

VS Computer Systems

Year 2000 Software Advisory Bulletin



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Revision Notes

1.0	April 1998	Original Publication
1.01	June 4, 1998	Added Missing VS Access Table on page 16
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4.0	January 21, 1999	Updated Release levels, added relevant information based upon customer feedback
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SECTION 1 - USING THIS DOCUMENT

INTRODUCTION

This document has been prepared by Wang Global (Wang) and reflects data current as of Monday, February 16, 1999. This document outlines Wang's current VS product sales, support and release status, and provides valuable information on the current and planned availability of Y2K compliant and certified versions of the products. *This release of the Software Advisory Bulletin contains a substantial amount of new or changed information and should be reviewed carefully.*

DEFINITIONS

For the purposes of this bulletin, Year 2000 **compliance** means that neither performance nor functionality is affected by dates prior to, during and after the year 2000. In particular-

Rule 1 - No value for current date will cause any interruption in operation.

Rule 2 - Date-based functionality must behave consistently for dates prior to, during and after year 2000.

Rule 3 - In all interfaces and data storage the century in any date must be specified either explicitly or by unambiguous algorithms or inferencing rules.

Rule 4 - Year 2000 must be recognized as a leap year in terms of handling both the 29th of February and day 366.

For the purpose of this bulletin, Year 2000 **certified** means that Wang has examined or tested a specific release of the software and has determined that it is year 2000 compliant. In some cases, known exceptions or limitations may be stated. *While other or prior releases of the product may in fact be compliant, Wang neither can nor will certify them as such.*

Except as discussed in Note 2 below, VS Applications are certified as compliant only when they are used on a compliant VS OS release and with compliant releases of any prerequisite products.

Note 1: A product may have cosmetic screen display issues related to Y2K and still be Y2K compliant. Compliance deals with functional adherence to the Y2K processing rules and not with aesthetics. Wang expects that all certified releases will have correct and appropriate screen displays unless otherwise noted.

Note 2: In certain instances a software product may be certified as compliant even though it may operate in an otherwise non-compliant environment. This is done when the intended functionality of the product is compliant. See the section on VS Support Control Unit for further information.

USING THIS BULLETIN

Products are grouped by major classification or product set. For each product set, and where appropriate for each product, there will be explanatory text that provides a brief description of the product and discusses relevant year 2000 considerations. At the end of each section there is a table which provides current information on the status of the product in the section.

WANG TERMINOLOGY

Wang uses the terms "upgrade" and "update" in this document. These terms are not interchangeable.

Product Update is used to specify software that provides a new release for a specific product. For example, PACE 2.20.00 may be updated to 2.20.47 for Year 2000 compliance. There is no change to the product model number or to software maintenance contracts. Updates releases often provide only changed modules rather than fully functioning software, and may be designed for installation over one or more prior releases of the product.

Product Upgrade is used to define a software release that is used to replace one software product with a different software product with enhanced functionality. For example, VS Office 3.x is a different product (with different components) than Office 2.05.xx. After an upgrade is applied, the model number is changed. Product upgrades apply to the operating system, VS Office and some other products.

Tier Upgrade is a specific licensing process that is used in conjunction with certain hardware upgrades that result in a change of processor tier. This document does not deal with tier upgrades. Similar license transaction models may apply to products such as VS LAN connection where the selling model has changed from untiered to tiered.

USING THE PRODUCT TABLES

Product Tables in this document provide three types of information.

Model Information: The Wang Model and Description area lists the product model as it appears on the Wang Sales Database. In this field, lower case letters imply variables. For example "t" stands for the tier level and "X" or "m" for media type. A single product may be sold on multiple tiers and delivered in multiple media formats. The designations n, nn or nnn imply that the product has a multiple-level pricing scheme other than the traditional tier model. If the model number is printed in a bold typeface, then the current shipping product is Y2K compliant.

Product Status Information: The Product Status provides information on the current Sales, Product Support and Y2K Status of the product. This information is subject to change.

Sales Status: Sales status may have any of the following values for VS software products:

Active	This product is currently available for purchase (licensing) on an unrestricted basis. (See Note)
In xxx	This product is now included in some other product (xxx), most typically the Century Server Product which has replaced the VS OS. It may also be sold alone if so noted.
Special or Limited	This product is available for purchase but may be subject to sales restrictions. For example, some products are available only to existing customers for new sites (Wang will not accept a

	new customer for the product), or orders may be geographically limited to locations where Wang can properly support the installation. This category may also indicate that other restrictions might apply. Contact Wang for details.
Withdrawn	This product is no longer available for sale. This category usually applies to products that are no longer supported or maintained. In many cases it may be possible to meet the business need with other products and Wang should be consulted.

Note: Sales status in this document applies to US English language versions and to sales in the United States only. Wang subsidiaries and international distributors may not sell all products available in the United States. The availability of languages other than US English should be verified with the local Wang distributor or subsidiary.

Support Status Information: The Support Status section discusses the current contract maintenance and support status for the product in the United States. Support Status is characterized by a one or two letter support category code. The category deals with contract support, which is also known as WSS (Wang Support Services). WSS typically has three components as follows:

- (1) Support, which means that the Wang Support Center will answer customer questions about the installation and use of the product, and will help resolve problems. May also include on-site assistance when Wang determines it necessary.
- (2) Maintenance, which means that Wang R&D maintains the programs, finding and fixing bugs and issuing new patches.
- (3) Distribution (on request) of updates or new releases of the product.

The **support categories** for VS software are in the following table.

A	"A" means a "fully supported and maintained" product. Wang Support Center will assist the customer in the use of the product by answering questions, will accept problem (bug) reports and provide appropriate resolution. A category "A" product is actively maintained, and patches, field support releases and new product releases may be made as needed.
B BR	"B" means a "limited support" product. Wang Support Center will assist the customer in the use of the product by answering questions, will accept problem (bug) reports and provide workarounds or fixes if they exist. A category "B" product is no longer actively maintained. "BR" means a product which is now in limited support because it has been replaced by another newer or different product. As with other category B products, Wang provides support, but no longer maintains the product.
C CR	"CR" implies a category C product which has been replaced by a different Wang product, usually with substantially enhanced functionality. Your Wang representative can help you upgrade to a replacement product.

Note: When a product is replaced the earlier release is usually categorized as BR for a period of time to allow transition to the new product. The older product will then be categorized as CR.

Year 2000 Status: Y2K Status provides information on Wang current or planned Year 2000 status.

Y	"Y" means that there is a certified Y2K compliant release available. The minimum compliant release will be indicated in the table.
S	"S" means that a compliant release is in the development or release process and that a release schedule has been set. The Min Y2K column will contain the expected release information. This is, of course subject to change.
P	"P" means that Wang has evaluated the product and plans to offer a Y2K compliant release. At the present time we are not able to identify the projected release level or provide an accurate release date.
As Is	The current general release of the product will provide functional Y2K support, with some limitations or workarounds.
TBD	"TBD" means that the Y2K status of the product is still in question and that a Y2K evaluation is in process.
NT	This product has not been tested. No testing is planned because there is no reason to expect that the product has any date dependencies, or because this is a product that has a viable replacement.
N	"N" means that the product has been tested and is known to be non-compliant, or that it has not been tested and is likely to be non-compliant; and that Wang has no plans to provide a compliant release.

Product Release Status: Section three of the tables provides current release information.

The general release is the standard release of the product which is shipped from Wang Software Distribution when a customer orders the product. The table lists the current general release. Ordering a per-incident update to a product often leads to a delivery that is limited to components which have been changed.

The field support release can be ordered by the VS support center or the VS field software specialist if they determine it is necessary and appropriate for the installation. Products may have multiple field support releases and may also have problem specific patches available.

The "Min Y2K" column provides information on the minimum release of the product that Wang has certified as Year 2000 compliant. If this entry is blank it means that a Y2K compliant version of the product has not yet been released. If the release number is on a shaded background it indicates the planned release number for a release that is in development. It is possible that a release number might change prior to actual release. If the entry reads TBD it means that an R&D project is to remediate the product is under way but that a release number is not yet assigned.

Customers should take note of two important points regarding Y2K compliance and release levels.

- 1) Y2K compliance testing and certification has been done only on the general release of a product that was available when the compliance review started. Earlier releases have not been tested and will not be certified. While it is possible that an earlier release may work after December 31, 1999, Wang will not certify any earlier releases as compliant.
- 2) Releases of a product lower than the minimum Y2K certified release will not be supported past December 31, 1999.

UNLISTED PRODUCTS

Any product not specifically included in this publication should be considered as follows:

- Sales and Marketing Status: The product is not marketed and no longer available for purchase.
- Support Status: The product is a class C product in terms of support. It is no longer maintained.
- **Y2K status: A Y2K compliant version will not be made available.**

Questions regarding Y2K or support status should be forwarded, in writing, through your Wang Sales Representative or Distributor to VS Research and Development. Status changes, if any, will be provided in a written response.

