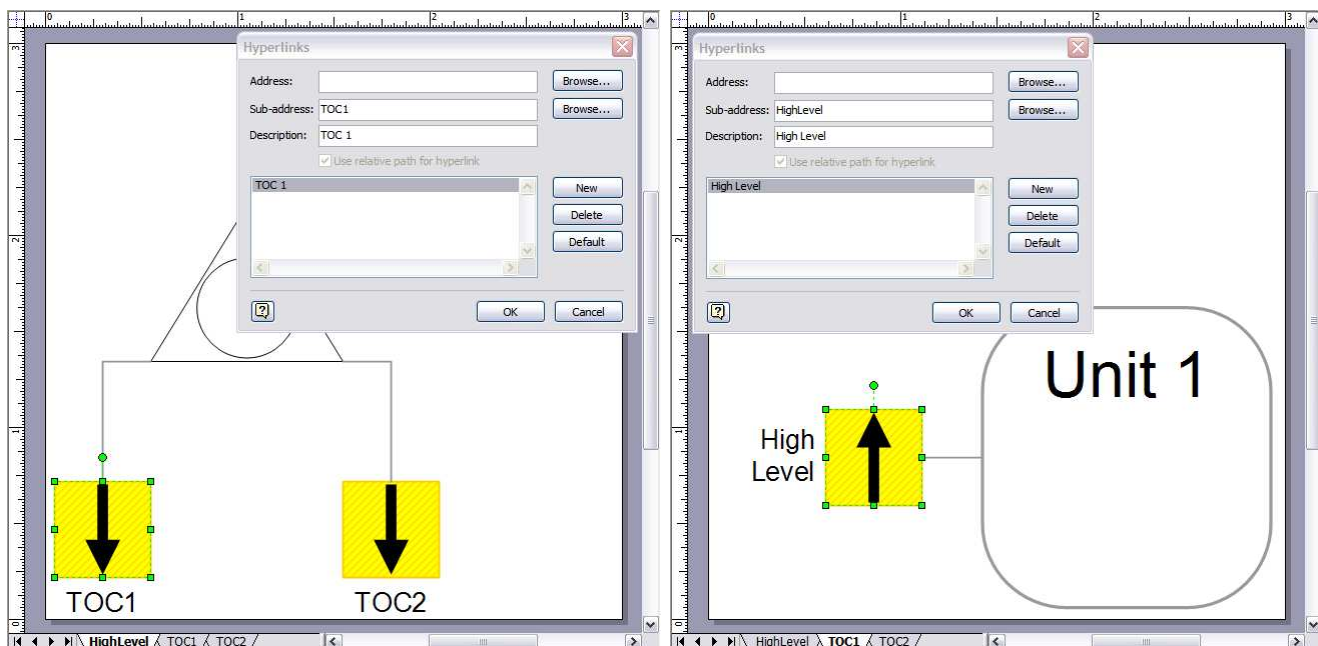


Figure 8: Example Hierarchical Diagram

3.3.2 References

Most all icons include two pre-built custom properties called “Reference - URL0” and “Reference - URL1” for use as hyperlink assignments to technical reference documents. These could be Technical Manuals, vendor documentation, or additional technical data. “Reference - URL0” should link to external sources such as Microsoft, Cisco, or ETM online documents while “Reference - URL1” is for internal network sources such as documents on a SharePoint site. The URLs are edited by accessing the hyperlink editor using one of the methods described in paragraph one. Once the URLs are input, Visio displays them as custom property values so the user can manually access them for use in other applications or use them as output in Visio reports.

3.3.3 Geographical Data

A few select icons include custom properties for storing geographical data in the form of latitude and longitude data. Visio uses this data to construct special URLs to access geographical locations on Google Maps and Google Earth. Values must be input in Decimal Degrees (DD)²⁹ not Military Grid Reference System (MGRS)³⁰ format. The “SATCOM Gateway” icon contains pre-populated values for latitude and longitude, while other icons permit manual input. Once the position values are entered Google Maps and Google Earth can be accessed by right-clicking the icon and selecting either “Google Maps Location” or “Google Earth Location.”

The custom property values for latitude and longitude must be in Decimal Degrees (DD). The Defense Advanced GPS Receiver (DAGR), AN/PSN-13, is capable of displaying DD; the Coordinate/Grid System ID is listed as “L/L Deg” under the Display Setup -> Units menu³¹. However, the legacy Precision Lightweight GPS Receiver (PLGR), AN/PSN-11, is not capable of displaying DD. Several tools are freely available to manually convert from one coordinate system, such as Military Grid Reference System (MGRS), to DD. The following tools are only examples; the author of this manual has not tested these tools for accuracy or robustness:

- **Developer:** National Geospatial Intelligence Agency (NGA) of the United States Department of Defense
Package: Geographic Translator (GEOTRANS)
Download URL: <http://earth-info.nga.mil/GandG/geotrans/index.html>
NOTE: Be sure to change the default geodetic units from “Degrees/Minutes/Seconds” to “Degrees” by using the menu “Options -> Geodetic Units”
- **Developer:** (c)2005-2006 Barry Hunter
Package: Worldwide MGRS Gridlines Layer (06-07-06)
Download URL: <http://www.nearby.org.uk/google.html#17>
- **Developer:** (c)2005-2006 Barry Hunter
Package: MGRS Layer for Google Earth - Offline! (19-06-07)
Download URL: <http://www.nearby.org.uk/google.html#21>

²⁹ Wikipedia, “Decimal degrees”, 15APR08 (http://en.wikipedia.org/w/index.php?title=Decimal_degrees&oldid=205866788)

³⁰ Wikipedia, “Military grid reference system”, 13MAR08

(http://en.wikipedia.org/w/index.php?title=Military_grid_reference_system&oldid=197953401)

³¹ TM 11-5820-1172-13 with Change 1, Operator and Maintenance Manual Defense Advanced GPS Receiver (DAGR) Satellite Signals Navigation Set, Table 10-1, 01JUN05

3.3.4 Troubleshooting

When using hyperlinks in Visio that are linked to external online documents, such as the dynamically generated Keyhole Markup Language (KML)³² files for Google Earth, there are certain system configurations that may cause the links to fail. This is a Windows/Internet Explorer/Visio issue, not an icon formula issue. During testing one particular configuration caused a failure, but has an easy work around if the user cannot or should not modify the system configuration.

3.3.4.1 Conditions

- Internet Explorer is the default browser
- No Internet Explorer windows are open ("iexplore.exe" process is not running)
- "Clear cache on exit" is enabled: Internet Properties [Control Panel]-> Advanced [Tab] -> Settings [Section] -> Security [Sub-Section] -> Empty Temporary Internet Files folder when browser is closed [Option] -> Checked [Check Box]

3.3.4.2 Symptoms

The user activates a hyperlink on a Visio icon to an online document, Visio attempts to open the linked document, Internet Explorer displays the "File Download" dialog box, and the user chooses "Open" and nothing happens or chooses "Save" and is presented with a dialog box titled "Error Copying File or Folder" and the error message, "Cannot copy file: Cannot read from the source file or disk."

3.3.4.3 Workarounds

- Disable "clear cache on exit" feature of Internet Explorer
- -OR-
- Open Internet Explorer and keep the "iexplorer.exe" process open while using Visio. The user can minimize the Internet Explorer window; the process just needs to be running to keep the downloaded file in the cache long enough for the operating system to save or open the file.

3.4 Layers

"A layer is a named category of shapes. By assigning shapes to different layers, you can selectively view, print, color, and lock different categories of shapes, as well as control whether you can snap to or glue to shapes on a layer." – Microsoft Office Visio 2003 Help (About layers)

VIRD-AP icons are members of one or more layers to assist the planner in creating multiple diagram types in a single file. Layering facilitates diagram creation and permits the planner and the leadership to view different representations of the communication plan from within a single

³² Wikipedia, "Keyhole Markup Language", 15MAY08

(http://en.wikipedia.org/w/index.php?title=Keyhole_Markup_Language&oldid=212700381)

document and see the relationship of each layer of the communication system. There are currently 22 basic layers and 69 network service specific layers defined in VIRD-AP shapes, bringing the total to 91 predefined layers. For a complete list of pre-defined layers please see [Section 5.2.1](#).

3.4.1 Layer Assignment

3.4.1.1 Storing

The master page ShapeSheet of each icon contains the layer definitions referenced by a number in the ShapeSheet's "Layers" table; each shape in the icon has a ShapeSheet table called "Layer Membership" that contains a semicolon delimited list of layer numbers. When a user drags an icon onto a diagram, Visio adds the list of layers on the icon's master page to the "Layers" table of the diagram's page.

3.4.1.2 Creating and Assigning

Users can create and assign additional layers or remove existing ones. To create a new layer, right-click a shape and navigate to "Format [Sub-Menu] -> Layer... [Menu Item]" to bring up the layer assignment interface. The interface displays all available layers in the diagram. Visio assigns any layer with a checkmark in its checkbox to the shape. Click the "New..." button, assign a name to the layer, and click the "OK" button. To remove a shape from a layer, simply remove the checkmark from the layer's checkbox. Since the page's ShapeSheet stores the layers, a planner can assign any shape to any layer.

3.4.1.3 Special Case "Service" Shapes

All of the VIRD-AP icons are members of one or more layers created specifically to facilitate different views of a single plan and should not require layer membership modification by the planner. The "Service" and "Service Link Connector" icons in the "Information Systems, Services, and Miscellaneous" stencil are special cases. Due to the number of defined services it is not feasible to create a unique icon and connector for each service. Since shapes store their layer membership as reference numbers to the page's "Layers" table rows and the row numbers can be unique for each diagram's page ShapeSheet, it is not currently possible for the VIRD-AP icons to assign their own service layer membership via formulas in the ShapeSheet. Therefore, the "Service" icon is a member of all service layers by default so that all of the service layers are available to the diagram when a service icon is first dropped onto the document.

After assigning a value to the "Type - Service" property of the icon, the planner should modify the layer properties of the shape to match the value. The planner should right-click the service icon and navigate to "Format [Sub-Menu] -> Layer... [Menu Item]" to bring up the layer assignment interface. The user should remove the checkboxes from all of the layers named "Diagram - Service - [Type Abbreviation]" except for the specific service type that the icon represents. The abbreviation for the service will match the abbreviation displayed on the icon. Be sure not to remove the other layer assignments such as "Diagram - Service" or "Type - Service."

To simplify maintenance and to ensure that service definitions remain in sync, the "Service Link Connector" is not a member of any service type layer by default. Once a planner drops a service icon onto the diagram, Visio adds all of the service type layers to the page. The planner can then

connect a “Service Link Connector” to a “Service” icon and assign the “Service Link Connector” to a service type layer.

NOTE: Do not select both the “Service Link Connector” and “Service” icon at the same time and attempt to assign both to layers simultaneously. Unlike modifying custom property values where Visio only updates changed values, Visio will modify all layer assignments to match. The “Service Link Connector” and “Service” icons are members of different layers with only the “Diagram - Service” and “Diagram - Service - [Type Abbreviation]” layers in common.

3.4.2 How to Use Layers

3.4.2.1 Locking

Layers can assist the planner by making it easier to manipulate objects from within Visio. The first example of this is by utilizing the locking feature. The planner can “lock” a set of shapes, such as the VIRD-AP boundary shapes, to prevent Visio from including those shapes in “select” operations. This makes it easier for users to select objects that are on top of other objects without moving or modifying the underlying shapes. To lock shapes, go to “View [Menu] -> Layer Properties... [Menu Item]” to bring up the “Layer Properties” interface. Place a checkmark in the “Lock” column for each layer that Visio should lock.

3.4.2.2 Displaying or Hiding

The same interface used to lock layers provides the capability to display and hide layers. This is useful for displaying only specific shapes to portray different diagram types. [Section 5.2](#) lists examples of different diagram types that a planner can create from layered VIRD-AP objects. In the “Layer Properties” interface uncheck all layers in the “Visible” column; Visio will check or uncheck all layers in batch if the user clicks the column heading. Enable the layers described under each diagram type to activate only the shapes needed for that diagram.

The VIRD-AP comes with an example diagram in the “.\Examples\” folder named “VIRD-AP Concept Example 12.vsd.” Open this diagram, deactivate all layers, and activate the layers described in the right column of the diagram or in [Section 5.2](#) of this manual to see how the layer function can be exploited to show relationships and different diagram types from a single document.

3.4.2.3 Selecting

A third useful feature of layers is in the selection options. Navigate to the “Edit [Menu] -> Select by Type... [Menu Item]” to bring up the “Select by Type...” interface. Activate the “Layer:” radio button and then select the layer or layers that Visio should select. This makes object selection much easier in large, complex diagrams where the planner needs to modify a large number of objects at once, such as moving icons or modifying custom property values.

3.5 Reports

Visual plans are only a portion of the power gained by using Visio and customized icons. Metadata stored in each object can provide operational data from the network diagrams. This reduces the need for planners to display metadata directly on the plan making the diagrams easier to read and providing a better interface for reusing the data associated with each object. The VIRD-AP comes

with 17 pre-defined reports, including reports for basic network device configurations, contact lists, status reports, access schedules, and mission site lists. For a complete list of pre-defined reports, please refer to [Section 5.3](#). See [Section 4.2.4](#) for instructions on how to load the pre-defined reports. To run a report, navigate to Tools [Menu] -> Reports... [Menu Item]", select a report to run, and press the "Run..." button.

Planners can generate reports as HTML pages, XML files, Microsoft Excel worksheets, or as Visio shapes. HTML reports are suitable for posting to portals such as SharePoint. Other applications can possibly use XML reports as input. Microsoft Excel worksheets provide a familiar environment for planners to further manipulate data. Reports can extend the utility of the planning diagram beyond a simple visual representation to storing and providing the cut sheets and technical data required for Rehearsal of Concept (ROC) drills and OPORDs.

3.6 Web Presence

Microsoft provides a free viewer that is suitable for Windows platforms authorized to install the ActiveX control. For more information on browser support and Army approval for the free viewer, please read [Section 1.2.1](#). This viewer provides a user with access to the native Visio document format from within Internet Explorer. However, Visio can also export diagrams as web documents and even integrate the diagram with reports generated from the Custom Properties of the shapes in the diagram. Planners can then post these files on web portals to provide access to a wider audience for planning, command, and control purposes.

For directions on how to generate individual reports from a diagram, please refer to [Section 3.5](#); be sure to select "HTML" for the report format. To export a diagram as a web document, select "File [Menu] -> Save as Web Page... [Menu Item]," choose a save location, assign a file name, and press the "Save" button.

To export both the diagram and reports into an integrated web interface navigate to "File [Menu] -> Save as Web Page... [Menu Item]," choose a save location, assign a file name, and press the "Publish..." button. Under "General [Tab] -> Pages to publish [Section]" select which pages in the Visio document to export. Under the "General [Tab] -> Publishing options [Section]" select which reports to generate and include with the diagrams. After pressing the "OK" button Visio will generate a webpage for each page and report selected for export. All of the pages will be accessible through a single web interface. The planner can then move these files to a web server or portal. To see an example of the web output, open the file "VIRD-AP_Concept_Example_12.htm" in the ".\Examples\Web\" folder of the VIRD-AP installation files.