Acquiring New Releases

The process for acquiring new releases depends upon the geographic location where the system is installed.

For Systems installed in the United States: If a Wang Software Support Contract covers the software product you may be eligible for a no-charge update or upgrade to the software product. To request an update, you should place a call to the support center.

If the software product is not covered under a WSS contract you will need to purchase a per-incident update. To order such an update call 1-800-639-9264.

The above applies to systems owned by the United States Government and located outside the 50 United States should use the instructions above.

For Systems located in other countries, contact the local Wang Subsidiary Sales Office or Wang Distributor for assistance.

VS HARDWARE COMPLIANCE

This section has been added to the Bulletin in response to customer request.

In general, VS hardware Products, Processors excepted, are not date aware and thus are Y2K compliant. Specifically, the following classes of products do not have any known date dependencies or issues in the hardware:

Mass Storage Components

SCSI Disk Drives, Disk Mirror Pairs, Disk Arrays
SCSI Disk Accelerators
SCSI Tape Drives

SMD Disk Drive
Other Tape Drives.

The Wang High Performance Storage System hardware is date aware and is Y2K compliant.

Printers

There are no known date issues with any Wang Printer models.

Workstations and WLOC Cards

Wang workstations are not date aware, and thus are Y2K compliant... Wang WLOC option cards are not date aware. Y2K compliance of a PC equipped with a WLOC option card to connect to a VS is dependent upon the PC.

Wang 4450/4451 diskless PCs, designed to be booted from a VS are not Y2K compliant.

VS Communications Controllers

Wang Telecommunication and networking controllers are not date aware, although they may run software that has date functionality. The hardware components are Y2K compliant.

Wang I/O Controllers

VS IOCs are not date aware and are Y2K compliant.

VS Central Processors

The following VS processor models are not able to run a compliant VS Operating System and thus, by definition, are not Y2K compliant:

VS 5, VS 6, VS 15, VS 25, VS 45, VS 50, VS 65, VS 75, VS 80, VS 85, VS 90 and VS 100.

The following Processor families are Y2K compliant, when they are operated with a licensed copy of VS Operating System Release 7.53 or later. They are not compliant with any earlier VS OS releases.

VS 5000, VS 6000, VS 6230 and VS 6230Turbo

VS 300, VS 7000, VS 8000, VS 9000

VS 10000 and VS 12000

VS 16000 and VS 18000

Y2K Compliance and Service Commitment

Y2K compliance is totally independent of any and all current and or future service commitments. Y2K compliance should not be taken as any assurance that service will be available for a product.

SECTION 2 - VS OPERATING SYSTEM (VS/OS)

VS CENTURY SOFTWARE PRODUCT

The minimum VS OS release that will be supported for Year 2000 is OS 7.53.00. This release is provided to customers only as a component of a new comprehensive software product called the VS Century Software product (VS/CSP). The CSP also includes the following software components:

- System Activity Manager (SAM) for performance measurement and management
- Dynamic Reconfiguration (for high-end VS systems only)
- Enhanced Virtual Address Space Feature (EVAS)
- VS Site Manager (Management Tool)
- IWSCORE Server Software

These other components were previously available as separate products. The CSP also includes other enhanced functionality beyond that needed for Y2K.

Y2K COMPLIANCE APPROACH - VS OS

The VS OS has required a substantial amount of internal work to address year 2000 issues. Most of the required changes will be transparent to the user.

The most obvious and significant change is in the VS file system and involves file creation, modification and expiration dates. When the VS file system was first created, files defined a 2 digit year, the century "19" being inferred. Changing this structure to store a full 4-digit year would necessarily require expansion of the field from 2 to 4 spaces. This in turn would require a change in disk VTOC organization that would necessarily impact every application and every code module.

Instead, Wang has chosen a windowing scheme for VTOC dates. The scheme in OS 7.53 stores only the last two digits of a year. The first two digits are added on as needed based with a simple logic test. Years 50 and above are converted to 19XX. Years below 50 are converted to 20XX. Thus a file with a creation year of 96, a last modified year of 02, and an expiration year of 49 was created in 1996, last modified in 2002 and will expire in 2049.

The approach used may lead to unexpected problems in some customer programs or applications. It has not been uncommon to find instances where a file was assigned an expiration date of 12/31/99 implying that it was never to be scratched. Customers must carefully review their procedures and programs for implied usage of date.

In most cases user applications obtain dates from the Operating System and manipulate dates by using routines called either DATE or DATE2. These routines use and return two digit years with an assumption that the century is 19. These routines have been supplemented by a routine called DATE4. DATE4 is compatible with many earlier VS OS releases. DATE or DATE4 should be used for all future date computations.

VS OS 7.52

Wang released a preliminary Y2K compliant OS called release 7.52 in 1997. While this release was adequate for Y2K compliance testing, it was necessary to make numerous patches to facilitate integration of other components. The patch space for this OS has been exhausted and it is no longer maintainable. WANG HAS NOT AND DOES NOT CERTIFY THIS OS AS Y2K COMPLIANT AND DOES NOT RECOMMEND ITS CONTINUED USE. It is known that Y2K compliant versions of some VS applications will not work properly with this release.

WANG officially supported OS release 7.52 only for customers who were shipped licensed copies directly from Software Distribution, and then only until December 31, 1998. Wang employees have been directed not to install this OS release on any additional systems.

Any installation using unlicensed copies of VS OS 7.52 software will be considered in violation of the terms of their license agreement. This may result in the cancellation of all licenses.

VS SUBS AND USERAIDS

VS Subs are callable routines provided with the VS OS that are used to access various system services. The release distributed with the CSP is now 1.00.18. The routines that are relevant to Y2K include:

DATE: This routine provides standard day and date processing routines and returns dates with 2 digit years. It has recently been updated to provide Y2K compliance.

DATE2: This routine was a modified version of DATE created for OS 7.52. It should be replaced by DATE4 in all instances.

DATE4 is a compliant version of DATE that returns 4 digit years. It is the preferred routine for date manipulation.

DATE6 was another interim routine that is no longer required.

DAY is a routine that has also been enhanced for Y2K compliance.

We recommend that customers acquire the current version of VS SUBS and relink any object module using the routines.

VS/CSP MODELS AND STRUCTURE

In the past Wang had an OS licensing scheme which called for separate and distinct license models for each VS processor model number and type. This structure has been changed and simplified with the availability of the VS CSP. The former list of about 60 discrete license models has been replaced with the models and product structure described in the table that follows.

VS/CSP Model	Description / Remarks	Tier
VSCSP-18/1950-Q	For VS 18000 Model 1950 only, including systems upgraded to this model. Notes 1 & 2	V
VS/CSP-16850-m	For VS 16000 Model 850 only, including systems upgraded to model 850. Notes 1 & 2	V
VS/CSP-16750-m	For VS 16000 Model 750 only, including systems upgraded to model 750. Note 1 & 3	V
VS/CSP-12000-m	For VS 12000 Model 550 and Model 450/650. (See Notes 4 and 5)	V
VS/CSP-10000-m	For all VS 10000 models (50, 75, and 100) See note 5	V
VS/CSP-8X80	For all VS 8000 Model 80 processors, including any processor using a Model 80-board set.	V
VS/CSP-8K60	For all VS 7000/8000/9000 systems using a model 60 or 70 board set.	T
VS/CSP-7000	For all VS 7000/8000/9000 systems using a model 10, 20, 30 or 50 board set. This includes VS 300, 7150 etc.	T

The CSP models above do not restrict configuration, except that the OS itself limits devices to 999 or below and has task limitations of about 1000 tasks. The actual useful user population depends upon workload and CPU processing power.

VS/CSP-6230T-G	For VS 6230 Models - this product includes turbo accelerator features and an enabling key for 256 configured workstations.	P
VS/CSP-6230-G	For VS 6230 Models - When shipped with new hardware this product includes a 6230-enabling key for 256 configured workstations. See Note 6 below for upgrades. See Note 7	P
VS/CSP-6100-G	This model applies to all VS 6110 and 6120 processor boards regardless of processing power. When shipped with new hardware this product includes a 6100-enabling key for 256 configured workstations. See Note 7 below for upgrades.	P
VS/CSP-5000-G	This model applies to all VS 5000 processors. Workstation limits are inherent in the hardware and are 10 workstations for model 30, 64 for model 40, 96 for model 50 and 128 for model 60.	P

Notes:

- 1 This model is shipped with an enabling key (or in some cases keys) which is the property of Wang and which is uniquely identified by customer and processor serial number. The customer must return this key when they no longer use the license. Customer may be held responsible for any misuse of key if it is not returned.
- 2 The 16850-license model includes licensed firmware accelerators to enhance performance. License also applies to any system upgraded to a VS 16000 model 850 equivalent, regardless of cabinet type. Same is true of VS 18000 models
- 3 The 16750 license also applies to any system upgraded to a VS 16000 model 750 equivalent, regardless of cabinet type.
- 4 This model applies to 12650 and 12550. It is a special product due to unique license key requirements.
- 5 Wang no longer sells VS 10000 or 12000 systems due to the age of these processors and the limited ability to maintain them. Wang strongly discourages any party from purchasing used VS 10000/12000 hardware for this reason. New hardware service contracts are not generally available. Any VS/CSP license issued to a new hardware owner will require a signed waiver of support liability. **No Software credits are permitted on any upgrade to VS 10000 or 12000 system.**
- 6 If a customer owned a validly licensed VS 6230 processor on July 1, 1997 it may be upgraded to the VS/CSP-6230 license. Otherwise it must first be upgraded to the proper license for the hardware as installed on July 1, 1997 and then upgraded to a 6230 license.
- 7 New VS 6100 and 6230 CSP licenses always are equipped with a 256-workstation key. When a previously licensed 6100 or 6230 is upgraded to a VS/CSP license, the limits of the previously installed key will still apply. Wang offers replacement keys to upgrade these systems to a full 256 Workstation license.

SUPPORT CONTROL UNIT (SCU)

High End VS models include an internal or external Personal Computer called the Support Control Unit (SCU). This PC has special hardware and software used to interface with the VS CPU and to perform some important administrative and diagnostic functions

The SCU is used on VS 300, VS 6000, 8000, 9000, 10000, 12000, 16000 and 18000 systems.

The SCU, for historic reasons operates on a version of Microsoft MS-DOS that is not Y2K compliant. However, the SCU software does not depend upon the DOS for date related support, and thus is compliant.

While the SCU software does not extract a date from DOS, it does use DOS functions to update and manage the date. It will be necessary to manually reset the DOS and BIOS dates after January 1, 2000.

The SCU should never be used to run any application except those that are specifically part of the SCU code provided by Wang.

SECTION 3 - VS OS EXTENSIONS, UTILITIES AND ADD-INS

These software products extend the capabilities of the VS OS by adding specific functionality. The products are described briefly below. Model Numbers and product release status is shown in the table at the end of the section.

PRODUCT INFORMATION

Enhanced Virtual Address Space (EVAS)

EVAS extends the range of virtual addressability from a maximum of 8MB to a new maximum of 12MB. EVAS enables users to have a greater amount of control in how Virtual Address Space is allocated for various uses. In prior VS Operating System releases, the 4-MB difference was, by default, allocated to the GETMEM pools. Using EVAS, the System Administrator can redistribute the address range between User Virtual Address Space, GETMEM, and XDMS Shared Area. EVAS was an optional component of OS releases prior to 7.5X. This product is included in the VS Century Software Package (VS/CSP) and is no longer offered as a stand-alone product. Use of EVAS is optional, but highly recommended with OS 7.53. It will be a mandatory component of future OS releases. **Release and Support Status:** No separate Y2K release will be offered.

High Configurability Option (Option 7.54)

This is a new OS extension that is in test at the time of publication of this guide. Wang expects that it will be available for customer installation in April 1999. This option requires OS 7.53 (the CSP) as a prerequisite and overlays it with a new OS kernel and associated components. This product has two key features. First, it expands the sized of the Global Shared Memory pools (GETMEM) allowing more concurrent users to access the system. It also provides for the configuration of up to 2000 devices (0 to 1999), doubling the capacity of OS 7.53.

Increased GETMEM is a byproduct of the relocation of XDMS control blocks to the address space above 16MB and other GETMEM management enhancements. High Configurability is of specific value to installations that are currently constrained by GETMEM exhaustion and to installations that need more than 1000 devices due to system growth or consolidation. **Y2K Compliance:** This product will be Y2K compliant when released.

Dynamic Reconfiguration (DRC)

Dynamic Reconfiguration, a service available only to high-end VS systems, allows dynamic Genedit control of certain IOCs and devices. DRC supports dynamically moving or adding selected devices without an IPL. For instance: workstations, printers, or other devices on a serial controller can be modified. No VS 5000/6000 support is planned.

Release and Support Status: This product has been incorporated in the VS CSP package and is no longer sold as a separate offering. No separate Y2K release will be offered.

Extended Data Management System (XDMS)

XDMS provides an advanced level of file access. Principal features include added access methods, provision for roll forward transaction logging and recovery and a mechanism which reduces emergency reorganization if a file was open

when the system shut down. XDMS access is transparent to the end-user application. **Y2K Compliance** - Minimum Y2K compliant release is 1.53 which is available now. This product is OS release specific. Other currently available releases are not, and will not be Y2K compliant. Releases lower than 1.53 will not be supported past December 31, 1999.

Enhanced Security Access Controls (ESAC)

ESAC is a VS OS extension that provides discretionary security controls beyond the security features provided standard with the VS OS. ESAC includes capabilities to force password changes on a periodic interval, to force all users to change passwords, to restrict the workstations that a specific user may use, to restrict times a user may access the system and many other features. This product will detect failed unsuccessful logon attempts and can disable future logons from the port and notify the administrator. It can also ignore attempts after notifying the user. The person attempting to access the system will not know that their attempts are being ignored. **Y2K Compliance:** Y2K release is 1.32.02 or greater. Y2K compliant release is available now. Compliant release should be installed with VS CSP (7.53). Releases lower than 1.32.02 will not be supported past December 31, 1999.

VS OverDrive

VS OverDrive is an extension to the VS OS that dedicates a portion of main memory to the caching of data blocks from VS disk volumes. The system administrator may specify read caching, write caching or no caching for a volume. OverDrive can substantially enhance throughput on systems that have available memory and CPU cycles. OverDrive is sold on a non-standard CPU tiering basis. Tier 1 is high-end CPU models - VS 300, 7000 and above. Tier 2 includes the VS 5000, 6000 and 6230. **Y2K Compliance:** Y2K release is 1.05.04 or greater. Y2K compliant release is available now. Releases below 1.05.04 will not be supported past December 31, 1999.

Large Disk Support Feature (Option 109)

(Added in release 4.0 of this book). This feature is software support required when a physical or logical disk in excess of 4.2GB is configured on a system on certain controllers. It extends the OS ability to address blocks from 21 bits to 23 allowing drives of up to 17GB to be configured. It requires OS 7.53 or later. This package is required for 70V68-2 IOC on high end VS and 50V68E controller on VS 5000/600 models. **It is not required for the new 70V68EW IOC.**

Large Drives are not supported on other controllers or on the SCSI controller of the RCU.

VS Data Shadow

Data Shadow is a software product that captures I/O operations to DMS/XDMS indexed files in user specified libraries/volumes. When a write to the specified file is complete, Data Shadow makes a copy of the transaction and posts it to a mirror or shadow copy of the file which may be located on the same system, or on a remote system connected by a WSN network. Data Shadow facilitates construction of

high uptime environments by maintaining a duplicate copy of the file. In the event of a failure, the duplicate file and the active transaction file can be merged to provide a duplicate of the original file prior to the failure. Special licensing rules apply. **Y2K Compliance:** Current release is 1.00 that is Year 2000 compliant. This release is available now. Data Shadow requires VS OS 7.53 as a prerequisite. Note: This Wang product replaces an offering from Voyager Systems that is not Y2K certified. Support for Voyager Data Shadow will not be available past December 1999.

VS Data Mirroring NEW

Data mirroring is a new software product that embeds many of the features found in Data Shadow into the OS kernel for improved performance and integrity. Data Mirroring allows a user to create a duplicate copy of a file and then keeps the primary and mirrored copy consistent. The mirrored copy may be on another disk on the same system or on a disk on another system in the same RSF cluster. This product does not provide network updates.

Y2K Compliance: The initial release of this product will be Y2K compliant. This release is scheduled for April 1999. Data Mirroring requires VS OS 7.53 and Option 7.54 as prerequisites.

System Activity Monitor (SAM)

The SAM performance tool is the standard performance measurement and reporting tool for the VS. It is OS dependent since it captures data from OS internal control blocks and other internal reference points. A Y2K compliant OS 7.53 version is available and distributed with the CSP. SAM-3 is part of the VS CSP package and will no longer be sold separately.

Other Performance Measurement Tools

Other performance related tools, including Wang On-line Resource Monitor (WORM) and SAM Graphics, will not be Y2K certified. The VS Capacity Planning tool (CPT) will not be Y2K compliant. Customers using third party performance tools should consult their software supplier to determine Y2K status.

Application Management Utility (AMU)

Portions of AMU are packaged with VS Office. AMU is sold as a stand-alone product. AMU is a comprehensive menu management tool. Those components provided with VS OFFICE have been upgraded to provide Y2K compliance. A fully compliant release of AMU is planned, however a schedule has not been set.