4 User Environment

4.1 Prerequisites

4.1.1 Microsoft Office Visio

The VIRD-AP requires Microsoft Office Visio 2003 or Microsoft Office Visio 2007. The U.S. Army Certificate of Networthiness for Microsoft Visio 2003 specifically covers the professional version. The Certificate of Networthiness for Microsoft Visio 2007 does not specify professional over standard; however, CHES only provides purchase item numbers for the professional version. The VIRD-AP is developed and tested under Microsoft Office Visio Professional 2003, so there is no guarantee that all features will work in the standard version. Future plans for the VIRD-AP will require features known to only exist in the professional version of Microsoft Office Visio.

4.1.2 Supporting Applications

To view web output, Microsoft Internet Explorer 7 will provide the most functionality, but Internet Explorer 6 or Mozilla Firefox can also display Visio web output. Microsoft applications like Office Word, Excel, and PowerPoint can enhance the usefulness of the solution. Visio can produce VIRD-AP reports in Microsoft Office Excel format. Microsoft Office Word and PowerPoint can use Visio diagrams as embedded objects or exported images.

4.1.3 References

Please refer to [Section 1.2.1](#) for more information on U.S. Army authorization, requirements, and CHES item numbers to purchase Microsoft Office Visio Professional. For information on hardware and systems requirements, please refer to the following web pages:

- Minimum system requirements for Visio 2007 and for Visio 2003
<http://support.microsoft.com/kb/829913>
- List of system requirements for Microsoft Office 2003
<http://support.microsoft.com/kb/822129>
- System requirements for the 2007 Office release
<http://technet.microsoft.com/en-us/library/cc179151.aspx>
- Internet Explorer System Requirements
<http://www.microsoft.com/windows/downloads/ie/sysreq.mspx>
- Mozilla Firefox 2 System Requirements
<http://www.mozilla.com/en-US/firefox/system-requirements>

4.2 Quick Start

NOTE: All non-boundary icons fit in a 1"x1" space for use in plotter sized diagrams. While planners can resize icons to be smaller or larger than their original size, symbol outlines may distort. Future versions of the VIRD-AP will fix this issue.

4.2.1 Archive Package

The VIRD-AP comes packaged as a compressed ZIP³³ archive. Microsoft Windows XP and Vista both support the ZIP archive format, as do various desktop utility applications. Decompress the archive into any folder on the target system.

4.2.2 Stencils

- Navigate to your local "%USERPROFILE%\My Documents\My Shapes\" folder and create a new folder called "VIRD-AP" (no quotes).
- Place the four files in the decompressed archive's ".\Stencils\" folder into the new "VIRD-AP" folder.
- Start, or restart, Visio and create a blank diagram.

The stencils will now be available under the "File [Menu] -> Shapes [Submenu] -> My Shapes [Submenu] -> VIRD-AP [Submenu]" item. Select each of the three VIRD-AP stencils to open them in the new document. To use an icon drag it out of the stencil onto the diagram.

- Alternatively, open the template file "VIRD-AP Diagram.vst" that you copied to the "%USERPROFILE%\My Documents\My Shapes\VIRD-AP\" folder. This will open a 34"x44" sheet and all of the VIRD-AP stencils.
- To make the VIRD-AP diagram template available in the Visio interface navigate to "Tools [Menu] -> Options... [Menu Item] -> Advanced [Tab] -> File Paths... [Button]"
- Modify the "Templates:" path to point to the "%USERPROFILE%\My Documents\My Shapes\" folder; if there is already a path definition, separate the two paths with a semi-colon.

"VIRD-AP" will now be a template category available in the Visio "File [Menu] -> New [Submenu]" area.

NOTE: Do not copy and paste the path above directly into the "Templates:" path area as Visio may not resolve the system variable "%USERPROFILE%." Instead press the "..." button and then paste the path into the "Folder name:" path area and press the "Select" button. Explorer will resolve the system variable and return the full path to Visio.

4.2.3 Super-Icons

The Super-Icons come packaged as a multi-page Visio document.

- Open the Super-Icon file in the decompressed archive's ".\SuperIcons\" folder.

³³ Wikipedia, "ZIP (file format)", 16MAY08

(http://en.wikipedia.org/w/index.php?title=ZIP_file_format&oldid=212815554)

- Choose a Super-Icon using the tabs at the bottom of the Visio interface.
- Press "CTRL+A" to select the entire Super-Icon.
- Press "CTRL+C" to copy the Super-Icon.
- Navigate to the new diagram.
- Press "CTRL+V" to paste the Super-Icon into the new diagram.

4.2.4 Report Definitions

Users can place the report definition files found in the decompressed archive's ".\Reports\" folder in any folder on the local machine.

- Access the reports from within Visio by using the "Tools [Menu] -> Reports... [Menu Item]" menu option and the "Browse..." button.
- To have the reports listed automatically in the reports GUI, navigate to "Tools [Menu] -> Options... [Menu Item] -> Advanced [Tab] -> File Paths... [Button]"
- Modify the "Drawings:" path to point to the location of the report definition (*.VRD) files; if there is already a path definition, separate the two paths with a semi-colon.

NOTE: Changing the "Drawings:" path also changes Visio's default save location for files.

5 Product References

5.1 Stencils

A Stencil is a grouping of master icons. Each VIRD-AP stencil includes multiple icons grouped by category or function. A single icon can represent numerous equipment types such as different Communication Packages, Network Devices, or Services. Most icons have been created from scratch based on unit SOPs or generally accepted industry standards, while a few Visio stock icons have been heavily modified to conform to military signal requirements.

Some icons include visual indicators that display status information based on unit SOPs or special markers to visually display device capabilities. Applicable icons have classification color markers built-in.

The following tables provide a quick reference to all of the objects that the icons can represent and the associated custom properties defined for each icon.

NOTE: Almost all icons include the capability to add one or more hyperlinks. Signal planners can use these hyperlinks to link to other Visio diagrams, configuration documents, Technical or User manuals, web pages, or map coordinates in applications such as Google Earth. For more information, please refer to [Section 3.3](#).

5.1.1 Communication Packages

The Communication Package icons indicate operational readiness using the PET method: P-Personnel, E-Equipment, T-Training. The pie chart shows each category in a status of Green, Amber, or Red based on metrics defined by the 7th Signal Brigade's Standard Operating Procedures (SOP). The table below shows examples of a single icon's different states:

Icon Not Configured	Overall Amber Status	Overall Red Status	Overall Green Status (Network Diagram)	Overall Green Status (Status Diagram)

Table 2: Communication Package Icon State Table

The table below displays all icons in their non-configured state with the exception of the Communication Package sub-type, as applicable. The purpose of this is to show different object types and the text ID# custom property so the reader can observe the text label placement.

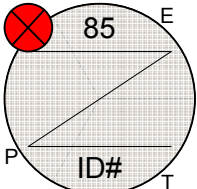
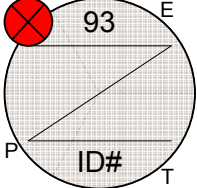
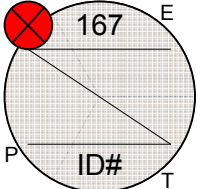
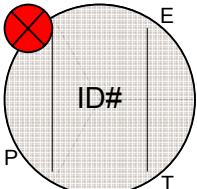
5.1.1.1 Icons

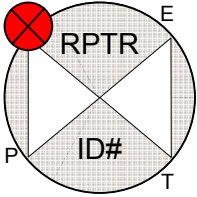
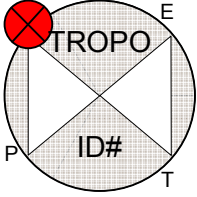
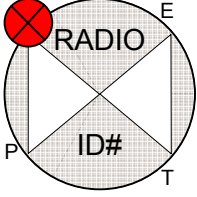
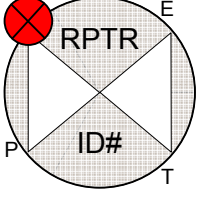
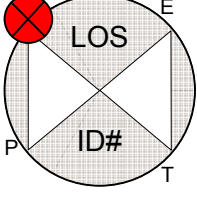
The table uses the following column label abbreviations:

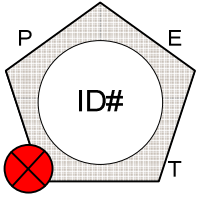
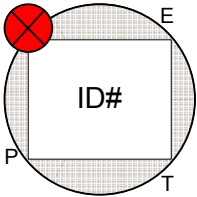
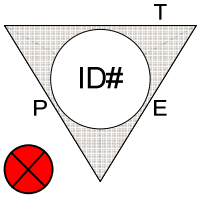
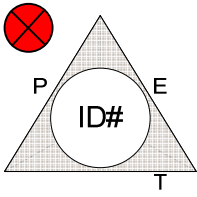
SC: ShapeClass

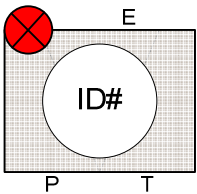
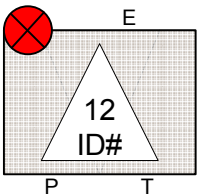
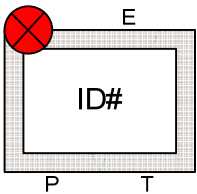
ST: ShapeType

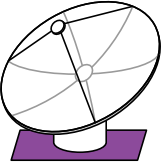
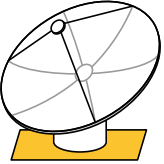
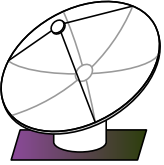
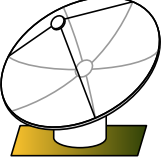
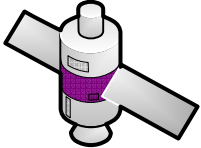
SST: SubShapeType

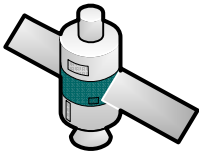






Symbol	Nomenclature	Versions	Common Name	SC	ST	SST
	AN/TSC-85	B(V)2, B(V)1, C(V)1, D	SATCOM	Connectivity	Communication Package	Shelter
	AN/TSC-93	B(V)2, C(V)1, D	SATCOM	Connectivity	Communication Package	Shelter
	AN/TSC-167	-	SATCOM (STT) [Satellite Transportable Console]	Connectivity	Communication Package	Shelter
	AN/TSC-156	-, A	SATCOM (Phoenix)	Connectivity	Communication Package	Shelter

Symbol	Nomenclature	Versions	Common Name	SC	ST	SST
	AN/TRC-138	A, C	SHF Radio Repeater Set	Connectivity	Communication Package	Shelter
	AN/TRC-170	(V)2, (V)3	Radio Terminal Set (TROPO)	Connectivity	Communication Package	Shelter
	AN/TRC-173	-, A, B	UHF Radio Terminal Set	Connectivity	Communication Package	Shelter
	AN/TRC-174	-, A, B	Radio Repeater Set	Connectivity	Communication Package	Shelter
	AN/TRC-190	(V)3	High Capacity Line of Sight System (LOS)	Connectivity	Communication Package	Shelter

Symbol	Nomenclature	Versions	Common Name	SC	ST	SST
	AN/TTC-56	-	Single Shelter Switch (SSS)	Connectivity	Communication Package	Shelter
	AN/TTC-48	C(V)1, C(V)3, A(V)2, C(V)2, C(V)4	Small Extension Node (SEN)	Connectivity	Communication Package	Shelter
	AN/TTC-58	(V)	Base-Band Node (BBN)	Connectivity	Communication Package	Shelter
	AN/TTC-59	Lot1, Lot2, Lot3, Lot4, Lot5, Lot6, Lot7, Lot8, Lot9, Lot10	Joint Network Node (JNN)	Connectivity	Communication Package	Shelter

Symbol	Nomenclature	Versions	Common Name	SC	ST	SST
	OM-87/T	-	Battalion Command Post Node (BnCPN)	Connectivity	Communication Package	Transit Case
	Package 1 Package 4NM Package 4IA Package 5 Package 6 Package 8 Package 9 Package 10 Package 12 Package 21NM Package 21IA Package 22 Package 24	Baseline 2	JNN Baseline 2 NETOPS Package	Connectivity	Communication Package	Transit Case
	GDP		Generic Data Package	Connectivity	Communication Package	Transit Case

Symbol	Nomenclature	Versions	Common Name	SC	ST	SST
	STEP		Standardized Tactical Entry Point	Connectivity	Communication Package	SATCOM Gateway
	DTP		DISA Teleport	Connectivity	Communication Package	SATCOM Gateway
 	FRHN		Fixed Regional Hub Node	Connectivity	Communication Package	SATCOM Gateway
			DoD Satellite	Connectivity	Communication Package	Satellite

Symbol	Nomenclature	Versions	Common Name	SC	ST	SST
			Commercial Satellite	Connectivity	Communication Package	Satellite
			Cable Link	Connectivity	Communication Package	Transmission Type
			LOS Link	Connectivity	Communication Package	Transmission Type
			Broadcast Link	Connectivity	Communication Package	Transmission Type
			X Band Link	Connectivity	Communication Package	Transmission Type
			Ku Band Link (FDMA and TDMA)	Connectivity	Communication Package	Transmission Type
			Ka Band Link	Connectivity	Communication Package	Transmission Type



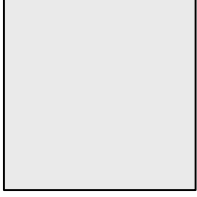
Symbol	Nomenclature	Versions	Common Name	SC	ST	SST
			C Band Link	Connectivity	Communication Package	Transmission Type
			Unknown Link Type	Connectivity	Communication Package	Transmission Type
			Communication Package Boundary			

Table 3: Communication Package Icons

5.1.1.2 Custom Properties

The following column heading information is from the Visio 2003 Help.

Name: Specifies the name of the custom property in the ShapeSheet spreadsheet. For example, if you use the name Location, the ShapeSheet shows the row name Prop.Location. This option provides solution developers with control over row naming for writing formulas, code, and so on.

The Name option is only available when you are in developer mode.

Label: Specifies a name for the custom property. The label appears next to the field where the user enters data. A label consists of alphanumeric characters, including the underscore (_) character.

Prompt: Specifies descriptive or instructional text that appears when the property is selected in the Custom Properties dialog box or when the mouse is paused over the custom property label in the Custom Properties window.

T: Type: Specifies the data type for the custom property value.

0: String: Alphanumeric data.

1: Fixed List: A fixed list of options from which the user can select. The list is defined in the Format box.

2: Number: Numeric data.

3: Boolean: Boolean (TRUE/FALSE) data.

4: Variable List: A list of options from which the user can select or add a new entry. The list is defined in the Format box.

5: Date: Dates and times. The calendar type is set in the Calendar box and affects the date formatting selections available in the Format list.