VS Multistation (MWS)

Multistation is part of VS Office and is sold as a stand-alone product. MWS allows a single physical workstation to support up to 4 concurrent sessions to the VS. The MWS product supports keyboard customization, display character remapping, color control and workstation glossaries. MWS includes workstation microcodes and the WSPERSON utility that allows the user to customize their workstation keyboard and display interface. WSPERSON has a known cosmetic date display problem on certain screens where years past 1999

are displayed as "85". This utility will be fixed at some future date.

The Workstation GLOSSARY feature has not been extensively tested for Y2K compliance. Users of this functionality may need to review glossary programs to make sure that they do not extract a date from a screen display and/or use this in a glossary.

Asynchronous Multistation (AMWS)

AMWS is an add on to MWS that supports Multistation on an asynchronous terminal connected to the VS through a WACS 1 or high speed multi-line WACS controller. This product was withdrawn from marketing but has now been returned to general availability. The Y2K status is the same as for VS Multistation listed above.

VS Virtual Machine (VM)

VM is a software product for selected VS processors that permits an administrator to create and run multiple virtual or logical VS machines on a single physical processor. VM is especially valuable in environments where test and production must take place on the same hardware and in cases where multiple systems are being consolidated to a single larger processor. **A significant value of VS/VM is its ability to create logical machines that may be started with different dates. This means that VM can support a Y2K test environment.**

Y2K Compliance: Release 2.04, which is available now, is Y2K compliant. This product is listed as having marketing status of "Special Product" because it may require a technical review of the system and consulting services to achieve a successful installation. VS/VM is recommended only for sites with a high degree of technical proficiency.

VS Disk Partitioning

This product is a subset of VS Virtual Machine (VM) which is limited to creation of logical disk volumes on physical volumes. Disk Partitioning can be used to facilitate system upgrades where multiple small disk volumes (typically SMD disks) need to be accommodated on a smaller number of higher capacity SCSI volumes. **Y2K Compliance:** release 2.04, which is available now, is Y2K compliant. This product is listed as having marketing status of "Special Product" because it may require a technical review of the system and consulting services to achieve a successful installation.

Extended Serial Device Support (XSDS-2)

This product includes special microcode and configuration tools for the 70V67 and 23V67 (23V97) serial IOC on large VS systems. It allows a doubling of the configuration for these controllers. It replaced XSDS-1 that supported only the 23V67 IOC. XSDS-1 will not be Y2K compliant. Users of the first XSDS product may need to upgrade to XSDS-2. There are no Y2K issues.

Fiber Optic RSF (FO-RSF)

Fiber Optic RSF is the software component of the fiber optic RSF product. It is required when a multi-system cluster is constructed with Resource Sharing Facility. There are no known Y2K issues with this software. Users are cautioned

that all systems in a RSF cluster should be upgraded to OS 7.53 at the same time.

XDMS Server for RSF

This software is required on each system when XDMS is employed in the RSF cluster. There are no known Y2K software issues.

VS BACK-PAK

Back Pack is a combined hardware product that includes a Wang supplied tape Drive and Back Burner backup software from Utility Systems Inc. A Y2K compliant version of this software is available from Utility Systems, Inc. Wang customers using this product must contact Utility Systems at (978) 256-0306.

Product Status: Operating System Extensions and System Software

Wang Model and Description		Product Status			Current Release Status		
		Sales	Spt	Y2K	General	Fld Spt	Min Y2K
EVAS-cpmod	Enhanced Virtual Address Space (EVAS)	In CSP	A	Y	1.50.00		1.50.00
VS/DRC-1-9	Dynamic Reconfiguration	In CSP	A	Y	1.50.00		1.50.00
VS-XDMS-t-m	Extended Data Management System (XDMS)	Active	A	Y	1.53.01		1.53.00
VS-ESAC-t-m	Enhanced Security and Access Controls (ESAC)	Active	A	Y	1.32.02		1.32.02
VS/DC-c-m	VS OverDrive	Active	A	Y	1.05.04		1.05.04
VSCSP-OP109HQ	Lrg Volume Support (9GB) for 70V68-2 IOC	Active	A	Y	3.03.03		3.03.03
VSCSP-OP109LQ	Lrg Volume Support (9GB) for 50V68E IOC	Active	A	Y	1.03.03		1.03.03
VS-DATASHADOW	VS Data Shadow	Active	A	Y	1.00.00		1.00.00
AMU-m	VS Application Management Utility	Active	A	P	2.05.00	2.05.03	see text
Subset of AMU shipped w ith VS Office is Y2K compliant.							
VS-MULST-t-m	MULTISTATION	Active	A	As Is	7.10.00	7.10.06	see text
VS-AMWS	WACS MULTISTATION	Active	A	As Is	1.00.01		see text
VS-XSDS-2-m	EXTENDED SERIAL DEVICE SUPPORT	Active	A	Y	1.01.00		1.01.00
FO-RSF	FIBER OPTIC RSF SUPPORT FEATURE	Active	A	Y	3.01.10		3.01.00
VS-XDMS-SVR-m	XDMS SERVER FOR RSF	Active	A	Y	1.53.00		1.53.00
VS-DP	VS Disk Partitioning	Special	A	Y	2.04.00		2.04.00
VS/VM	VS Virtual Machine (VM)	Special	A	Y	2.04.00		2.04.00

Option 7.54 and Data Mirroring are in development. Contact your Sales Representative for current status.

Contact Wang for a comprehensive list of VS/VM Models. VM is structured and priced to specific CPU models or types

SECTION 4 - VS COMPILERS AND TOOLS

COMPILERS

VS compilers are inherently date insensitive, that is they do not know, or need to know the current date in order to work. The only date consideration is that compiler generated code listings generally include the current date in the format MM/DD/YY at the top of a page. This practice will not be changed. VS Compilers do have the ability to generate code that will query the underlying VS OS to obtain the current date for use by the application. The changes to the compilers involve extensions to allow the OS to return the century portion of the year.

Code that has previously been compiled will operate beyond December 31, 1999. **Customers must determine if their code incorporates any date related processing and apply any necessary changes.**

VS COBOL

Wang supports two distinct VS COBOL environments. COBOL 74 complies with the COBOL 74 language standard. It was the original COBOL environment. VS COBOL 85 is a newer generation compiler which complies with the COBOL 85 standard. COBOL 85 is a richer language with more features. The compiler is an optimizing compiler. While compile times are somewhat longer, the compiler generates faster and more efficient code. The current VS COBOL 85 product is COBOL 85 release 3 and includes intrinsic functions and other features. The earlier COBOL 85 product is no longer supported. Customers who have a license for COBOL 85 release 2.X and below may purchase a per incident upgrade to COBOL 85 release 3.X. Both COBOL environments will be supported past Y2K.

For COBOL, Y2K compliance extends the language to permit the user to accept a date from the OS with a 4-digit year. A new reserved word, DATE4 has been added to these compilers. A statement of the type "Accept DATEIN from DATE4" will cause the OS to deliver the current date in 4-

digit year format. A similar keyword and process are available in all other compliant compilers.

VS FORTRAN

VS FORTRAN Compilers are no longer marketed or maintained and will not be upgraded to be year 2K compliant. Customers using Fortran subroutines for floating point math may find it desirable to convert this code to use intrinsic functions provided with COBOL 85 release 3.0. No compliant release is planned.

VS ADA

VS ADA is no longer marketed, supported or maintained. No Y2K Compliant release is planned.

OTHER COMPILERS

Support status and release information for VS BASIC, VS C, VS PL/1 and VS RPG-II are in the table below. Like the COBOL compilers, these languages have been extended to accept a date with a 4-digit year from the VS OS.

DEVELOPMENT TOOLS

ADEPT (Advanced Editor)

Wang continues to offer, and recommend the VS Advanced Development Editor & Productivity Tool (ADEPT). Adept is far more flexible and helps provide increased programmer productivity. In addition to editing 80 column source code files, Adept may also be used to edit many data files. This may be very valuable when Y2K data changes are required. A Y2K compliant release is available.

OTHER TOOLS

VS INFOGEN and VS INFO

VS INFO (VS Help Files) and VS INFOGEN (Help File generator) have been withdrawn from marketing and will not be supported following December 31, 1999. These products have not been tested or examined and thus are not Y2K compliant.

PRODUCT STATUS: COMPILERS AND TOOLS

Wang Model and Description		Product Status			Current Release Status		
		Sales	Spt	Y2K	General	Fld Spt	Min Y2K
195-101T-m	VS PL/1 Compiler	Active	A	Y	7.53.00		7.53.00
195-103t-m	VS BASIC Compiler	Active	A	Y	7.52.02	7.52.03	7.52.02
195-104t-m	VS COBOL 74 Compiler	Active	A	Y	7.52.03		7.52.03
195-105t-m	VS RPG-II Compiler	Active	A	Y	7.52.02		7.52.01
VS-C-t-m	VS C Language Compiler	Active	A	Y	7.53.00		7.53.00
VS-COB85-3t-m	VS COBOL 85	Active	A	Y	3.01.02		3.01.01
195-102t-m	VS FORTRAN	Withdrwn	C	N	Not Available		
VS/ADEPT-t-m	VS Advanced Editor	Active	A	Y	1.03.00		1.03.00

SECTION 5 - WANG APPLICATIONS

INTRODUCTION

This section provides information on a number of standard Wang provided VS application software products. Communication products are located in another section.

PACE

VS PACE is Wang relational database offering for the VS. Only PACE Package and PACE runtime are now available for purchase. Individual components (Application Builder, Query, Report and RDBMS) are no longer sold on an a-la-carte basis but will continue to be supported on a contract basis. Customers with various PACE components may also upgrade to the full PACE package.

PACE Y2K Methodology

PACE allows storage and manipulation of dates with both two and four digit year formats. The ability to use four digit dates has been a feature of PACE since the early 1990's. Application changes will not normally be required where four digit years are used. Where two digit years are stored, the windowing algorithm used for the VS OS will be employed. Years of 50 or above are treated as 1900 plus the year. Years below 50 are treated as "2000" plus the year. This may not always be acceptable. For example, a birth year of 44 would be treated as 2044.

PACE applications must be reviewed for date usage. A major consideration may be screen layout where there is not space for the full date.

PACE release 2.20.47 is certified as Y2K compliant. This release allows storage of dates with two digits in the year and where this format is used a windowing technique is used. This may not be acceptable for all situations and in some cases it may be necessary to expand date fields to a full 4 bytes.

Associated Products: VS COBOL HLI, a component which permits a COBOL program to manipulate PACE does not have any known Y2K problems. A compliant release is available. There is no charge for COBOL HLI. However, support is provided only to users who purchase a support contract for it.

The compliant release of PACE requires a minimum OS of 7.53.00 or later.

WANG OFFICE & E-MAIL PRODUCTS

Wang Office

The Wang OFFICE name has been used to define a number of discrete products over the life of the VS. Only VS OFFICE release 3 will be made Y2K compliant. Customers who are on Office 2.05.87 or other earlier releases must upgrade to the OFFICE 3.0 product. These earlier releases will not be Y2K compliant and should not be expected to function at all past 1999. OFFICE uses date/time stamps to track messages and thus has numerous date considerations.

Customers who have a valid license for a VS OFFICE product before release 3.0 may purchase a per-incident update/upgrade to release 3.0.

OFFICE 3.X includes VS OFFICE, VS Multistation (MWS) and portions of the VS Application Management Utility (AMU). All are shipped as Y2K compliant versions. (See limitations on Multistation listed elsewhere in this document). OFFICE licensees may also request and receive the full AMU package (used to develop custom menus). The currently available releases of this component is not Y2K compliant, however compliant releases are in development. Office licensees may also request the X.400 Gateway and X.500 directory synchronization components needed to interface to Microsoft Exchange release 4.0.

VS OFFICE with the X.400 gateway does not directly interface with MS Exchange 5.0 at the present time. Customers desiring e-mail interchange with Exchange 5.0 should contact Wang for further information. AMU and MWS are listed in the OS Extensions section.

VS OFFICE Move User

Wang also offers a combined product/service that facilitates the movement of a user, or a group of users, from VS OFFICE to Microsoft exchange. Discussion of the features of this product is beyond the scope of this document. Customers having a requirement for this software should consult their Wang Representative.

Non-English Versions of VS OFFICE

Note: Y2K compliant releases of Wang OFFICE in languages other than US English may not be available. The availability of translated menus will vary by language and is the responsibility of the local Wang subsidiary or distributor. Customers must contact their local Wang sales office or Wang VS distributor for assistance.

OFFICE LINK

OFFICE LINK is a PC client package that can be used to insert MS DOS files into a mail package and to remove MS DOS files from a mail package. The host component of OFFICE LINK is included in the Y2K compliant version of OFFICE. The client product will continue to be available as a special product. OFFICE LINK does not have any known Y2K issues and it will not be specifically enhanced for Y2K. OFFICE LINK compatibility with future versions of Microsoft Windows beyond Windows 95 is not known. OFFICE LINK is not compatible with Windows NT.

OFFICE API Tools

The OFFICE API is a set of subroutines that allow a user developed application to send and receive e-mail. The OFFICE API has been upgraded to provide Y2K compliance. It is used in OFFICE itself. It is possible that applications that use the subroutines in this toolkit will, at a minimum, require recompilation and/or linking with the compliant version.

E-mail Gateways

OFFICE supported a broad range of e-mail gateways to products such as PROFS, DISOSS, and ALL-IN-1. These products are no longer marketed and will not be tested for Year 2000 compliance. Wang recommends that the X.400 gateway capability of VS OFFICE 3.X be employed for connection to other mail systems. This open, standards based approach is now supported by most widely used e-mail systems. Wang OFFICE administrators using these packages should advise their Wang representative promptly so those alternatives may be explored.

Office Indexer

Based upon a specific customer request, Wang is now preparing a compliant release of Office Indexer. There are no current plans to provide a general release of a compliant version of Office Indexer. Customers seeing a need for a compliant version of this product are asked to contact their Sales representative for assistance.

WORD PROCESSING

Wang has traditionally supported two distinct Word Processing product sets. IIS/WP, the original Wang WP offering was a port from early generation word processing software to the VS. WP PLUS is a later generation product which is far more robust and which supports more features. IIS/WP can be run on workstations (and use printers) with device numbers below 255. No such restrictions apply to WP Plus. Wang WP products are collaborative products that depend upon a VS-based host component and a peripheral-based client component. The peripheral is typically a workstation (or a PC) or an intelligent printer.

Year 2000 Approach for VS Word Processing Products

Wang WP products do not use dates as a part of their primary functionality. However, dates are used to record document creation, modification and expiration dates and to record certain internal events. Dates are stored in archival (diskette) copies of documents and may be used in some WP utilities. Wang has determined that the most current version of its VS-based word processing products will function in an acceptable manner after January 1, 2000. These products are provided on an as-is basis for Year 2000 compliance.

Customer year 2000 issues are expected to be minimal. The exception may be in Glossary applications where the glossary will be unable to scratch files that the user may consider expired. This can occur because WP uses a 2-digit year in some internal processes.

VS WP PLUS

WP PLUS 4.0 replaced earlier WP Plus products in 1994. This was a new product and existing installations were not forced to move. Only WP Plus 4.X baseline will be supported past 1999.

IIS/WP (Wang WP)

IIS-WP 5.0 replaced earlier IIS/WP products in 1994. This was a new product and existing installations were not forced to move. Only WP 5.X baseline will be supported past 1999.

WP/WP PLUS Peripheral Support

IIS/WP and WP Plus have historically supported a broad range of workstations and printers. While there are no known peripheral issues related to Year 2000, Wang will consider any feature as working correctly if it works on a Personal Computer using Microsoft Windows 3.1 and connected to the VS by a WLOC option card.

LAN Connected Word Processing

Wang expressly disclaims any and all responsibility or liability for the use of Wang WP or WP PLUS in a LAN connected environment. This capability requires software provided by a third party. Wang has not tested and cannot certify Y2K compliance of Wang WP products used in any environment other than directly connected Wang peripherals.

WP/WP PLUS Optional Reference Products

WP and WP Plus each had a suite of add-in and add-on extensions as well as language specific dictionaries, word lists, thesauruses etc. There is no reason to believe that these products use dates in any fashion and Wang does not anticipate any Y2K issues with these products. Wang has not tested them for Y2K compliance. These products must be used as-is.

Wang Information Transfer Architecture (WITA) / COPYWITA

WITA is a mechanism that facilitates the movement/transition of compound documents (documents containing multiple types of information) to and from WP PLUS. COPYWITA has not been examined or tested for Y2K compliance and should be considered non-compliant. The COPYPLUS utility should be used where applicable.

IIS LIST Management

IIS List management is a workstation-based VS application that works in conjunction with Wang WP to manage lists. This application will not be certified for Y2K compliance. There are many other ways to meet the business requirements that were addressed by IIS/ List Management. Your Wang representative can assist you in selecting an alternate system.

Other VS WP and WP PLUS Add-in products

Other WP add-ins, such as VS Alliance and OIS BASIC on the VS will not be supported with Y2K releases. As with List Management there are newer generation solutions available today.

Wang OIS and WP systems

The core software components of Wang WPS and OIS systems do not have known Y2K issues beyond those described for IIS/WP or VS WP PLUS above. The products are offered as-is. Wang will continue to provide telephone

support, but no longer maintains the software components of these products.

No testing is being done, and no Y2K certification is anticipated for any other software that may have been employed on these platforms. If you use a WPS or OIS system you should discuss ongoing hardware maintenance requirements with your services sales representative.

Non-English WP Products

IIS/WP 5.0 and WP PLUS 4.0 were releases in several languages beside US English. The same Y2K considerations that were stated for the base WP/WP PLUS products apply to these versions. For other versions contact the Wang country manager.