6: Duration: Period of existence in time.

7: Currency: Monetary data, using the regional settings of Microsoft Windows for decimal and currency symbols.

SK: Sort Key: Specifies the placement of the custom property in the Custom Properties dialog box and the Custom Properties window. For example, a custom property with a sort key of "a" appears above one with a sort key of "b". Within the Define Custom Properties dialog box, the properties appear in the order in which they were created.

The Sort key option is only available when you are in developer mode.

I: Invisible (Hidden): Hides the property from the user. This option is useful for solution developers who need to store properties for certain operations that don't need to be made visible to users.

The Hidden option is only available when you are in developer mode.

V: Verify (Ask on drop): Prompts users to enter custom property information for a shape when they create instances of the shape or when they duplicate or copy a shape.

The Ask on drop option is only available when you are in developer mode.

NOTE: Some values are abbreviated for space considerations:

NF: No Formula: The default condition for NF is normally FALSE.

T: TRUE

Name	Label	Prompt	T	SK	I	V	Icon
linkType	Link - Type	Select the type of link.	1	01	NF	T	Transmission Link Connector
gatewayType	Package - Gateway Type	This field is automatically populated based on the location value (information last updated 14MAR08).	0	01	NF	NF	SATCOM Gateway
packageNomenclature	Package - Nomenclature	Enter the official nomenclature of the package.	0	01	NF	T	Generic Data Package
		Select the official nomenclature of the package.	1	01	NF	T	Radio Terminal
			1	01	NF	T	JNN Baseline 2 NETOPS Package
			1	01	NF	T	SATCOM Terminal
		This field is automatically populated.	0	01	NF	NF	Base-Band Node (BBN)
			0	01	NF	NF	Battalion Command Post Node (BnCPN)
			0	01	NF	NF	Joint Network Node (JNN)
			0	01	NF	NF	SATCOM (Phoenix)
			0	01	NF	NF	Single Shelter Switch (SSS)

Name	Label	Prompt	T	SK	I	V	Icon
			0	01	NF	NF	Small Extension Node (SEN)
satelliteType	Package - Satellite Type	Select the type of satellite.	1	01	NF	T	Satellite
linkBandwidth	Link - Bandwidth	Enter the bandwidth of the link. Be sure to include the unit of measure such as Kilobits Per Second (Kbps) or Megabits Per Second (Mbps).	0	02	NF	T	Transmission Link Connector
packageBands	Package - Capable Bands	This field is automatically populated based on the location value (information last updated 14MAR08).	0	02	NF	NF	SATCOM Gateway
versionLot	Package - Version or Lot Number	Choose or enter the version or lot number of the package.	4	02	NF	T	Base-Band Node (BBN)
			4	02	NF	T	Battalion Command Post Node (BnCPN)
			4	02	NF	T	Generic Data Package
			4	02	NF	T	Joint Network Node (JNN)
			4	02	NF	T	JNN Baseline 2 NETOPS Package
			4	02	NF	T	Radio Terminal
			4	02	NF	T	SATCOM (Phoenix)
			4	02	NF	T	SATCOM Terminal
			4	02	NF	T	Single Shelter Switch (SSS)
			4	02	NF	T	Small Extension Node (SEN)
linkOtherLabel	Link - Other Label	If applicable, type additional data to display on the link label.	0	03	NF	T	Transmission Link Connector

Name	Label	Prompt	T	SK	I	V	Icon
packageCommonName	Package - Common Name	Enter the common name of the package.	0	03	NF	T	Generic Data Package
		This field is automatically populated based on the nomenclature value.	0	03	NF	NF	Base-Band Node (BBN)
			0	03	NF	NF	Battalion Command Post Node (BnCPN)
			0	03	NF	NF	Joint Network Node (JNN)
			0	03	NF	NF	JNN Baseline 2 NETOPS Package
			0	03	NF	NF	Radio Terminal
			0	03	NF	NF	SATCOM (Phoenix)
			0	03	NF	NF	SATCOM Terminal
			0	03	NF	NF	Single Shelter Switch (SSS)
			0	03	NF	NF	Small Extension Node (SEN)
ID	Package - Bumper Number or ID	Enter the unique identifier for the package.	0	04	NF	T	Base-Band Node (BBN)
			0	04	NF	T	Battalion Command Post Node (BnCPN)
			0	04	NF	T	Generic Data Package
			0	04	NF	T	Joint Network Node (JNN)
			0	04	NF	T	JNN Baseline 2 NETOPS Package
			0	04	NF	T	Radio Terminal
			0	04	NF	T	SATCOM (Phoenix)
			0	04	NF	T	SATCOM Terminal
			0	04	NF	T	Single Shelter Switch (SSS)
			0	04	NF	T	Small Extension Node (SEN)

Name	Label	Prompt	T	SK	I	V	Icon
linkNotes	Link - Notes	Enter relevant notes for this transmission link.	0	040	NF	T	Transmission Link Connector
packageNotes	Package - Notes	Enter relevant notes for this Communication Package.	0	040	NF	T	Base-Band Node (BBN)
			0	040	NF	T	Battalion Command Post Node (BnCPN)
			0	040	NF	T	Generic Data Package
			0	040	NF	T	Joint Network Node (JNN)
			0	040	NF	T	JNN Baseline 2 NETOPS Package
			0	040	NF	T	Radio Terminal
			0	040	NF	T	SATCOM (Phoenix)
			0	040	NF	T	SATCOM Gateway
			0	040	NF	T	SATCOM Terminal
			0	040	NF	T	Satellite
			0	040	NF	T	Single Shelter Switch (SSS)
			0	040	NF	T	Small Extension Node (SEN)
personnelAuthorized	Personnel - Authorized Strength	Enter the number of personnel that are supposed to be assigned to the package according to authorization documents.	2	05	NF	T	Base-Band Node (BBN)
			2	05	NF	T	Battalion Command Post Node (BnCPN)
			2	05	NF	T	Generic Data Package
			2	05	NF	T	Joint Network Node (JNN)
			2	05	NF	T	JNN Baseline 2 NETOPS Package
			2	05	NF	T	Radio Terminal
			2	05	NF	T	SATCOM (Phoenix)
			2	05	NF	T	SATCOM Terminal

Name	Label	Prompt	T	SK	I	V	Icon
			2	05	NF	T	Single Shelter Switch (SSS)
			2	05	NF	T	Small Extension Node (SEN)
personnelAssigned	Personnel - Assigned	Enter the actual number of personnel assigned to the package.	2	06	NF	T	Base-Band Node (BBN)
			2	06	NF	T	Battalion Command Post Node (BnCPN)
			2	06	NF	T	Generic Data Package
			2	06	NF	T	Joint Network Node (JNN)
			2	06	NF	T	JNN Baseline 2 NETOPS Package
			2	06	NF	T	Radio Terminal
			2	06	NF	T	SATCOM (Phoenix)
			2	06	NF	T	SATCOM Terminal
			2	06	NF	T	Single Shelter Switch (SSS)
			2	06	NF	T	Small Extension Node (SEN)
equipmentStatus	Status - Equipment	FMC: Fully Mission Capable (ready to execute a mission)	1	07	NF	T	Base-Band Node (BBN)
			1	07	NF	T	Battalion Command Post Node (BnCPN)
		HAZCON/MC: Hazardous Condition/Mission Capable (ready to execute a mission at a reduced capability or HAZCON)	1	07	NF	T	Generic Data Package
			1	07	NF	T	Joint Network Node (JNN)
			1	07	NF	T	JNN Baseline 2 NETOPS Package
		NMC: Non-Mission Capable (unable to complete a mission)	1	07	NF	T	Radio Terminal
			1	07	NF	T	SATCOM (Phoenix)
			1	07	NF	T	SATCOM Terminal

Name	Label	Prompt	T	SK	I	V	Icon
			1	07	NF	T	Single Shelter Switch (SSS)
			1	07	NF	T	Small Extension Node (SEN)
trainingStatus	Status - Training	Enter the percentage of personnel that have completed certified battalion-level training as verified by the Battalion S-3 and endorsed by the Battalion Commander. Certification is only valid for 180 days.	2	08	NF	T	Base-Band Node (BBN)
			2	08	NF	T	Battalion Command Post Node (BnCPN)
			2	08	NF	T	Generic Data Package
			2	08	NF	T	Joint Network Node (JNN)
			2	08	NF	T	JNN Baseline 2 NETOPS Package
			2	08	NF	T	Radio Terminal
			2	08	NF	T	SATCOM (Phoenix)
			2	08	NF	T	SATCOM Terminal
			2	08	NF	T	Single Shelter Switch (SSS)
			2	08	NF	T	Small Extension Node (SEN)
assignedUnit	Unit - Assigned	Enter the name of the unit that owns the equipment.	0	09	NF	T	Base-Band Node (BBN)
			0	09	NF	T	Battalion Command Post Node (BnCPN)
			0	09	NF	T	Generic Data Package
			0	09	NF	T	Joint Network Node (JNN)
			0	09	NF	T	JNN Baseline 2 NETOPS Package
			0	09	NF	T	Radio Terminal
			0	09	NF	T	SATCOM (Phoenix)
			0	09	NF	T	SATCOM Terminal

Name	Label	Prompt	T	SK	I	V	Icon
			0	09	NF	T	Single Shelter Switch (SSS)
			0	09	NF	T	Small Extension Node (SEN)
supportedUnit	Unit - Supported	Enter the name of the unit being supported by this equipment.	0	10	NF	T	Base-Band Node (BBN)
			0	10	NF	T	Battalion Command Post Node (BnCPN)
			0	10	NF	T	Generic Data Package
			0	10	NF	T	Joint Network Node (JNN)
			0	10	NF	T	JNN Baseline 2 NETOPS Package
			0	10	NF	T	Radio Terminal
			0	10	NF	T	SATCOM (Phoenix)
			0	10	NF	T	SATCOM Terminal
			0	10	NF	T	Single Shelter Switch (SSS)
			0	10	NF	T	Small Extension Node (SEN)
referenceManual	Reference - Manual	Enter the name of the primary reference manual.	0	10.1	NF	NF	Base-Band Node (BBN)
							Battalion Command Post Node (BnCPN)
							Generic Data Package
							Joint Network Node (JNN)
							JNN Baseline 2 NETOPS Package
							Radio Terminal
							SATCOM (Phoenix)
							SATCOM Terminal

Name	Label	Prompt	T	SK	I	V	Icon
							Single Shelter Switch (SSS)
							Small Extension Node (SEN)
referenceURL0	Reference - URL0	Use the "Hyperlink" editor to modify this field. This value shows a URL to access an online copy of the primary reference manual. This field is normally used to cite a URL "Outside" of the local network, such as an ETM Online location.	0	10.2	NF	NF	Base-Band Node (BBN)
							Battalion Command Post Node (BnCPN)
							Generic Data Package
							Joint Network Node (JNN)
							JNN Baseline 2 NETOPS Package
							Radio Terminal
							SATCOM (Phoenix)
							SATCOM Terminal
							Single Shelter Switch (SSS)
referenceURL1	Reference - URL1	Use the "Hyperlink" editor to modify this field. This value shows a URL to access an online copy of the primary reference manual. This field is normally used to cite a URL "Inside" of the local network, such as a SharePoint location.	0	10.3	NF	NF	Small Extension Node (SEN)
							Base-Band Node (BBN)
							Battalion Command Post Node (BnCPN)
							Generic Data Package
							Joint Network Node (JNN)
							JNN Baseline 2 NETOPS Package
							Radio Terminal
							SATCOM (Phoenix)
							SATCOM Terminal

Name	Label	Prompt	T	SK	I	V	Icon
							Single Shelter Switch (SSS)
							Small Extension Node (SEN)
siteLocation	Audit - Location	Choose the location of the Communication Package.	4	11	NF	T	SATCOM Gateway
		Enter the location of the Communication Package.	0	11	NF	T	Base-Band Node (BBN)
			0	11	NF	T	Battalion Command Post Node (BnCPN)
			0	11	NF	T	Generic Data Package
			0	11	NF	T	Joint Network Node (JNN)
			0	11	NF	T	JNN Baseline 2 NETOPS Package
			0	11	NF	T	Radio Terminal
			0	11	NF	T	SATCOM (Phoenix)
			0	11	NF	T	SATCOM Terminal
			0	11	NF	T	Single Shelter Switch (SSS)
			0	11	NF	T	Small Extension Node (SEN)
siteLatitude	Audit - Latitude	<p>This value will be automatically populated based on the chosen location.</p> <p>NOTE: This value is in Decimal Degrees.</p>	0	11.1	NF	NF	SATCOM Gateway

Name	Label	Prompt	T	SK	I	V	Icon
siteLongitude	Audit - Longitude	This value will be automatically populated based on the chosen location. NOTE: This value is in Decimal Degrees.	0	11.2	NF	NF	SATCOM Gateway
siteGoogleMaps	Audit - Google Map	This value will be automatically populated based on latitude and longitude values.	0	11.3	NF	NF	SATCOM Gateway
siteGoogleEarth	Audit - Google Earth	This value will be automatically populated based on latitude and longitude values. NOTE: This link will return a "KML" file; choose to "open" the file versus "saving" the file to automatically open the location in Google Earth.	0	11.4	NF	NF	SATCOM Gateway
siteBranchManager	Audit - Managing Branch	This value will be automatically populated based on the chosen location.	0	11.5	NF	NF	SATCOM Gateway
contactNumberOperations	Audit - Operations Contact Number	Enter the contact number for the package operations POC.	0	12	NF	T	Base-Band Node (BBN)
			0	12	NF	T	Battalion Command Post Node (BnCPN)
			0	12	NF	T	Generic Data Package
			0	12	NF	T	Joint Network Node (JNN)
			0	12	NF	T	JNN Baseline 2 NETOPS Package

Name	Label	Prompt	T	SK	I	V	Icon
			0	12	NF	T	Radio Terminal
			0	12	NF	T	SATCOM (Phoenix)
			0	12	NF	T	SATCOM Gateway
			0	12	NF	T	SATCOM Terminal
			0	12	NF	T	Single Shelter Switch (SSS)
			0	12	NF	T	Small Extension Node (SEN)
auditLastUpdatedBy	Audit - Last Updated By	Enter the name of the last person to update the status information for this Communication Package.	0	13	NF	T	Base-Band Node (BBN)
			0	13	NF	T	Battalion Command Post Node (BnCPN)
			0	13	NF	T	Generic Data Package
			0	13	NF	T	Joint Network Node (JNN)
			0	13	NF	T	JNN Baseline 2 NETOPS Package
			0	13	NF	T	Radio Terminal
			0	13	NF	T	SATCOM (Phoenix)
			0	13	NF	T	SATCOM Gateway
			0	13	NF	T	SATCOM Terminal
			0	13	NF	T	Satellite
			0	13	NF	T	Single Shelter Switch (SSS)
			0	13	NF	T	Small Extension Node (SEN)
		Enter the name of the last person to update the status information for this Link.	0	13	NF	T	Transmission Link Connector
auditLastReportFrom	Audit - Last Report	Enter the name of the person	0	14	NF	T	Base-Band Node (BBN)

Name	Label	Prompt	T	SK	I	V	Icon
	From	who last supplied status information for this Communication Package.	0	14	NF	T	Battalion Command Post Node (BnCPN)
			0	14	NF	T	Generic Data Package
			0	14	NF	T	Joint Network Node (JNN)
			0	14	NF	T	JNN Baseline 2 NETOPS Package
			0	14	NF	T	Radio Terminal
			0	14	NF	T	SATCOM (Phoenix)
			0	14	NF	T	SATCOM Gateway
			0	14	NF	T	SATCOM Terminal
			0	14	NF	T	Satellite
			0	14	NF	T	Single Shelter Switch (SSS)
			0	14	NF	T	Small Extension Node (SEN)
		Enter the name of the person who last supplied status information for this Link.	0	14	NF	T	Transmission Link Connector
auditDateOfLastUpdate	Audit - Date of Last Update	Enter the Date and Time in ZULU of the last update to the status information.	5	15	NF	T	Base-Band Node (BBN)
			5	15	NF	T	Battalion Command Post Node (BnCPN)
			5	15	NF	T	Generic Data Package
			5	15	NF	T	Joint Network Node (JNN)
			5	15	NF	T	JNN Baseline 2 NETOPS Package
			5	15	NF	T	Radio Terminal
			5	15	NF	T	SATCOM (Phoenix)
			5	15	NF	T	SATCOM Gateway

Name	Label	Prompt	T	SK	I	V	Icon
			5	15	NF	T	SATCOM Terminal
			5	15	NF	T	Satellite
			5	15	NF	T	Single Shelter Switch (SSS)
			5	15	NF	T	Small Extension Node (SEN)
			5	15	NF	T	Transmission Link Connector
accessDateStart	Access - Start Date	Enter the date that access to the Gateway is first permitted.	5	16	NF	T	SATCOM Gateway
		Enter the date that satellite access is first permitted.	5	16	NF	T	SATCOM (Phoenix)
			5	16	NF	T	SATCOM Terminal
accessDateEnd	Access - End Date	Enter the date that access to satellite must end.	5	17	NF	T	SATCOM (Phoenix)
			5	17	NF	T	SATCOM Terminal
		Enter the date that access to the Gateway must end.	5	17	NF	T	SATCOM Gateway
petColor	Option - All Green Status Color	Choose the color to display if all PET categories are green. This will typically be WHITE for engineering diagrams and GREEN for leader status reports.	1	18	NF	T	Base-Band Node (BBN)
			1	18	NF	T	Battalion Command Post Node (BnCPN)
			1	18	NF	T	Generic Data Package
			1	18	NF	T	Joint Network Node (JNN)
			1	18	NF	T	JNN Baseline 2 NETOPS Package
			1	18	NF	T	Radio Terminal
			1	18	NF	T	SATCOM (Phoenix)
			1	18	NF	T	SATCOM Terminal
			1	18	NF	T	Single Shelter Switch (SSS)

Name	Label	Prompt	T	SK	I	V	Icon
			1	18	NF	T	Small Extension Node (SEN)
labelPosition	Option - Label Position	Choose which side of the icon to place the label.	1	18	NF	T	SATCOM Gateway
ShapeClass	ShapeClass	No Formula	0	NF	T	NF	Base-Band Node (BBN)
			0	NF	T	NF	Battalion Command Post Node (BnCPN)
			0	NF	T	NF	Generic Data Package
			0	NF	T	NF	Joint Network Node (JNN)
			0	NF	T	NF	JNN Baseline 2 NETOPS Package
			0	NF	T	NF	Radio Terminal
			0	NF	T	NF	SATCOM (Phoenix)
			0	NF	T	NF	SATCOM Gateway
			0	NF	T	NF	SATCOM Terminal
			0	NF	T	NF	Satellite
			0	NF	T	NF	Single Shelter Switch (SSS)
			0	NF	T	NF	Small Extension Node (SEN)
			0	NF	T	NF	Transmission Link Connector
ShapeType	ShapeType	No Formula	0	NF	T	NF	Base-Band Node (BBN)
			0	NF	T	NF	Battalion Command Post Node (BnCPN)
			0	NF	T	NF	Generic Data Package
			0	NF	T	NF	Joint Network Node (JNN)
			0	NF	T	NF	JNN Baseline 2 NETOPS Package

Name	Label	Prompt	T	SK	I	V	Icon
			0	NF	T	NF	Radio Terminal
			0	NF	T	NF	SATCOM (Phoenix)
			0	NF	T	NF	SATCOM Gateway
			0	NF	T	NF	SATCOM Terminal
			0	NF	T	NF	Satellite
			0	NF	T	NF	Single Shelter Switch (SSS)
			0	NF	T	NF	Small Extension Node (SEN)
			0	NF	T	NF	Transmission Link Connector
SubShapeType	SubShapeType	No Formula	0	NF	T	NF	Base-Band Node (BBN)
			0	NF	T	NF	Battalion Command Post Node (BnCPN)
			0	NF	T	NF	Generic Data Package
			0	NF	T	NF	Joint Network Node (JNN)
			0	NF	T	NF	JNN Baseline 2 NETOPS Package
			0	NF	T	NF	Radio Terminal
			0	NF	T	NF	SATCOM (Phoenix)
			0	NF	T	NF	SATCOM Gateway
			0	NF	T	NF	SATCOM Terminal
			0	NF	T	NF	Satellite
			0	NF	T	NF	Single Shelter Switch (SSS)
			0	NF	T	NF	Small Extension Node (SEN)

Name	Label	Prompt	T	SK	I	V	Icon
			0	NF	T	NF	Transmission Link Connector
hideDeadlineMarker	hideDeadlineMarker	This stores a calculated value for use by other cells.	0	NF	T	NF	Base-Band Node (BBN)
			0	NF	T	NF	Battalion Command Post Node (BnCPN)
			0	NF	T	NF	Generic Data Package
			0	NF	T	NF	Joint Network Node (JNN)
			0	NF	T	NF	JNN Baseline 2 NETOPS Package
			0	NF	T	NF	Radio Terminal
			0	NF	T	NF	SATCOM (Phoenix)
			0	NF	T	NF	SATCOM Terminal
			0	NF	T	NF	Single Shelter Switch (SSS)
			0	NF	T	NF	Small Extension Node (SEN)
hidePET	hidePET	This stores a calculated value for use by other cells.	0	NF	T	NF	Base-Band Node (BBN)
			0	NF	T	NF	Battalion Command Post Node (BnCPN)
			0	NF	T	NF	Generic Data Package
			0	NF	T	NF	Joint Network Node (JNN)
			0	NF	T	NF	JNN Baseline 2 NETOPS Package
			0	NF	T	NF	Radio Terminal
			0	NF	T	NF	SATCOM (Phoenix)
			0	NF	T	NF	SATCOM Terminal
			0	NF	T	NF	Single Shelter Switch (SSS)

Name	Label	Prompt	T	SK	I	V	Icon
			0	NF	T	NF	Small Extension Node (SEN)
P	P	This stores the calculated color value for the [P]ET chart. This is to simplify other formulas that rely on this data.	0	NF	T	NF	Base-Band Node (BBN)
			0	NF	T	NF	Battalion Command Post Node (BnCPN)
			0	NF	T	NF	Generic Data Package
			0	NF	T	NF	Joint Network Node (JNN)
			0	NF	T	NF	JNN Baseline 2 NETOPS Package
			0	NF	T	NF	Radio Terminal
			0	NF	T	NF	SATCOM (Phoenix)
			0	NF	T	NF	SATCOM Terminal
			0	NF	T	NF	Single Shelter Switch (SSS)
			0	NF	T	NF	Small Extension Node (SEN)
E	E	This stores the calculated color value for the P[E]T chart. This is to simplify other formulas that rely on this data.	0	NF	T	NF	Base-Band Node (BBN)
			0	NF	T	NF	Battalion Command Post Node (BnCPN)
			0	NF	T	NF	Generic Data Package
			0	NF	T	NF	Joint Network Node (JNN)
			0	NF	T	NF	JNN Baseline 2 NETOPS Package
			0	NF	T	NF	Radio Terminal
			0	NF	T	NF	SATCOM (Phoenix)
			0	NF	T	NF	SATCOM Terminal
			0	NF	T	NF	Single Shelter Switch (SSS)

Name	Label	Prompt	T	SK	I	V	Icon
			0	NF	T	NF	Small Extension Node (SEN)
T	T	This stores the calculated color value for the PE[T] chart. This is to simplify other formulas that rely on this data.	0	NF	T	NF	Base-Band Node (BBN)
			0	NF	T	NF	Battalion Command Post Node (BnCPN)
			0	NF	T	NF	Generic Data Package
			0	NF	T	NF	Joint Network Node (JNN)
			0	NF	T	NF	JNN Baseline 2 NETOPS Package
			0	NF	T	NF	Radio Terminal
			0	NF	T	NF	SATCOM (Phoenix)
			0	NF	T	NF	SATCOM Terminal
			0	NF	T	NF	Single Shelter Switch (SSS)
			0	NF	T	NF	Small Extension Node (SEN)

Table 4: Communication Package Icon Custom Properties

5.1.1.3 DoD SATCOM Gateways

The following table provides detailed information on the defined locations and capabilities for the SATCOM Gateway icon.

Managing Branch	Location	Latitude	Longitude	Gateway Type	Capable Bands
Air Force	Al Udeid Air Base, QA	25.116249	51.331586	Single STEP	X
Army	Camp Arifjan, KW	28.867648	48.165659	Dual STEP, FRHN	X, Ku (possible Ka)
Army	Camp Roberts, CA	35.735582	-120.754365	Dual STEP, Teleport, FRHN	X, Ku, Ka, C, UHF, EHF
Army	Ft. Belvoir, VA	38.726034	-77.145062	Dual STEP	X
Army	Ft. Bragg, NC	35.139514	-78.982906	Single STEP, FRHN	X, Ku (possible Ka)
Army	Ft. Buckner, JP	26.295632	127.777288	Dual STEP, Teleport	X, Ku, C, UHF, EHF
Army	Ft. Detrick, MD	39.443383	-77.415662	Dual STEP	X
Army	Ft. Meade, MD	39.104266	-76.757788	Dual STEP	X
Army	Ft. Monmouth, NJ	40.320982	-74.036721	JSEC Test Facility	UNKNOWN
Navy	Lago di Patria, IT	40.928963	14.048503	Dual STEP, Teleport	X, Ku, Ka, C, UHF, EHF
Army	Landstuhl, DE	49.401813	7.533713	Dual STEP, Teleport, FRHN	X, Ku, Ka, C
Air Force	MacDill AFB, FL	27.837959	-82.488068	Single STEP	X
Navy	Naval Support Activity, BH	26.207296	50.609933	Dual STEP	X
Navy	Northwest, VA	36.559756	-76.267583	Dual STEP, Teleport	X, Ku, Ka, C, UHF, EHF
Air Force	RAF Croughton, UK	51.987664	-1.187389	Single STEP	X
Air Force	Ramstein Air Base, DE	49.457135	7.591120	Single STEP, Teleport	X, Ku, C, UHF, EHF (possible Ka)
Navy	Wahiawa, HI	21.520268	-157.994884	Dual STEP, Teleport	X, Ku, Ka, C, UHF, EHF

Table 5: DoD SATCOM Gateways

5.1.2 Network Devices

All icons that include the “Classification” custom property adhere to the following color codes:





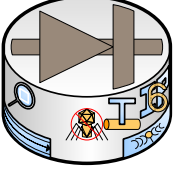
Classification		Form Reference	Color	Pantone	HEX	RGB
Unclassified		SF-710	Green	PMS 356	#007A3D	000,122,061
Confidential		SF-708	Blue	PMS 286	#0038A8	000,056,168
Secret		SF-707	Red	PMS 186	#CE1126	206,017,038
Top Secret		SF-706	Orange	PMS 165	#F96302	249,099,002
Coalition		None	Light Blue		#7f7fff	127,127,255
Not Configured		None	Light Brown		#99897a	153,137,122

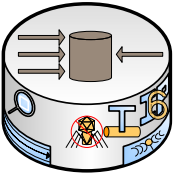
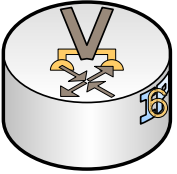

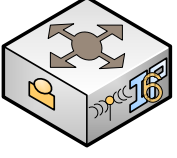
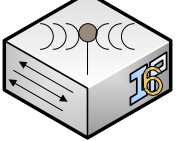
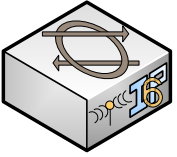
Table 6: Classification Colors




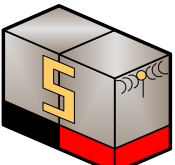
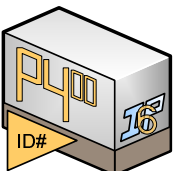
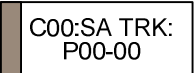

NOTE: Pantone and HEX values are for reference only. HEX and RGB values are not exact translations of the GSA mandated Pantone colors. Icon formulas use RGB values.

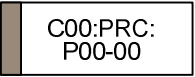
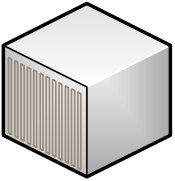
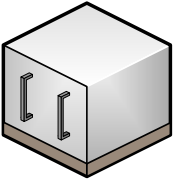
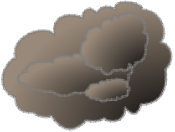



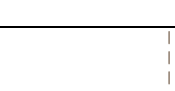
5.1.2.1 Icons








Please refer to [Section 5.1.1.1](#) for information on column label abbreviations.