WANG INTEGRATED IMAGING SYSTEM (WIIS)

Wang Integrated Imaging System (WIIS) continues to be supported in Y2K and enhanced with new hardware and storage solutions.

Principal WIIS products are the full WIIS environment that supports management of optical devices and Basic Imaging Support (BISP) which supports image storage on Magnetic disk only. **Y2K Compliance Status:** Y2K releases are available.

The Y2K compliant release requires an upgrade of PACE (used to maintain the document locator) to 2.20.47. Careful planning will be required to insure proper conversion/upgrading of the locator databases.

The compliant release of WIIS requires VS OS 7.53 or later.

WIIS Workstations

There have been several generations of Image enabled VS workstations. The oldest generation, based upon the Wang Classic PC or APC is not Y2K supported. The 4250IMG workstation was based on a Wang 286/386. The software on this workstation has not been fully tested for Y2K compliance, however there is no obvious date usage. The underlying PC models and MS-DOS versions may not be Y2K compliant. It is probable that these workstations will continue to operate with incorrect dates after Y2K without

impacting their WIIS use. Wang, however, recommends that these dedicated WIIS terminals be replaced with a current generation of PC hardware running Windows or Windows '95 and using the Windows VS Image Workstation software or Voyager Image Workstation. Specification of a replacement product is beyond the scope of this document. Customers using older generation, dedicated Image Display Workstations should discuss requirements with their Wang Representative.

A Y2K release of Wang Windows Image Workstation Software (W3-VS-IMGWS) is available. This software operates on Windows 3.X, Windows for Workgroups and Windows 9X operating environments. It does not, and will not, operate in a Windows NT environment. This product may be used in both local and LAN connected environments.

WIIS Output – Multi-line FAX

A Y2K compliant release of Multi-line FAX software is in development. The Single Line FAX product will not be enhanced.

VS VOICE PRODUCTS

Wang offered VS voice hardware and software in the United States and in a limited number of international locations. These products are no longer supported or maintained. No Y2K evaluation has been done and no Y2K statement can be made.

STEP – Speech and Telephony Environment for Programmers

This development toolkit was used to create programs which could interface with Wang supplied voice hardware to build telephony applications. While there are no known Y2K issues with this product, no testing or Y2K evaluation has been done. This product has been withdrawn from sales and is no longer fully supported or maintained. There are excellent Windows and/or NT based voice applications that can be customized to provide VS data access.

Office Voice Mail

As with STEP, this product is no longer sold or supported. No Y2K evaluation has been done. No Y2K statement can be made.

APPLICATION PRODUCT STATUS

Wang Model and Description		Product Status			Current Release Status		
		Sales	Spt	Y2K	General	Fld Spt	Min Y2K
PACE							
PACEPKG/t-m	PACE PACKAGE	Active	A	Y	2.20.47	2.20.47	2.20.47
PACEAB/t-m	PACE Application Builder	Note 1	A	Y	2.20.47	2.20.47	2.20.47
PACERDBM/t-m S	PACE Relational Data Base Mgr	Note 1	A	Y	2.20.47	2.20.47	2.20.47
PACEQ+R/t-m	PACE Query and Report	Note 1	A	Y	2.20.47	2.20.47	2.20.47
PACEQUERY/t-m	PACE Query (only)	Note 1	A	Y	2.20.47	2.20.47	2.20.47
PACERPT/t-m	PACE Report (only)	Note 1	A	Y	2.20.47	2.20.47	2.20.47
PACERUN/t-m	PACE Run Time	Active	A	Y	2.20.47	2.20.47	2.20.47
VS-COBOL-HLI-m	PACE COBOL Host Lang Intfc	Active	A	Y	5.20.04		5.20.04
PACEANSWER-m	PACE ANSWER CONNECTION	Not Avail	C	N	Not Available		
PACECULL-m	PACE CULLINET CONNECTION	Not Avail	C	N	Not Available		
Wang Office							
VS-OFF3-t-m	VS OFFICE 3.)	Active	A	Y	3.02.00		3.02.00
	X.400 Office Gateway		A	P			
	Gateway to MS Exchange 4.0		A	P			
	(above are optional components with Office 3.02.00)						
	See text for Y2K information on Multistation and AMU components						
	All other OFFICE Gateway Products	withdrwn			call		
VS-OFFICE	OFFICE (2.05.87 and earlier)	Withdrwn	C	N	Withdrawn		
VS-OFF-API-m	VS OFFICE API	Active	A	Y	3.02.00		3.02.00
OFFLINK-m	OFFICE LINK CLIENT	Active	A	Y	1.50.02	1.50.03	TBD
Word Processing							
VS-WPS5.0-t-m	VS/IIS WORD PROCESSING	Active	A	As Is	5.00.00		5.00.00
VS-IISWPX-X	IIS/WP (Older Product)	Withdrwn	C	N	4.70.00		NO
VS-WPP4.0-t-m	VS WP PLUS	Active	A	As Is	4.00.00		4.00.00
VS-WPLUS-t-m	VS WP PLUS (Older product)	Withdrwn	C	N	<4.00		NO
WIS Imaging							
WIS-ENV-t-m	WIS ENVIRONMENT	Active	A	Y	2.90.00		2.90.00
WIS-BISP-X	BASIC IMAGE SUPPORT	Active	A	Y	2.90.00		2.90.00
VS-IMGATE-7	BATCH IMAGE GATEWAY	Special	B	P	1.90.00	1.90.06	TBD
W3-VS-IMGWS-m	Windows Imaging WS	Active	A	Y			
4250IMG2SW	Imaging Workstation Software (DOS)	Withdrwn	C	NT			
ML-FAX-SW-9	Multiline FAX gateway	Active	A	P			TBD

Note 1: Pace Components, except runtime are no longer sold. Existing licensees will be supported and provided with necessary software updates.

SECTION 6: WANG SYSTEM NETWORKING (WSN)

INTRODUCTION

Wang System Networking is a collection of communications software products used to provide VS to VS communications.

Y2K status: Wang has examined and tested WSN products for Y2K compliance. Compliant releases of all products are available to customers.

WSN CNS

CNS is a prerequisite configuration and management tool for all other WSN products. **Y2K Compliance:** Release 9.20 is compliant and available.

OSN Netcore is also a required prerequisite for WSN environments. This software is listed in section 7.

WSN Transports

WSN transports are software products used to control the communication controllers for specified protocols. The table below identifies WSN transports that are currently marketed and supported. X.25 transports are generally unique to the

Product Status - Wang System Networking Components

Wang Model and Description		Product Status			Current Release Status		
		Sales	Spt	Y2K	General	Fld Spt	Min Y2K
VS-WSN-CNS-t	WSN CNS	Active	A	Y	9.20.00		9.20.00
VS-WSNT-1-MP-m	Multi-point Primary Transport	Active	A	Y	3.02.03	3.02.03	3.02.03
VS-WSNT-1-MS-m	Multi-point Secondary Transport	Active	A	Y	3.02.03	3.02.03	3.02.03
VS-WSNT-1-PP-m	Point to Point Transport	Active	A	Y	3.02.13	3.02.13	3.02.13
VS-WSNT-8023	802.3 (Ethernet) Transport	Active	A	Y	3.00.02	3.00.02	3.00.02
VS-WSNT-RSF-9	RSF WSN Transport	Withdrawn	C	NT	1.00.00	N/A	N/A
VS-WSNT-WB-m	Wang Band transport	Active	A	Y	2.08.07	2.08.07	2.08.07
VS-WSNT-PPM-m	Multi-Line point to Point Transport	Special	A	Y	2.03.01P	2.03.01P	2.03.01P
X.25 Transports							
VS/WSNT/WNPAC/X	WSN WANGPAC X.25 TRANS	Special	A	Y	3.40.60	3.40.65	3.40.65
VS/WSNT/DTX/P/X	WSN DATEX-P X.25 TRANS	Special	A	Y	3.40.60	3.40.65	3.40.65
VS/WSNT/TELNT/P/X	WSN TELENET X.25 TRANS	Active	A	Y	3.40.60	3.40.65	3.40.65
VS/WSNT/TYMNT/X	WSN TYMNET X.25 TRANS	Active	A	Y	3.40.60	3.40.65	3.40.65
VS/X25ACCUN/X	X.25 ACCUNET	Special	A	Y	3.40.60		3.40.60
VS/X25GTBR/X-X	X.25 GREAT BRITAIN	Special	A	Y	3.40.60	3.40.65	3.40.65
VS/WSNT/DDN/X	X.25 DDN TRANSPORT	Active	A	Y	3.40.60	3.40.65	3.40.65
VS/X25TURKE-X	X.25 TURKEY FOR TURPAC	Special	A	Y	3.40.60	3.40.65	3.40.65

Contact Wang VS Marketing for X.25 transports for other networks.