Symbol	Type	Common Name	Model	SC	ST	SST
	Router	Router		Component	Network	Router
	Border Router	Router		Component	Network	Router
	IP Header Compressor	Router		Component	Network	Router
	Firewall	Firewall		Component	Network	Firewall
	Layer 2 Transparent Firewall	Firewall		Component	Network	Firewall

Symbol	Type	Common Name	Model	SC	ST	SST
	Layer 7 Proxy	Firewall		Component	Network	Firewall
	Gateway	Voice Gateway	VG-224 VG-248	Component	Network	Gateway
	Layer 2 Switch	Switch		Component	Network	Switch
	Layer 3 Switch	Switch		Component	Network	Switch
	Access Point	Access Point		Component	Network	Access Point
	Intrusion Detection System (IDS)	Sensor		Component	Network	Sensor

Symbol	Type	Common Name	Model	SC	ST	SST
	Intrusion Prevention System (IPS)	Sensor		Component	Network	Sensor
	Probe	Sensor		Component	Network	Sensor
	IP Encryption Device	Encryption Device		Component	Network	Encryption Device
	Serial Encryption Device	Encryption Device		Component	Network	Encryption Device
	Promina	Promina	P100 P200 P400 P800 NX1000	Component	Network	Promina
	Symmetric/Asymmetric Trunk	Promina Card		Component	Capability	Promina Card
	High-speed Synchronous Data	Promina Card		Component	Capability	Promina Card

Symbol	Type	Common Name	Model	SC	ST	SST
	Primary Rate Card	Promina Card		Component	Capability	Promina Card
	Gateway	IGX	Integrated Services Digital Gateway Network Exchange	Component	Network	Gateway
	Gateway	SMU	Switch Multiplexer Unit	Component	Network	Gateway
		Network Cloud				
	Coax	Data Link Connector		Connectivity	Network	Link Type
	Fiber	Data Link Connector		Connectivity	Network	Link Type
	Indirect	Data Link Connector		Connectivity	Network	Link Type
	Serial	Data Link Connector		Connectivity	Network	Link Type

Symbol	Type	Common Name	Model	SC	ST	SST
	STP	Data Link Connector		Connectivity	Network	Link Type
	UTP	Data Link Connector		Connectivity	Network	Link Type
	Virtual	Data Link Connector		Connectivity	Network	Link Type
	Wireless	Data Link Connector		Connectivity	Network	Link Type
	Unknown Link Type	Data Link Connector		Connectivity	Network	Link Type
	Icon Marker	Capabilities - Firewall Filter Capabilities - Firewall NAT Capabilities - Firewall Proxy Capabilities - Firewall SPI				
	Icon Marker	Capabilities - IDS/IPS				








Symbol	Type	Common Name	Model	SC	ST	SST
	Icon Marker	Capabilities - 802.11a Capabilities - 802.11b Capabilities - 802.11g Capabilities - 802.11n Capabilities - 802.16				
	Icon Marker	Capabilities - Tunnel (T)				
	Icon Marker	Capabilities - Telephony (V)				
	Icon Marker	Capabilities - Switching				
	Icon Marker	Capabilities - IPv6				
	Icon Marker	Capabilities - Mobile				
	Icon Marker	Capabilities - AntiVirus				

Table 7: Network Device Icons

5.1.2.2 Custom Properties

Please refer to [Section 5.1.1.2](#) for information on column label and entry value definitions and abbreviations.

Name	Label	Prompt	T	SK	I	V	Icon
parentID	Assigned Communication Package	Enter the ID of the Communication Package that this component is a part; for reports to work correctly, this value must match the "Package - Bumper Number or ID" value of the parent Communication Package.	0	01	NF	T	Access Point
			0	01	NF	T	Data Link Connector
			0	01	NF	T	Encryption Device
			0	01	NF	T	Firewall
			0	01	NF	T	IGX
			0	01	NF	T	Promina
			0	01	NF	T	Router
			0	01	NF	T	Sensor
			0	01	NF	T	SMU
			0	01	NF	T	Switch
			0	01	NF	T	Voice Gateway
	Assigned Promina	Enter the ID of the Promina that this component is a part; for reports to work correctly, this value must match the "Hostname" value of the parent Promina.	0	01	NF	T	Promina Card
cardType	Card - Type	Choose the type of card.	1	02	NF	T	Promina Card
deviceType	Device - Type	Choose the type of device.	1	02	NF	T	Access Point
			1	02	NF	T	Encryption Device
			1	02	NF	T	Firewall
			1	02	NF	T	Promina
			1	02	NF	T	Router
			1	02	NF	T	Sensor
			1	02	NF	T	Switch

Name	Label	Prompt	T	SK	I	V	Icon
		This field is automatically populated.	0	02	NF	NF	Voice Gateway
			0	02	NF	NF	IGX
			0	02	NF	NF	SMU
linkType	Link - Type	Select the type of link.	1	02	NF	T	Data Link Connector
deviceManufacturer	Device - Manufacturer	Choose or define the device manufacturer.	4	03	NF	T	Access Point
			4	03	NF	T	Encryption Device
			4	03	NF	T	Firewall
			4	03	NF	T	Promina
			4	03	NF	T	Router
			4	03	NF	T	Sensor
			4	03	NF	T	Switch
			4	03	NF	T	Voice Gateway
		This field is automatically populated.	0	03	NF	T	IGX
			0	03	NF	NF	SMU
linkBandwidth	Link - Bandwidth	Enter the bandwidth of the link. Be sure to include the unit of measure such as Kilobits Per Second (Kbps) or Megabits Per Second (Mbps).	0	03	NF	T	Data Link Connector
deviceModel	Device - Model	Define the device model.	0	04	NF	T	Access Point
			0	04	NF	T	Encryption Device
			0	04	NF	T	Firewall
			0	04	NF	T	Router
			0	04	NF	T	Sensor
			0	04	NF	T	Switch
			4	04	NF	T	Voice Gateway
		Select the device model.	4	04	NF	T	Promina
		This field is automatically populated.	0	04	NF	NF	IGX

Name	Label	Prompt	T	SK	I	V	Icon
			0	04	NF	NF	SMU
linkOtherLabel	Link - Other Label	If applicable, type additional data to display on the link label.	0	04	NF	T	Data Link Connector
deviceDescription	Device - Description	Provide a short description of the how the device is being utilized.	0	05	NF	T	Access Point
			0	05	NF	T	Encryption Device
			0	05	NF	T	Firewall
			0	05	NF	T	IGX
			0	05	NF	T	Promina
			0	05	NF	T	Router
			0	05	NF	T	Sensor
			0	05	NF	T	SMU
			0	05	NF	T	Switch
			0	05	NF	T	Voice Gateway
cardNotes	Card - Notes	Enter relevant notes for this card.	0	050	NF	T	Promina Card
deviceNotes	Device - Notes	Enter relevant notes for this device.	0	050	NF	T	Access Point
			0	050	NF	T	Encryption Device
			0	050	NF	T	Firewall
			0	050	NF	T	IGX
			0	050	NF	T	Promina
			0	050	NF	T	Router
			0	050	NF	T	Sensor
			0	050	NF	T	SMU
			0	050	NF	T	Switch
			0	050	NF	T	Voice Gateway
linkNotes	Link - Notes	Enter relevant notes for this data link.	0	050	NF	T	Data Link Connector
			0	050	NF	T	Network Cloud

Name	Label	Prompt	T	SK	I	V	Icon
confClassification	Configuration - Classification	Select the classification of the link.	1	06	NF	T	Data Link Connector
		Select the classification of the network cloud.	1	06	NF	T	Network Cloud
		Select the device's classification.	1	06	NF	T	Access Point
			1	06	NF	T	Firewall
			1	06	NF	T	IGX
			1	06	NF	T	Promina
			1	06	NF	T	Promina Card
			1	06	NF	T	Router
			1	06	NF	T	Sensor
			1	06	NF	T	SMU
			1	06	NF	T	Switch
			1	06	NF	T	Voice Gateway
confClassificationO	Configuration - Outside Classification	Select the device's classification on the external network.	1	06	NF	T	Encryption Device
confClassificationI	Configuration - Inside Classification	Select the device's classification on the internal network.	1	07	NF	T	Encryption Device
confSideP	Configuration - Plain Text Side	Select which side of the device, inside or outside, is transmitting in plain text.	1	08	NF	T	Encryption Device
confSideC	Configuration - Cipher Text Side	This value indicates which side of the device, inside or outside, is transmitting in cipher text. This value will be automatically filled in based on the value of the "Configuration - Plain Text Side" property.	1	09	NF	T	Encryption Device
confTier	Configuration - Tier	Select or enter the defined Tier for the device.	4	090	NF	T	Access Point
			4	090	NF	T	Encryption Device
			4	090	NF	T	Firewall

Name	Label	Prompt	T	SK	I	V	Icon
			4	090	NF	T	Promina
			4	090	NF	T	Router
			4	090	NF	T	Sensor
			4	090	NF	T	Switch
			4	090	NF	T	Voice Gateway
ID	Configuration - Host Name	Define the host name of the device; this is the first portion of the Fully Qualified Domain Name (FQDN) that precedes the domain name.	0	10	NF	T	Access Point
			0	10	NF	T	Encryption Device
			0	10	NF	T	Firewall
			0	10	NF	T	Promina
			0	10	NF	T	Router
			0	10	NF	T	Sensor
			0	10	NF	T	Switch
			0	10	NF	T	Voice Gateway
confDomainName	Configuration - Domain Name	Define the domain name of the device; this is the suffix portion of the Fully Qualified Domain Name (FQDN) following the host name.	0	11	NF	T	Access Point
			0	11	NF	T	Encryption Device
			0	11	NF	T	Firewall
			0	11	NF	T	Promina
			0	11	NF	T	Router
			0	11	NF	T	Sensor
			0	11	NF	T	Switch
			0	11	NF	T	Voice Gateway
confManInt	Configuration - Administrative Interface	Define the management interface used to access the device.	0	12	NF	T	Access Point
			0	12	NF	T	Firewall
			0	12	NF	T	Promina
			0	12	NF	T	Router
			0	12	NF	T	Sensor

Name	Label	Prompt	T	SK	I	V	Icon
			0	12	NF	T	Switch
			0	12	NF	T	Voice Gateway
confIPO	Configuration - Outside IP Address	Define the IP address of the outside interface.	0	12	NF	T	Encryption Device
confSubnetMaskO	Configuration - Outside Subnet Mask	Define the subnet mask for the outside interface.	0	120	NF	T	Encryption Device
confIPI	Configuration - Inside IP Address	Define the IP address of the inside interface.	0	13	NF	T	Encryption Device
confManIP	Configuration - Management IP Address	Define the IP address used by network managers and network management applications to access the device.	0	13	NF	T	Access Point
			0	13	NF	T	Firewall
			0	13	NF	T	Promina
			0	13	NF	T	Router
			0	13	NF	T	Sensor
			0	13	NF	T	Switch
			0	13	NF	T	Voice Gateway
confSubnetMaskI	Configuration - Inside Subnet Mask	Define the subnet mask for the inside interface.	0	130	NF	T	Encryption Device
confSubnetMask	Configuration - Subnet Mask	Define the subnet mask for the management interface.	0	130	NF	T	Access Point
			0	130	NF	T	Firewall
			0	130	NF	T	Promina
			0	130	NF	T	Router
			0	130	NF	T	Sensor
			0	130	NF	T	Switch
			0	130	NF	T	Voice Gateway
confDefGateway	Configuration - Default Gateway	Define the default gateway for the management interface.	0	131	NF	T	Access Point
			0	131	NF	T	Encryption Device
			0	131	NF	T	Firewall

Name	Label	Prompt	T	SK	I	V	Icon
			0	131	NF	T	Promina
			0	131	NF	T	Router
			0	131	NF	T	Sensor
			0	131	NF	T	Switch
			0	131	NF	T	Voice Gateway
confDNS0	Configuration - Name Server (Primary)	Define the primary name server (DNS) for the management interface.	0	132	NF	T	Access Point
			0	132	NF	T	Encryption Device
			0	132	NF	T	Firewall
			0	132	NF	T	Promina
			0	132	NF	T	Router
			0	132	NF	T	Sensor
			0	132	NF	T	Switch
			0	132	NF	T	Voice Gateway
confDNS1	Configuration - Name Server (Alternate)	Define the alternate name server (DNS) for the management interface.	0	133	NF	T	Access Point
			0	133	NF	T	Encryption Device
			0	133	NF	T	Firewall
			0	133	NF	T	Promina
			0	133	NF	T	Router
			0	133	NF	T	Sensor
			0	133	NF	T	Switch
			0	133	NF	T	Voice Gateway
confAdminName	Configuration - Local Administrator Account Name	Define the name of the local administrator account.	0	134	NF	T	Access Point
			0	134	NF	T	Encryption Device
			0	134	NF	T	Firewall
			0	134	NF	T	IGX
			0	134	NF	T	Promina

Name	Label	Prompt	T	SK	I	V	Icon
			0	134	NF	T	Router
			0	134	NF	T	Sensor
			0	134	NF	T	SMU
			0	134	NF	T	Switch
			0	134	NF	T	Voice Gateway
confAdminPass	Configuration - Local Administrator Account Password	Define the password for the local administrator account.	0	135	NF	T	Access Point
			0	135	NF	T	Encryption Device
			0	135	NF	T	Firewall
			0	135	NF	T	IGX
			0	135	NF	T	Promina
			0	135	NF	T	Router
			0	135	NF	T	Sensor
			0	135	NF	T	SMU
			0	135	NF	T	Switch
			0	135	NF	T	Voice Gateway
confSNMPPr	Configuration - Community String (R)	Define the SNMP community string used for "READ" operations.	0	14	NF	T	Access Point
			0	14	NF	T	Encryption Device
			0	14	NF	T	Firewall
			0	14	NF	T	Promina
			0	14	NF	T	Router
			0	14	NF	T	Sensor
			0	14	NF	T	Switch
			0	14	NF	T	Voice Gateway
confSNMPw	Configuration - Community String (W)	Define the SNMP community string used for "WRITE" operations.	0	15	NF	T	Access Point
			0	15	NF	T	Encryption Device
			0	15	NF	T	Firewall

Name	Label	Prompt	T	SK	I	V	Icon
			0	15	NF	T	Promina
			0	15	NF	T	Router
			0	15	NF	T	Sensor
			0	15	NF	T	Switch
			0	15	NF	T	Voice Gateway
confManaged	Configuration - Managed	Choose whether the device is managed or unmanaged.	3	17	NF	T	Switch
confDTG2	Configuration - DTG:2	Enter configuration information for DTG 2.	0	170	NF	T	SMU
confT1_1	Configuration - T-1:1	Enter configuration information for the first T-1.	0	170	NF	T	IGX
confCardSlot	Configuration - Card Slot	Enter the slot number that the card is populating in the Promina.	2	170	NF	T	Promina Card
confDTG3	Configuration - DTG:3	Enter configuration information for DTG 3.	0	171	NF	T	SMU
confT1_2	Configuration - T-1:2	Enter configuration information for the second T-1.	0	171	NF	T	IGX
confPortLow	Configuration - Port Low	Enter the card's low port number..	2	171	NF	T	Promina Card
confDTG4	Configuration - DTG:4	Enter configuration information for DTG 4.	0	172	NF	T	SMU
confT1_3	Configuration - T-1:3	Enter configuration information for the third T-1.	0	172	NF	T	IGX
confPortHigh	Configuration - Port High	Enter the card's high port number.	2	172	NF	T	Promina Card
confDTG5	Configuration - DTG:5	Enter configuration information for DTG 5.	0	173	NF	T	SMU
confT1_4	Configuration - T-1:4	Enter configuration information for the fourth T-1.	0	173	NF	T	IGX
confService	Configuration - Service	Choose or enter the type of service the card provides.	4	173	NF	T	Promina Card

Name	Label	Prompt	T	SK	I	V	Icon
confDTG6	Configuration - DTG:6	Enter configuration information for DTG 6.	0	174	NF	T	SMU
confDTG7	Configuration - DTG:7	Enter configuration information for DTG 7.	0	175	NF	T	SMU
confDTG8	Configuration - DTG:8	Enter configuration information for DTG 8.	0	176	NF	T	SMU
confDTG9	Configuration - DTG:9	Enter configuration information for DTG 9.	0	177	NF	T	SMU
confDTG10	Configuration - DTG:10	Enter configuration information for DTG 10.	0	178	NF	T	SMU
confDTG11	Configuration - DTG:11	Enter configuration information for DTG 11.	0	179	NF	T	SMU
capTunnel	Capabilities - Tunnel (T)	Indicate whether or not the device is configured as a Virtual Private Network (VPN) endpoint.	1	18	NF	T	Encryption Device
			1	18	NF	T	Firewall
			1	18	NF	T	Router
confDTG12	Configuration - DTG:12	Enter configuration information for DTG 12.	0	180	NF	T	SMU
capTelephony	Capabilities - Telephony (V)	Indicate whether or not the device is configured for telephony.	1	19	NF	T	Router
			1	19	NF	T	Voice Gateway
capIPv6	Capabilities - IPv6	Indicate whether or not the device is configured to support IPv6.	1	20	NF	T	Access Point
			1	20	NF	T	Encryption Device
			1	20	NF	T	Firewall
			1	20	NF	T	Promina
			1	20	NF	T	Router
			1	20	NF	T	Sensor
			1	20	NF	T	Switch
capSensor	Capabilities - IDS/IPS	Indicate whether or not the device is	1	20	NF	T	Voice Gateway
			1	21	NF	T	Firewall

Name	Label	Prompt	T	SK	I	V	Icon
		configured as an Intrusion Detection System (IDS) or Intrusion Protection System (IPS).	1	21	NF	T	Router
			1	21	NF	T	Sensor
capSwitch	Capabilities - Switching	Indicate whether or not the device is configured with a Layer 2 switching module.	1	22	NF	T	Access Point
			1	22	NF	T	Firewall
			1	22	NF	T	Router
			1	22	NF	T	Switch
capMobile	Capabilities - Mobile	Indicate whether or not the device is configured for mobile routing.	1	23	NF	T	Router
capFWFilter	Capabilities - Firewall Filter	Indicate whether or not the device is configured as a packet filtering firewall.	1	24	NF	T	Firewall
			1	24	NF	T	Router
capFWNAT	Capabilities - Firewall NAT	Indicate whether or not the device is configured as a Network Address Translation (NAT) firewall.	1	25	NF	T	Firewall
			1	25	NF	T	Router
capFWProxy	Capabilities - Firewall Proxy	Indicate whether or not the device is configured as an application proxy firewall.	1	26	NF	T	Firewall
			1	26	NF	T	Router
capFWSPI	Capabilities - Firewall SPI	Indicate whether or not the device is configured as a Stateful Packet Inspection (SPI) firewall.	1	27	NF	T	Firewall
			1	27	NF	T	Router
capAV	Capabilities - AntiVirus	Indicate whether or not the device is configured as an AntiVirus scanner.	1	28	NF	T	Firewall
			1	28	NF	T	Router
cap80211a	Capabilities - 802.11a	Indicate whether or not the device supports 802.11a wireless access.	1	29	NF	T	Access Point
			1	29	NF	T	Encryption Device
			1	29	NF	T	Firewall
			1	29	NF	T	Router
			1	29	NF	T	Sensor
			1	29	NF	T	Switch

Name	Label	Prompt	T	SK	I	V	Icon
cap80211b	Capabilities - 802.11b	Indicate whether or not the device supports 802.11b wireless access.	1	30	NF	T	Access Point
			1	30	NF	T	Encryption Device
			1	30	NF	T	Firewall
			1	30	NF	T	Router
			1	30	NF	T	Sensor
			1	30	NF	T	Switch
cap80211g	Capabilities - 802.11g	Indicate whether or not the device supports 802.11g wireless access.	1	31	NF	T	Access Point
			1	31	NF	T	Encryption Device
			1	31	NF	T	Firewall
			1	31	NF	T	Router
			1	31	NF	T	Sensor
			1	31	NF	T	Switch
cap80211n	Capabilities - 802.11n	Indicate whether or not the device supports 802.11n wireless access.	1	32	NF	T	Access Point
			1	32	NF	T	Encryption Device
			1	32	NF	T	Firewall
			1	32	NF	T	Router
			1	32	NF	T	Sensor
			1	32	NF	T	Switch
cap80216	Capabilities - 802.16	Indicate whether or not the device supports 802.16 wireless access.	1	33	NF	T	Access Point
			1	33	NF	T	Encryption Device
			1	33	NF	T	Firewall
			1	33	NF	T	Router
			1	33	NF	T	Sensor
			1	33	NF	T	Switch
referenceManual	Reference - Manual	Enter the name of the primary reference manual.	0	33.1	NF	NF	Access Point
			0	33.1	NF	NF	Encryption Device

Name	Label	Prompt	T	SK	I	V	Icon
			0	33.1	NF	NF	Firewall
			0	33.1	NF	NF	IGX
			0	33.1	NF	NF	Promina
			0	33.1	NF	NF	Router
			0	33.1	NF	NF	Sensor
			0	33.1	NF	NF	SMU
			0	33.1	NF	NF	Switch
			0	33.1	NF	NF	Voice Gateway
referenceURL0	Reference - URL0	Use the "Hyperlink" editor to modify this field. This value shows a URL to access an online copy of the primary reference manual. This field is normally used to cite a URL "Outside" of the local network, such as an ETM Online location.	0	33.2	NF	NF	Access Point
			0	33.2	NF	NF	Encryption Device
			0	33.2	NF	NF	Firewall
			0	33.2	NF	NF	IGX
			0	33.2	NF	NF	Promina
			0	33.2	NF	NF	Router
			0	33.2	NF	NF	Sensor
			0	33.2	NF	NF	SMU
			0	33.2	NF	NF	Switch
			0	33.2	NF	NF	Voice Gateway
referenceURL1	Reference - URL1	Use the "Hyperlink" editor to modify this field. This value shows a URL to access an online copy of the primary reference manual. This field is normally used to cite a URL "Inside" of the local network, such as a SharePoint location.	0	33.3	NF	NF	Access Point
			0	33.3	NF	NF	Encryption Device
			0	33.3	NF	NF	Firewall
			0	33.3	NF	NF	IGX
			0	33.3	NF	NF	Promina
			0	33.3	NF	NF	Router
			0	33.3	NF	NF	Sensor
			0	33.3	NF	NF	SMU

Name	Label	Prompt	T	SK	I	V	Icon
			0	33.3	NF	NF	Switch
			0	33.3	NF	NF	Voice Gateway
auditLastUpdatedBy	Audit - Last Updated By	Enter the name of the last person to update the status information for this device.	0	330	NF	T	Access Point
			0	330	NF	T	Encryption Device
			0	330	NF	T	Firewall
			0	330	NF	T	IGX
			0	330	NF	T	Network Cloud
			0	330	NF	T	Promina
			0	330	NF	T	Promina Card
			0	330	NF	T	Router
			0	330	NF	T	Sensor
			0	330	NF	T	SMU
			0	330	NF	T	Switch
			0	330	NF	T	Voice Gateway
		Enter the name of the last person to update the status information for this Link.	0	330	NF	T	Data Link Connector
auditLastReportFrom	Audit - Last Report From	Enter the name of the person who last supplied status information for this device.	0	331	NF	T	Access Point
			0	331	NF	T	Encryption Device
			0	331	NF	T	Firewall
			0	331	NF	T	IGX
			0	331	NF	T	Network Cloud
			0	331	NF	T	Promina
			0	331	NF	T	Promina Card
			0	331	NF	T	Router
			0	331	NF	T	Sensor

Name	Label	Prompt	T	SK	I	V	Icon
			0	331	NF	T	SMU
			0	331	NF	T	Switch
			0	331	NF	T	Voice Gateway
		Enter the name of the person who last supplied status information for this Link.	0	331	NF	T	Data Link Connector
auditDateOfLastUpdate	Audit - Date of Last Update	Enter the Date and Time in ZULU of the last update to the status information.	5	332	NF	T	Access Point
			5	332	NF	T	Data Link Connector
			5	332	NF	T	Encryption Device
			5	332	NF	T	Firewall
			5	332	NF	T	IGX
			5	332	NF	T	Network Cloud
			5	332	NF	T	Promina
			5	332	NF	T	Promina Card
			5	332	NF	T	Router
			5	332	NF	T	Sensor
			5	332	NF	T	SMU
			5	332	NF	T	Switch
			5	332	NF	T	Voice Gateway
optShowMarkers	Option - Show Markers	Choose whether to hide or display the capability markers on the icon.	3	34	NF	T	Access Point
			3	34	NF	T	Encryption Device
			3	34	NF	T	Firewall
			3	34	NF	T	Promina
			3	34	NF	T	Promina Card
			3	34	NF	T	Router
			3	34	NF	T	Sensor

Name	Label	Prompt	T	SK	I	V	Icon
			3	34	NF	T	Switch
			3	34	NF	T	Voice Gateway
optLabelSide	Option - Label Side	Choose which side the classification label should be placed.	1	35	NF	T	Promina Card
ShapeClass	ShapeClass	No Formula	0	NF	T	NF	Access Point
			0	NF	T	NF	Data Link Connector
			0	NF	T	NF	Encryption Device
			0	NF	T	NF	Firewall
			0	NF	T	NF	IGX
			0	NF	T	NF	Promina
			0	NF	T	NF	Router
			0	NF	T	NF	Sensor
			0	NF	T	NF	SMU
			0	NF	T	NF	Switch
			0	NF	T	NF	Voice Gateway
ShapeType	ShapeType	No Formula	0	NF	T	NF	Access Point
			0	NF	T	NF	Data Link Connector
			0	NF	T	NF	Encryption Device
			0	NF	T	NF	Firewall
			0	NF	T	NF	IGX
			0	NF	T	NF	Promina
			0	NF	T	NF	Router
			0	NF	T	NF	Sensor
			0	NF	T	NF	SMU
			0	NF	T	NF	Switch
			0	NF	T	NF	Voice Gateway

Name	Label	Prompt	T	SK	I	V	Icon
SubShapeType	SubShapeType	No Formula	0	NF	T	NF	Access Point
			0	NF	T	NF	Data Link Connector
			0	NF	T	NF	Encryption Device
			0	NF	T	NF	Firewall
			0	NF	T	NF	IGX
			0	NF	T	NF	Promina
			0	NF	T	NF	Router
			0	NF	T	NF	Sensor
			0	NF	T	NF	SMU
			0	NF	T	NF	Switch
			0	NF	T	NF	Voice Gateway

Table 8: Network Device Icon Custom Properties

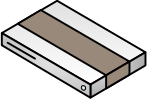


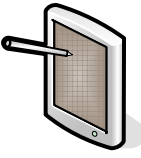
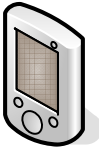


5.1.3 Information Systems, Services, and Miscellaneous






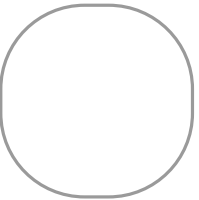
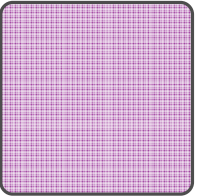
This stencil includes network service definitions and miscellaneous system icons.

All icons that include the “Classification” custom property adhere to the same color codes as listed for the Network Devices. Please refer to Table 6: Classification Colors for a list of color codes.

5.1.3.1 Icons

Please refer to [Section 5.1.1.1](#) for information on column label abbreviations.

Symbol	Type	Common Name	SC	ST	SST
	Server	Server	Component	Device	Server
	Laptop	Laptop	Component	Device	Laptop
	Thin Client	Thin Client	Component	Device	Thin Client
	Tablet PC	Tablet PC	Component	Device	Tablet PC
	PDA	PDA	Component	Device	PDA
	Classification Label	Classification Label			
	Service	Service	Component	Capability	Service

Symbol	Type	Common Name	SC	ST	SST
	Service Link	Service Link Connector	Connectivity	Service	Link Type
	Internal Host Link	Internal Host Link Connector	Connectivity	Network	Link Type
	Higher Level Diagram Link	Diagram Link			
	Lower Level Diagram Link	Diagram Link			
	Reference Document Link	Diagram Link			
		Supported Unit Boundary			
	GIG Backbone	Site Location Boundary			

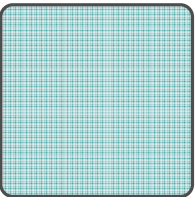
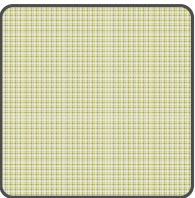
Symbol	Type	Common Name	SC	ST	SST
	Theater	Site Location Boundary			
	Tactical	Site Location Boundary			

Table 9: Information Systems, Services, and Miscellaneous Icons

5.1.3.2 Custom Properties

Please refer to [Section 5.1.1.2](#) for information on column label and entry value definitions and abbreviations.