VS-WSN-LGN-t-m	VS Terminal Emulation	Active	A	Y	7.18.00		7.18.00
VS-WSNS-FT-t-m	WSN File Transfer	Active	A	Y	9.08.00		9.08.00
VS-WSNS-PDSt-m	WSN Package Distribution Service	Active	A	Y	3.07.00		3.07.00
VS-WSNS-VTI-m	Virtual Terminal Interface	Active	A	Y	7.11.00		7.11.00
VS-WSN-NAI-m	Network Application Interface	Active	A	Y	3.07.01	3.07.06	3.07.06
VSWSNS-NTM-t-m	Network Transfer Manager	Special	B	N	Not Available		
VS-WSNS-GX25-m	WSN X.25 Interface Routines	Special	A	N	1.02.15	1.03.55	1.03.55
VS-WSNS-VTPAD-m	WSN X.3 PAD	Special	A	N	Withdrawn		

country/network to which the site is connected. Other X.25 transports are available on a special order basis. No date issues were found in the transports. The accompanying table lists the Y2K compliant release of many transports. For all other transports, the most recent field support release, or if there is no field support release, the currently available general release is Y2K compliant.

WSN Services

WSN Services provide communications functionality such as logon and file transfer. Supported services are listed in the table below. Products not listed are no longer sold or supported and will not be certified for Y2K compliance.

Distributed Management Facility (DMF)

The DMF product set will not be tested or certified for Y2K compliance.

SECTION 7: INDUSTRY STANDARD COMMUNICATION PRODUCTS

TCP/IP

Wang has traditionally supported a variety of telecommunication protocols. Given the ongoing trend toward standardization and the wide general availability of TCP/IP as a universal high performance interface, the need for these vendor specific protocols has diminished. TCP/IP is, in many ways, the long sought for universal communication standard. Almost every computer in the world provides some level of TCP/IP support.

Wang TCP/IP Products

Wang TCP/IP is divided into two products, the TCP/IP Stack, which is always required, and TCP/IP services, which include Telnet, SMTP and FTP, and is required only when the services are needed. TCP/IP will be fully supported in the Y2K environment.

Y2K Compliance: TCP/IP release 1.85 is Wang's Certified Y2K compliant release. It is available now. TCP/IP release 1.80 is Y2K compliant, except for certain logging and cosmetic screen display functions where incorrect dates may be displayed. Fixes for these minor anomalies have been included in release 1.85, which will also added new functionality. **While TCP/IP 1.80 is Y2K compliant, it will not be supported past Year 2000. Customers should plan on transitioning at the earliest possible time.**

VS WEB SERVER NEW

VS WebServer is a new product, in final test as this edition of the software bulletin is being published. WebServer is a VS based HTTP server that can deliver Web Pages to Desktop Browsers and other systems connected on a local Intranet or the Internet. VS TCP/IP is a required prerequisite.

This product will be Y2K compliant.

Open Systems Networking - OSN NETCORE

OSN NETCORE is a pre-requisite for Wang System Networking (WSN), TCP/IP, and the VS ACCESS set of communication products and other Wang communication offerings. **Y2K Compliance:** Release 9.20, which is Y2K compliant, is currently available.

OTHER EMULATION PRODUCTS 2780/3780

Wang will continue to support the following protocols into the Y2K environment. IBM 2780/3780 and General Asynchronous Subroutines. There are no known Y2K issues. A compliant release is available.

Asynchronous Products

Wang provides asynchronous communication products to support low speed connection to other computer systems and to control remote asynchronous devices. There are Y2K compliant versions of the Asynchronous Standard Components and the General Asynchronous Interface routines.

The VS Operating System provides support for connection of Asynchronous Workstations such as the Wang 2110A or other terminals that comply with ANSI standard X3.64. The OS also provides support for a variety of Asynchronous Printers.

Vendor Specific and International Protocols

Vendor Specific emulation products such as Burroughs, ICL and Honeywell will not be Y2K tested or certified and will not be supported. Products from Wang International Telecommunications Research Center (ITRC) in Belgium will not be tested or certified. VS customers using these protocols are asked to discuss their requirements with their sales representative so that alternative solutions may be proposed.

Product Status: Communication Products

Wang Model and Description		Product Status			Current Release Status		
		Sales	Spt	Y2K	General	Fld Spt	Min Y2K
VS-TCPSTACK-t-m	TCP/IP STACK	Active	A	P	1.85.00		1.85.00
VS-TCPSEVC-t-m	TCP/IP SERVICES	Active	A	P	1.85.00		1.85.00
VS-OSN-NCX-m	VS OSN NETCORE	Active	A	Y	9.20.00		9.20.00
195-2090-m	IBM 2780/3780 Emulation	Active	A	Y	7.00.19	7.00.19	7.00.19
VS-GEN-ASYNC-Am	GENERAL ASYNC SUBS	Active	A	Y	7.50.00	7.50.06	7.50.06
VS-ASYNCH-STD-m	Asynch Standard Components	Active	A	Y	7.50.16	7.50.16	7.50.16

SECTION 8: VS SNA AND IBM COMMUNICATIONS PRODUCTS

Wang has had several distinct sets of SNA-based communication products as described below.

SNA OVERVIEW

SNA (Systems Network Architecture) was developed/ designed by IBM and is considered the de facto industry standard for communications networking. SNA is a set of rules that describe the logical structure, format, protocols and operational sequences of transmitting information through a communications network. SNA is not an emulation within the IBM world, but a true network. VS SNA software allows Wang VS Systems to communicate with an IBM host in an SNA environment. The product set is modular to permit installation only of needed components.

Y2K SNA Status and Plans

Y2K compliant releases are now available for most SNA products as detailed in the accompanying table. The basic SNA functioning was not affected by the changes. Y2K changes deal with cosmetic screen displays and certain logging functions. The Y2K exceptions are VS SNA Channel Attach that will not be supported due to hardware availability considerations and the AS/400 features packages which has not been tested.

Wang SNA Product Set

VS SNA Standard Components. This package contains all the necessary software to configure and run the SNA Master Control Program (SNAMCP) and load Data Link Processor (DLP) microcode.

VS SNA X.25 Standard Components. This package provides the same functions as the SNA Standard Components but enables X.25 Packet-Switching Data Networks (PSDN) to be the link to the IBM or compatible mainframe. DLP microcode for VS SNA X.25 Components is provided with the WSN General Access Interface (GAI) software

VS SNA 3274 Emulation software enables a VS system to appear as a cluster controller to an IBM mainframe, allowing workstations to take on the characteristics of IBM workstations and access applications on the IBM mainframe.

3777 Emulation enables a VS system to emulate an IBM 3777 Model 3 Communications Terminal, allowing VS users to submit or receive VS files for batch transmission to an IBM mainframe.

VS SNA Endpoint provides a remote VS system connected to a gateway VS system through WSN access to an IBM mainframe session. The gateway system must have VS SNA SDLC or X.25 Standard Components installed.

VS SNA Virtual Terminal Interface (VTI) is a language independent interface program that allows VS users to write application programs that communicate with the IBM mainframe via SNAMCP or SNAX25. The user's program appears as 3278 Model 2 or Model 3 workstations as it

receives and transmits a 3270 data stream. VTI is not available on SNA Endpoint VS systems.

The VS SNA AS/400 Features Package enables Remote VS logon and access to an IBM AS/400 using standard VS SNA 3274 emulation. The product conforms to the Model 31C protocol and appears as a remote 5251 workstation to the system and application programs. Like standard VS SNA 3274 emulation, when this package is installed, cooperative processing applications can be written using the VS SNA Virtual Terminal Interface (VTI) between a VS and an AS/400 platform. **This product has not been tested for Y2K compliance.**

VS SNA Channel Attach Standard Components is a VS-based software product that works with the VS to IBM Channel Attach Unit hardware, allowing the VS to connect directly to an IBM host channel via an 802.3 Local Area Network (LAN). This product is no longer supported due to hardware considerations.

VS/PC SNA Services-3270 is a comprehensive set of software products based on the Wang PC 200/300 and VS family. This release consists of a set of software components that enable PC users to economically communicate to an SNA environment. The product is composed of a combination of software modules that reside on a VS and each of the "endpoint" PCs within the network. This product allows 200/300s to access SNA-based applications on an IBM mainframe by accessing VS SNA as though they were locally attached workstations. VS/PC SNA Services-3270 includes functional enhancements that extend 200/300 IBM 3270 terminal emulation to include both 3278 Model 4 and 3278 Model 5 display capabilities. This product is no longer supported and has not been tested for compliance. Customers using this product should discuss LAN connection options with their Sales Representative.