Name	Label	Prompt	T	SK	I	V	Icon
parentID	Assigned Communication Package	Enter the ID of the Communication Package that this component is a part; for reports to work correctly, this value must match the "Package - Bumper Number or ID" value of the parent Communication Package.	0	01	NF	T	Internal Host Link Connector
			0	01	NF	T	Laptop
			0	01	NF	T	PDA
			0	01	NF	T	Server
			0	01	NF	T	Service
			0	01	NF	T	Tablet PC
			0	01	NF	T	Thin Client
docClassification	Configuration - Classification	Select the document's overall classification.	1	01	NF	T	Classification Label
confLinkDirection	Configuration - Link Direction	Choose whether this link is to a higher level or lower level diagram or to a reference document.	1	01	NF	T	Diagram Link
confLocationType	Configuration - Location Type	Choose the type of location that this boundary represents. This will change the background color of the boundary.	1	01	NF	T	Site Location Boundary
serviceType	Service - Type	Choose the type of service.	4	01	NF	T	Service Link Connector
docCaveat	Configuration - Distribution Caveat	Select or type in the document's distribution caveat, if any.	4	02	NF	T	Classification Label
deviceType	Device - Type	This field is automatically populated.	0	02	NF	T	Laptop
			0	02	NF	T	PDA
			0	02	NF	T	Server
			0	02	NF	T	Tablet PC
			0	02	NF	T	Thin Client

Name	Label	Prompt	T	SK	I	V	Icon
linkType	Link - Type	Select the type of link.	0	02	NF	T	Internal Host Link Connector
			0	02	NF	T	Service Link Connector
serviceType	Service - Type	Choose the type of service.	4	02	NF	T	Service
supportedUnit	Unit - Supported	Enter the name of the unit being supported at this location.	0	02	NF	T	Supported Unit Boundary
deviceManufacturer	Device - Manufacturer	Choose or define the device manufacturer.	4	03	NF	T	Laptop
			4	03	NF	T	PDA
			4	03	NF	T	Server
			4	03	NF	T	Tablet PC
			4	03	NF	T	Thin Client
serviceCategory	Service - Category	This field is automatically populated based on the service type.	0	03	NF	NF	Service
deviceModel	Device - Model	Define the device model.	0	04	NF	T	Laptop
			0	04	NF	T	PDA
			0	04	NF	T	Server
			0	04	NF	T	Tablet PC
			0	04	NF	T	Thin Client
linkOtherLabel	Link - Other Label	If applicable, type additional data to display on the link label.	0	04	NF	T	Internal Host Link Connector
			0	04	NF	T	Service Link Connector
serviceSoftware	Service - Software Package	Define the software package being used to provide the service.	0	04	NF	T	Service
linkLabel	Link - Label	Enter the label for this link.	0	040	NF	T	Diagram Link
deviceDescription	Device - Description	Provide a short description of the how the device is being utilized.	0	05	NF	T	Laptop
			0	05	NF	T	PDA
			0	05	NF	T	Server

Name	Label	Prompt	T	SK	I	V	Icon
			0	05	NF	T	Tablet PC
			0	05	NF	T	Thin Client
boundaryNotes	Boundary - Notes	Enter relevant notes for this boundary.	0	050	NF	T	Classification Label
			0	050	NF	T	Site Location Boundary
			0	050	NF	T	Supported Unit Boundary
deviceNotes	Device - Notes	Enter relevant notes for this device.	0	050	NF	T	Laptop
			0	050	NF	T	PDA
			0	050	NF	T	Server
			0	050	NF	T	Tablet PC
			0	050	NF	T	Thin Client
linkNotes	Link - Notes	Enter relevant notes for this data link.	0	050	NF	T	Internal Host Link Connector
			0	050	NF	T	Service Link Connector
		Enter relevant notes for this link.	0	050	NF	T	Diagram Link
serviceNotes	Service - Notes	Enter relevant notes for this service.	0	050	NF	T	Service
confClassification	Configuration - Classification	Select the classification of the link.	1	06	NF	T	Internal Host Link Connector
			1	06	NF	T	Service Link Connector
		Select the device's classification.	1	06	NF	T	Laptop
			1	06	NF	T	PDA
			1	06	NF	T	Server
			1	06	NF	T	Tablet PC
			1	06	NF	T	Thin Client
		Select the service's classification.	1	06	NF	T	Service
ID	Configuration - Host Name	Define the host name of the device; this is the first portion of the Fully Qualified	0	10	NF	T	Laptop
			0	10	NF	T	PDA

Name	Label	Prompt	T	SK	I	V	Icon
		Domain Name (FQDN) that proceeds the domain name.	0	10	NF	T	Server
			0	10	NF	T	Tablet PC
			0	10	NF	T	Thin Client
siteLocation	Audit - Location	Enter the site location name.	0	11	NF	T	Site Location Boundary
		Enter the unit's site location name.	0	11	NF	T	Supported Unit Boundary
confDomainName	Configuration - Domain Name	Define the domain name of the device; this is the suffix portion of the Fully Qualified Domain Name (FQDN) following the host name.	0	11	NF	T	Laptop
			0	11	NF	T	PDA
			0	11	NF	T	Server
			0	11	NF	T	Tablet PC
			0	11	NF	T	Thin Client
siteLatitude	Audit - Latitude	Enter the site's center position in Decimal Degrees.	0	11.1	NF	T	Site Location Boundary
			0	11.1	NF	T	Supported Unit Boundary
siteLongitude	Audit - Longitude	Enter the site's center position in Decimal Degrees.	0	11.2	NF	T	Site Location Boundary
			0	11.2	NF	T	Supported Unit Boundary
siteGoogleMaps	Audit - Google Map	This value will be automatically populated based on latitude and longitude values.	0	11.3	NF	NF	Site Location Boundary
			0	11.3	NF	NF	Supported Unit Boundary
siteGoogleEarth	Audit - Google Earth	This value will be automatically populated based on latitude and longitude values.	0	11.4	NF	NF	Site Location Boundary
		NOTE: This link will return a "KML" file; choose to "open" the file versus "saving" the file to automatically open the location in Google Earth.	0	11.4	NF	NF	Supported Unit Boundary
confManInt	Configuration -	Define the management interface used	0	12	NF	T	Laptop

Name	Label	Prompt	T	SK	I	V	Icon
	Administrative Interface	to access the device.	0	12	NF	T	PDA
			0	12	NF	T	Server
			0	12	NF	T	Tablet PC
			0	12	NF	T	Thin Client
auditLastUpdatedBy	Audit - Last Updated By	Enter the name of the last person to update the status information for this location.	0	13	NF	T	Site Location Boundary
			0	13	NF	T	Supported Unit Boundary
confManIP	Configuration - Management IP Address	Define the IP address used by network managers and network management applications to access the device.	0	13	NF	T	Laptop
			0	13	NF	T	PDA
			0	13	NF	T	Server
			0	13	NF	T	Tablet PC
			0	13	NF	T	Thin Client
confSubnetMask	Configuration - Subnet Mask	Define the subnet mask for the management interface.	0	130	NF	T	Laptop
			0	130	NF	T	PDA
			0	130	NF	T	Server
			0	130	NF	T	Tablet PC
			0	130	NF	T	Thin Client
confDefGateway	Configuration - Default Gateway	Define the default gateway for the management interface.	0	131	NF	T	Laptop
			0	131	NF	T	PDA
			0	131	NF	T	Server
			0	131	NF	T	Tablet PC
			0	131	NF	T	Thin Client
confDNS0	Configuration - Name Server (Primary)	Define the primary name server (DNS) for the management interface.	0	132	NF	T	Laptop
			0	132	NF	T	PDA
			0	132	NF	T	Server
			0	132	NF	T	Tablet PC

Name	Label	Prompt	T	SK	I	V	Icon
			0	132	NF	T	Thin Client
confDNS1	Configuration - Name Server (Alternate)	Define the alternate name server (DNS) for the management interface.	0	133	NF	T	Laptop
			0	133	NF	T	PDA
			0	133	NF	T	Server
			0	133	NF	T	Tablet PC
			0	133	NF	T	Thin Client
confAdminName	Configuration - Local Administrator Account Name	Define the name of the local administrator account.	0	134	NF	T	Laptop
			0	134	NF	T	PDA
			0	134	NF	T	Server
			0	134	NF	T	Tablet PC
			0	134	NF	T	Thin Client
confAdminPass	Configuration - Local Administrator Account Password	Define the password for the local administrator account.	0	135	NF	T	Laptop
			0	135	NF	T	PDA
			0	135	NF	T	Server
			0	135	NF	T	Tablet PC
			0	135	NF	T	Thin Client
	Configuration - Service Administrator Account Password	Define the password for the service administrator account.	0	135	NF	T	Service
auditLastReportFrom	Audit - Last Report From	Enter the name of the person who last supplied status information for this location.	0	14	NF	T	Site Location Boundary
		Enter the name of the person who last supplied status information for this unit.	0	14	NF	T	Supported Unit Boundary
confSNMPPr	Configuration - Community String	Define the SNMP community string used for "READ" operations.	0	14	NF	T	Laptop
			0	14	NF	T	PDA

Name	Label	Prompt	T	SK	I	V	Icon
	(R)		0	14	NF	T	Server
			0	14	NF	T	Tablet PC
			0	14	NF	T	Thin Client
auditDateOfLastUpdate	Audit - Date of Last Update	Enter the Date and Time in ZULU of the last update to the status information.	5	15	NF	T	Site Location Boundary
			5	15	NF	T	Supported Unit Boundary
confSNMPw	Configuration - Community String (W)	Define the SNMP community string used for "WRITE" operations.	0	15	NF	T	Laptop
			0	15	NF	T	PDA
			0	15	NF	T	Server
			0	15	NF	T	Tablet PC
			0	15	NF	T	Thin Client
labelPosition	Option - Label Position	Choose where to place the location label.	1	18	NF	T	Site Location Boundary
		Choose where to place the unit label.	1	18	NF	T	Supported Unit Boundary
capIPv6	Capabilities - IPv6	Indicate whether or not the device is configured to support IPv6.	1	20	NF	T	Laptop
			1	20	NF	T	PDA
			1	20	NF	T	Server
			1	20	NF	T	Tablet PC
			1	20	NF	T	Thin Client
capMobile	Capabilities - Mobile	Indicate whether or not the device is a mobile device.	1	23	NF	T	Laptop
			1	23	NF	T	PDA
			1	23	NF	T	Server
			1	23	NF	T	Tablet PC
			1	23	NF	T	Thin Client
cap80211a	Capabilities - 802.11a	Indicate whether or not the device supports 802.11a wireless access.	1	29	NF	T	Laptop
			1	29	NF	T	PDA

Name	Label	Prompt	T	SK	I	V	Icon
			1	29	NF	T	Server
			1	29	NF	T	Tablet PC
			1	29	NF	T	Thin Client
cap80211b	Capabilities - 802.11b	Indicate whether or not the device supports 802.11b wireless access.	1	30	NF	T	Laptop
			1	30	NF	T	PDA
			1	30	NF	T	Server
			1	30	NF	T	Tablet PC
			1	30	NF	T	Thin Client
cap80211g	Capabilities - 802.11g	Indicate whether or not the device supports 802.11g wireless access.	1	31	NF	T	Laptop
			1	31	NF	T	PDA
			1	31	NF	T	Server
			1	31	NF	T	Tablet PC
			1	31	NF	T	Thin Client
cap80211n	Capabilities - 802.11n	Indicate whether or not the device supports 802.11n wireless access.	1	32	NF	T	Laptop
			1	32	NF	T	PDA
			1	32	NF	T	Server
			1	32	NF	T	Tablet PC
			1	32	NF	T	Thin Client
cap80216	Capabilities - 802.16	Indicate whether or not the device supports 802.16 wireless access.	1	33	NF	T	Laptop
			1	33	NF	T	PDA
			1	33	NF	T	Server
			1	33	NF	T	Tablet PC
			1	33	NF	T	Thin Client
referenceManual	Reference - Manual	Enter the name of the primary reference manual.	0	33.1	NF	NF	Laptop
			0	33.1	NF	NF	PDA
			0	33.1	NF	NF	Server

Name	Label	Prompt	T	SK	I	V	Icon
			0	33.1	NF	NF	Service
			0	33.1	NF	NF	Tablet PC
			0	33.1	NF	NF	Thin Client
referenceURL0	Reference - URL0	Use the "Hyperlink" editor to modify this field. This value shows a URL to access an online copy of the primary reference manual. This field is normally used to cite a URL "Outside" of the local network, such as an ETM Online location.	0	33.2	NF	NF	Laptop
			0	33.2	NF	NF	PDA
			0	33.2	NF	NF	Server
			0	33.2	NF	NF	Service
			0	33.2	NF	NF	Tablet PC
			0	33.2	NF	NF	Thin Client
referenceURL1	Reference - URL1	Use the "Hyperlink" editor to modify this field. This value shows a URL to access an online copy of the primary reference manual. This field is normally used to cite a URL "Inside" of the local network, such as a SharePoint location.	0	33.3	NF	NF	Laptop
			0	33.3	NF	NF	PDA
			0	33.3	NF	NF	Server
			0	33.3	NF	NF	Service
			0	33.3	NF	NF	Tablet PC
			0	33.3	NF	NF	Thin Client
auditLastUpdatedBy	Audit - Last Updated By	Enter the name of the last person to update the status information for this boundary.	0	330	NF	T	Classification Label
		Enter the name of the last person to update the status information for this device.	0	330	NF	T	Laptop
			0	330	NF	T	PDA
			0	330	NF	T	Server
			0	330	NF	T	Service
			0	330	NF	T	Tablet PC
			0	330	NF	T	Thin Client
		Enter the name of the last person to update the status information for this link.	0	330	NF	T	Diagram Link
			0	330	NF	T	Internal Host Link Connector

Name	Label	Prompt	T	SK	I	V	Icon
			0	330	NF	T	Service Link Connector
auditLastReportFrom	Audit - Last Report From	Enter the name of the person who last supplied status information for this boundary.	0	331	NF	T	Classification Label
		Enter the name of the person who last supplied status information for this device.	0	331	NF	T	Laptop
			0	331	NF	T	PDA
			0	331	NF	T	Server
			0	331	NF	T	Service
			0	331	NF	T	Tablet PC
			0	331	NF	T	Thin Client
		Enter the name of the person who last supplied status information for this link.	0	331	NF	T	Diagram Link
			0	331	NF	T	Internal Host Link Connector
			0	331	NF	T	Service Link Connector
auditDateOfLastUpdate	Audit - Date of Last Update	Enter the Date and Time in ZULU of the last update to the status information.	5	332	NF	T	Classification Label
			5	332	NF	T	Diagram Link
			5	332	NF	T	Internal Host Link Connector
			5	332	NF	T	Laptop
			5	332	NF	T	PDA
			5	332	NF	T	Server
			5	332	NF	T	Service
			5	332	NF	T	Service Link Connector
			5	332	NF	T	Tablet PC
			5	332	NF	T	Thin Client
optShowMarkers	Option - Show Markers	Choose whether to hide or display the capability markers on the icon.	3	34	NF	T	Laptop
			3	34	NF	T	PDA

Name	Label	Prompt	T	SK	I	V	Icon
			3	34	NF	T	Server
			3	34	NF	T	Service
			3	34	NF	T	Tablet PC
			3	34	NF	T	Thin Client
optInvertColors	Option - Invert Colors	Invert the colors of the Classification Label.	3	35	NF	T	Classification Label
labelPosition	Option - Label Position	Choose which side of the icon to place the label.	1	35	NF	T	Diagram Link
optLabelSide	Option - Label Side	Choose which side the classification label should be placed.	1	35	NF	T	Service
ShapeClass	ShapeClass	No Formula	0	NF	T	NF	Internal Host Link Connector
			0	NF	T	NF	Laptop
			0	NF	T	NF	PDA
			0	NF	T	NF	Server
			0	NF	T	NF	Service
			0	NF	T	NF	Service Link Connector
			0	NF	T	NF	Tablet PC
			0	NF	T	NF	Thin Client
ShapeType	ShapeType	No Formula	0	NF	T	NF	Internal Host Link Connector
			0	NF	T	NF	Laptop
			0	NF	T	NF	PDA
			0	NF	T	NF	Server
			0	NF	T	NF	Service
			0	NF	T	NF	Service Link Connector
			0	NF	T	NF	Tablet PC

Name	Label	Prompt	T	SK	I	V	Icon
			0	NF	T	NF	Thin Client
SubShapeType	SubShapeType	No Formula	0	NF	T	NF	Internal Host Link Connector
			0	NF	T	NF	Laptop
			0	NF	T	NF	PDA
			0	NF	T	NF	Server
			0	NF	T	NF	Service
			0	NF	T	NF	Service Link Connector
			0	NF	T	NF	Tablet PC
			0	NF	T	NF	Thin Client

Table 10: Information Systems, Services, and Miscellaneous Icon Custom Properties

5.1.3.3 Services

The following Network Services have been identified based on the 06AUG07 United States Army Enterprise Systems Technology Activity memorandum, "Approved Network Operations (NetOps) Tools for Network Operations and Security Centers (Change 1)," the 12FEB08 7th Signal Brigade slide "Programs to Tasks," and requirements identified during icon development:

Service	Abbreviation	Software Packages (examples)	Category ³⁴
Active Directory Domain Services	ADDS	Microsoft Windows Server 2K/2K3/2K8	Explicit
Defense Red Switched Network	DRSN		Explicit
Defense Switched Network	DSN		Explicit
Domain Name Service Server	DNS	BIND 8/9 Microsoft Windows Server 2K/2K3/2K8	Explicit
Dynamic Host Configuration Protocol Server	DHCP	DHCPd Microsoft Windows Server 2K/2K3/2K8	Explicit
E-Mail Server	E-MAIL	Microsoft Exchange Server 2K3/2K7	Explicit
File Transfer Protocol Server	FTP	FileZilla Server Microsoft Internet Information Services (IIS) 5/6/7	Explicit
HyperText Transfer Protocol Server	HTTP	Microsoft Internet Information Services (IIS) 5/6/7 Apache HTTP Server Apache Tomcat	Explicit
Network File System File Server	NFS	Fedora Linux 8	Explicit

³⁴ **Explicit - User accessible Services:** These are services that the user consciously accesses and will normally report as directly affecting mission capabilities.

Implicit - Supporting Services: These are supporting services that the user utilizes, but are not directly visible to them; these services are required for explicit services to properly function.

Overhead - Management Services: These are services that if absent, the supported user's mission could still be accomplished; these are normally only visible to or controlled by the network managers.

Service	Abbreviation	Software Packages (examples)	Category ³⁴
Portal Server	Portal	Microsoft Office SharePoint Server 2K3/2K7	Explicit
Print Services	Print	Microsoft Windows 2K/2K3/2K8	Explicit
Secure File Transfer Protocol Server	SFTP	FileZilla Server OpenSSH	Explicit
Streaming Media Server	Media	Microsoft Windows 2K/2K3/2K8	Explicit
Terminal Services	Terminal	Microsoft Windows 2K/2K3/2K8	Explicit
Video Teleconference Server	VTC		Explicit
Voice over IP Services	VoIP	Cisco Unified Communications Manager (CallManager)	Explicit
Voice-Mail Server	V-Mail	Cisco Unity	Explicit
Web Conferencing Services	WC	Adobe Connect	Explicit
Windows Internet Name Service	WINS	Microsoft Windows 2K/2K3/2K8 SAMBA	Explicit
Windows Style File Server (SMB)	SMB/CIFS ³⁵	SAMBA Microsoft Windows Server 2K/2K3/2K8	Explicit
Certificate Status Services	CRL/OCSP	DoD PKI CRL Server PKIManager CoreStreet Tactical Validation Authority Microsoft Windows Server 2008 Online Responder Tumbleweed Valicert Validation Authority Responder Tumbleweed Valicert Validation Authority Repeater	Implicit
Database Server	DB	Microsoft SQL Server 2K/2K5/2K8 MySQL	Implicit

³⁵ Server Message Block/Common Internet File System

Service	Abbreviation	Software Packages (examples)	Category ³⁴
HTTP Proxy Services	HTTPproxy	Blue Coat WebFilter Squid Astaro Security Gateway (ASG) Microsoft Internet Security and Acceleration Server (ISA) 2K4/2K6	Implicit
Network Time Protocol Server	NTP	Cisco Router IOS Astaro Security Gateway (ASG)	Implicit
Active Directory Management	AD-Man		Overhead
Anti-Virus/Anti-Malware Server	AV/AM	Symantec Anti-Virus Server McAfee ePolicy Orchestra (ePO)	Overhead
Backup and Recovery Management	BaR-Man		Overhead
Capacity, Availability and Performance Monitoring	CAPM	Computer Associates (CA) eHealth SoftConcept SeeNet	Overhead
Collaboration Management	Collab-Man		Overhead
Configuration Management Database and Support Services	CMD/SS	BMC Remedy IT Service Management (ITSM) FrontRange Helpdesk Expert Automation Tool (HEAT) SolarWinds Cirrus	Overhead
Cryptographic Management	Crypto-Man		Overhead
Database Element Manager	DB-EM		Overhead
E-Mail Management	EMAIL-Man		Overhead
Firewall Element Manager	FW-EM	Netscreen Manager Remote Client Utility Netscreen Security Manager (NSM)	Overhead

Service	Abbreviation	Software Packages (examples)	Category ³⁴
HAIPE Management	HAIPE-Man	General Dynamics C4 Systems GEM Encryptor Manager Solo General Dynamics C4 Systems GEM Encryptor Manager Lite General Dynamics C4 Systems GEM X Encryptor Manager	Overhead
IAVM Management	IAVM-Man		Overhead
Identity Management	ID-Man	Microsoft Identity Lifecycle Manager FreeIPA	Overhead
IP Network Management System	IPNMS	Computer Associates (CA) Spectrum Network Management System	Overhead
IP Network Vulnerability Scanner	IPNVScan	eEye Retina	Overhead
IP Network Vulnerability Scanner Element Manager	IPNVScan-EM	RealSecure Remote Client Utility RealSecure Site Protector (RSSP)	Overhead
Layer 2 Switch Element Manager	L2S-EM		Overhead
Layer 4 Switch Element Manager	L4S-EM		Overhead
LDAP X.500 Management	LDAP-Man		Overhead
Logging Server	Log	SolarWinds SYSLOG Server	Overhead
Meta-Directories Element Manager	Meta-EM		Overhead
Network Attached Storage Element Manager	NAS-EM		Overhead
Network Management	NM	CiscoWorks Microsoft Operations Manager (MOM) 2K/2K5/2K7 SolarWinds Engineer's Toolset Warfighter Machine Interface (WMI)	Overhead
Network Planning	Net-Plan	General Dynamics Detailed Planning and Engineering Module (DPEM)	Overhead

Service	Abbreviation	Software Packages (examples)	Category ³⁴
Org Messaging Service Management	DMS-A-Man		Overhead
Policy-based IP Network Management	Policy-IP-Man		Overhead
Public Key Infrastructure Management	PKI-Man	Microsoft Certificate Authority Red Hat Certificate System Dogtag Certificate System	Overhead
Remote Access Management	RA-Man		Overhead
Remote Authentication Dial In User Service	RADIUS	Cisco Secure Access Control Server (CSACS) Microsoft Network Policy Server (NPS) 2K8 Microsoft Internet Authentication Service (IAS) 2K/2K3 Microsoft Internet Security and Acceleration Server (ISA) 2K4/2K6	Overhead
Rights Management Services	Rights-Man	Microsoft Windows 2K3/2K8	Overhead
Router Element Manager	RTR-EM		Overhead
Secure Configuration Remediation (Patch) Management	Patch	Microsoft Windows Software Update Service (WSUS) Microsoft Systems Management Server (SMS) 2K/2K3 Microsoft System Center Configuration Manager 2007 Citadel Hercules	Overhead
Security Information Management System	SIMS	ArcSight	Overhead
Service Level Management	SL-Man		Overhead
Situational Awareness (NETCROP)	SA/NETCROP	Computer Associates (CA) Formula	Overhead
SNMP Agent	SNMP-A		Overhead
SNMP Network Management System	SNMP-NMS	SNMPc Net-SNMP	Overhead
SSL Accelerator Element Manager	SSLA-EM		Overhead

Service	Abbreviation	Software Packages (examples)	Category ³⁴
Storage Area Network Element Manager	SAN-EM		Overhead
System Management	SysMan	Microsoft Systems Management Server (SMS) 2K/2K3 Microsoft System Center Configuration Manager 2007 Microsoft Operations Manager (MOM) 2K/2K5/2K7	Overhead
Terminal Access Controller Access-Control System	TACACS+	Cisco Secure Access Control Server (CSACS)	Overhead
Trivial File Transfer Protocol	TFTP	Microsoft Remote Installation Services (RIS) 2K/2K3 SolarWinds TFTP Server	Overhead
Virtual Private IP Network Management	VPN-IP-Man		Overhead
Voice over IP Management	VoIP-Man	Netcordia NetMRI	Overhead
Wireless IP Network Management	WN-IP-Man		Overhead

Table 11: Network Services

5.2 Layers

5.2.1 Layer List

Visio adds the layer(s) defined in each individual master icon to the page, and makes it available for use when the designer drops a master onto the diagram for the first time. Each of the following stencils defines several layers.

5.2.1.1 Communication Packages

1. Boundary - Communication Package
2. Connector - Transmission Link
3. Diagram - Communication Package
4. Type - Connector
5. Type - Fixed Station
6. Type - Nodal Package
7. Type - Shelter
8. Type - Transit Case
9. Type - Transmission Package

5.2.1.2 Network Devices

1. Connector - Data Link
2. Diagram - Network
3. Type - Connector
4. Type - Network Cloud
5. Type - Network Device

5.2.1.3 Information Systems, Services, and Miscellaneous

1. Boundary - Page Classification
2. Boundary - Site Location
3. Boundary - Supported Unit
4. Connector - Internal Host Link
5. Connector - Service Link
6. Diagram - External
7. Diagram - Service
8. Diagram - Service - ADDS
9. Diagram - Service - DRSN
10. Diagram - Service - DSN

11. Diagram - Service - DNS
 12. Diagram - Service - DHCP
 13. Diagram - Service - E-MAIL
 14. Diagram - Service - FTP
 15. Diagram - Service - HTTP
 16. Diagram - Service - NFS
 17. Diagram - Service - Portal
 18. Diagram - Service - Print
 19. Diagram - Service - SFTP
 20. Diagram - Service - Media
 21. Diagram - Service - Terminal
 22. Diagram - Service - VTC
 23. Diagram - Service - VoIP
 24. Diagram - Service - V-Mail
 25. Diagram - Service - WC
 26. Diagram - Service - WINS
 27. Diagram - Service - SMB/CIFS
 28. Diagram - Service - CRL/OCSP
 29. Diagram - Service - DB
 30. Diagram - Service - HTTPproxy
 31. Diagram - Service - NTP
 32. Diagram - Service - AD-Man
 33. Diagram - Service - AV/AM
 34. Diagram - Service - BaR-Man
 35. Diagram - Service - CAPM
 36. Diagram - Service - Collab-Man
 37. Diagram - Service - CMD/SS
 38. Diagram - Service - Crypto-Man
 39. Diagram - Service - DB-EM
 40. Diagram - Service - EMAIL-Man
 41. Diagram - Service - FW-EM
 42. Diagram - Service - HAIPE-Man
 43. Diagram - Service - IAVM-Man
 44. Diagram - Service - ID-Man
 45. Diagram - Service - IPNMS
 46. Diagram - Service - IPNVScan
-

- 47. Diagram - Service - IPNVScan-EM
- 48. Diagram - Service - L2S-EM
- 49. Diagram - Service - L4S-EM
- 50. Diagram - Service - LDAP-Man
- 51. Diagram - Service - Log
- 52. Diagram - Service - Meta-EM
- 53. Diagram - Service - NAS-EM
- 54. Diagram - Service - Net-Plan
- 55. Diagram - Service - NM
- 56. Diagram - Service - DMS-A-Man
- 57. Diagram - Service - Policy-IP-Man
- 58. Diagram - Service - PKI-Man
- 59. Diagram - Service - RA-Man
- 60. Diagram - Service - RADIUS
- 61. Diagram - Service - Rights-Man
- 62. Diagram - Service - RTR-EM
- 63. Diagram - Service - Patch
- 64. Diagram - Service - SIMS
- 65. Diagram - Service - SL-Man
- 66. Diagram - Service - SA/NETCROP
- 67. Diagram - Service - SNMP-A
- 68. Diagram - Service - SNMP-NMS
- 69. Diagram - Service - SSLA-EM
- 70. Diagram - Service - SAN-EM
- 71. Diagram - Service - SysMan
- 72. Diagram - Service - TACACS+
- 73. Diagram - Service - TFTP
- 74. Diagram - Service - VPN-IP-Man
- 75. Diagram - Service - VoIP-Man
- 76. Diagram - Service - WN-IP-Man
- 77. Type - Connector
- 78. Type - Network Host
- 79. Type - Service

5.2.2 Diagram Types

Planners can create the following diagram types by activating the layers listed under each diagram name.

5.2.2.1 Site Diagram

1. Boundary - Page Classification
2. Boundary - Site Location
3. Boundary - Supported Unit

NOTE: Once the user places icons for these layers on the diagram he should lock these layers to make editing the remaining objects easier.

5.2.2.2 Communication Package Diagram

1. Boundary - Page Classification
2. Boundary - Site Location
3. Boundary - Supported Unit
4. Boundary - Communication Package
5. Diagram - Communication Package

5.2.2.3 Network Diagram

1. Boundary - Page Classification
2. Boundary - Site Location
3. Boundary - Supported Unit
4. Boundary - Communication Package
5. Diagram - Network
6. Type - Shelter
7. Type - Transit Case
8. Type - Network Host (optional)

5.2.2.4 Service Diagram (All with Hierarchy)

1. Boundary - Page Classification
2. Boundary - Site Location
3. Boundary - Supported Unit
4. Boundary - Communication Package
5. Diagram - Service
6. Type - Shelter

- 7. Type - Transit Case
- 8. Type - Network Host

NOTE: The “Service Diagram (All with Hierarchy)” can get confusing if the diagram depicts several service hierarchies as all services and service connectors are visible. To only view the services without the hierarchy connectors, use one of the next diagram types.

5.2.2.5 Service Diagram (All, no Hierarchy)

- 1. Boundary - Page Classification
- 2. Boundary - Site Location
- 3. Boundary - Supported Unit
- 4. Boundary - Communication Package
- 5. Connector - Internal Host Link (optional)
- 6. Type - Shelter
- 7. Type - Transit Case
- 8. Type - Network Host (optional)
- 9. Type - Service

5.2.2.6 Service Diagram (Single Service)

- 1. Boundary - Page Classification
- 2. Boundary - Site Location
- 3. Boundary - Supported Unit
- 4. Boundary - Communication Package
- 5. Type - Shelter
- 6. Type - Transit Case
- 7. Type - Service - [SERVICE TYPE]

5.3 Reports

The following pre-built reports are included with the VIRD-AP.

- 1. Basic Configuration - Access Points
- 2. Basic Configuration - Firewalls
- 3. Basic Configuration - IGXes
- 4. Basic Configuration - Prominas
- 5. Basic Configuration - Routers
- 6. Basic Configuration - Sensors
- 7. Basic Configuration - SMUs

8. Basic Configuration - Switches
9. Basic Configuration - Voice Gateways
10. Communication Package - Contact List
11. Communication Package - Status Report
12. List - Mission Sites
13. List - Network Equipment
14. List - Reference Manuals
15. List - Service
16. List - Transmission Link
17. Schedule - SATCOM Access

NOTE: Report files are in XML format and end with a “.vrd” extension.