VS ACCESS/3270

VS Access/3270 (also known as reverse Logon) provides superior IBM coexistence by allowing installed 3270 users to access VS applications. The Product set includes the following:

VS-3270-y-x	VS ACCESS/3270
VSA-CHNL-y-x	VS ACCESS/3270 Channel Option (Software)
VSA-FILE-y-x	VS ACCESS/3270 IND\$FILE Option

IBM Host-Based Software (one required)

VSA3270-MVS-x	VS Access/3270 MVS
VSA3270-VM-x	VS Access/3270 VM
VSA3270-VSE-x	VS Access/3270 DOS/VSE

Y2K Compliance: A Y2K compliant VS component has been released. The most current host release is also Y2K compliant.

VS ACCESS/APPC

The VS Access/APPC Release 2.0 (Logical Unit 6.2) product enables communications between a VS application program and an IBM host application program running under the Customer Information Control System (CICS). The VS Access/APPC (LU 6.2) Application Program Interface (API) provides customers with the capability to develop specific applications that communicate with CICS-based applications over SNA using IBM's Advanced Program-to-Program Communications (APPC). Wang supplied applications supported include the Wang VS OFFICE/DISOSS Gateway (Release 3.0 or later), VS SNA Distribution Services (SNADS Release 2.0 or later). Customer written APPC applications are also supported. Wang no longer offers SNADS or DISOSS

gateway applications. The components are listed in a table at the end of this section. **Y2K Compliance:** A Y2K release of these products is now available.

VS ACCESS/APPC LEN

VS Access/APPC LEN provides VS customers with the ability to develop transaction programs that can communicate on a peer basis with other VS systems, IBM platforms (i.e., mainframes, RISC Series/6000, AS/400, the PS/2 systems) and other vendors platforms that support SNA Type 2.1 Node protocols. The components are listed in a table at the end of this section.

Y2K Compliance: Compliant versions of these products are available.

Product Status: IBM Communication Products

Wang Model and Description		Product Status			Current Release Status		
		Sales	Spt	Y2K	General	Fld Spt	Min Y2K
SNA							
VSSNA-SDLCT-m	SNA SDLC Standard Components	Active	A	Y	2.70.70		2.70.70
VSSNA-X25t-m	SNA X.25 Standard Components	Active	A	Y	2.70.70		2.70.70
VSSNA-VTIt-m	SNA Virtual Terminal	Active	A	Y	2.70.70		2.70.70
VSSNA-3274t-m	SNA 3274 Terminal Emulation	Active	A	Y	2.70.70		2.70.70
VSSNA-3777t-m	SNA 3777 Emulation	Active	A	Y	2.70.70		2.70.70
VSSNA-ENDPt-m	VS SNA Endpoint	Active	A	Y	2.70.70		2.70.70
VS-SNAS400-t-m	VS SNA AS400 FEATURE PCKG	Special	C	NT	1.00.00		N/A
	PC SNA Services	Withdrwn	C	NT			
VSSNA-CHANt-m	VS SNA CHANNEL ATTACH	Withdrwn	C	NT	2.70.60	2.70.62	N/A
Reverse Logon (VS ACCESS/3270)							
VS-3270-t-m	VS ACCESS 3270 CORE CLS P	Active	A	Y	3.00.02	3.00.06	3.00.06
VSA3270-MVS-7	VS ACCESS 3270 HOST S/W	Special	Special	NT	3.00.04	3.00.09	3.00.09
VSA3270-VM-7	VS ACCESS/3270 HOST VM	Special	Special	NT	3.00.00		3.00.00
VSA3270-VSE-7	VS ACCESS/3270 HOST VSE	Special	Special	NT	3.00.00		3.00.00
VSA-FILE-X-X	VSA 3270 PC FILE OPTION	Withdrwn	C	N	3.00.02		
VSA-CHNL-X-X	VSA 3270 IBM CHANNEL OPTN	Withdrwn	C	N	3.00.03		
VS ACCESS/APPC LU 6.2 Products							
VS-LU6.2SV-t-m	VS ACCESS LU6.2 SERVICES	Active	A	Y	2.00.02		2.00.07
VSLU62CMBS-t-m	VS ACCESS LU6.2 SDLC/X.25 COM	Active	A	Y	2.00.02		2.00.02
VS-LU62-API-m	VS ACCESS LU6.2 API	Active	A	Y	2.00.02		2.00.02
VS-LU62X25-t-X	VS Access LU 6.2 Service/X.25	Active	A	Y	2.00.02		2.00.07
VS ACCESS/LEN PU 2.1 Products							
VS-PU2.1SV-t-m	VS Access/APPC LEN Services	Special	B	NT	1.00.00		N/A
VSPU2.1API-m	VS Access/APPC LEN API	Special	B	NT			N/A

SECTION 9: DESKTOP INTEGRATION PRODUCTS

This product family includes VS and PC components needed to support full partnership between desktop PCs and the VS.

VS IWS SERVER (IWSCORE)

IWSCORE is packaged with the VS CSP and is the standard server software for desktop integration functionality. It is also sold and supported as a separate product for customers who have not yet migrated to the VS CSP. The current release (1.80) has cosmetic screen display date problems that do not impact functionality. The next release of IWSCORE will add functionality and correct the minor Y2K issues. **Although this product is listed separately, it is bundled with the VS/CSP package and thus is not generally purchased as a standalone product.**

IWS API TOOL SET

Wang provides tool sets for IWSCORE Access. This traditional product (PC2-IWS-S/W-m) included C language routines allowing creation of desktop programs that could interact with the IWS SERVER to access VS Data and Services. This product was used with PCLIS and VS LAN Connection clients. This product does not have date dependencies and will continue to function past Y2K, however it will no longer be marketed. A new product designed for Windows '95 and Windows NT and using 32 bit technology is replacing it for VS/LAC connection access with LAC Connection 4.0 or later clients.

VS LAN CONNECTION

VS LAN Connection includes host and gateway components and is used to provide terminal emulation and client application access. The current product is LAN Connection 2.2, but this will be replaced by LAN Connection 4.0 during 1998. Only LAN Connection 4.0 will be supported past 1999. LAN Connection host model structure is VS/LC-GWnnn-m where nnn is the number of permitted sessions. LAN connection 2.2 is Y2K compliant with minor cosmetic screen display issues.

Prior LAN Connection Products VS ACCESS and PC/LAN VS WINDOWS are not Y2K compliant and are no longer sold or supported. Wang customers using these products should discuss LAN connection upgrades with their sales representative.

LOCAL CONNECTION DESKTOP SOFTWARE

This software runs on an industry standard PC using an option card. There are numerous packaging options for WLOC and WINLOC software. Only the base models are shown in the table. WLOC/WINLOC/NTLOC software provides terminal emulation. LIS software is for server access to IWSCORE

functions. These products are not date aware and are inherently Y2K compliant. They must, however, be run on a Y2K compliant version of DOS and/or Windows or Windows NT to be fully compliant.

LAN CONNECTION CLIENT

The basic LAN connection clients include both terminal emulation and server access software. Various models have been offered. Only those client products specifically released with VS LAN Connection 4.0 will be Y2K compliant and certified.

ADVANCED CLIENT APPLICATIONS

These are applications that run on a PC and integrate with the VS through the IWSCORE server.

Infosharer (DOS) and WINFOSHARER (Windows) are products that provide batch file/document conversion between the VS and PC file formats or between one PC file format and another. While there do not appear to be any Y2K issues in the current Windows product, a full evaluation has not been done. At this time, Wang is working on a full 32-bit file and data conversion product that will replace WINFOSHARER in a LAN environment. This new product will be fully Y2K compliant.

Docusharer, a Wang product which was an add-in to Microsoft Word, Word Perfect and AMI Word is not compatible with the most recent version of Microsoft Word (Word 97) due to major changes in the structure of programmatic access to Word. Other acceptable translation options exist. This product will not be further enhanced.

LOCAL CONNECTION (4D)

VS Local Connection, often described as 4D, is a special product that allows certain LAN CONNECTION functionality, specifically image display, on a PC that was directly connected by a WLOC board and standard Wang coax cabling. This product has not been evaluated for Y2K compliance. We recommend users transition to a full LAN connection client prior to Y2K.

VS ACCESS & PC/VS Data Exchange

This host/client combination provided file transfer between locally connected PC's and a VS. VS files could be converted to various PC formats and PC files could be converted to the VS format. IWSCORE host component and a set of client-side products replaced this pair of products.

Y2K Compliance: This set of products has not been formally reviewed or tested for Y2K compliance. Limited internal use at Wang has not detected any date awareness in this program. Continued use is at customers risk.

PRODUCT STATUS: WANG DESKTOP INTEGRATION PRODUCTS

Wang Model and Description		Product Status			Current Release Status		
		Sales	Spt	Y2K	General	Fld Spt	Min Y2K
VS-IWSCORE-m	IWSCORE SERVER	Active	A	Y	1.80.00		1.80.00
VS/LC-GWnnn-m	VS LAN CONNECTION	Active	A	Y	2.02.00		2.02.00
	Note VS/LC 4.0 is in release engineering						
PCLANW-NTWK	PC LAN VS Windows	Withdrawn	B R	N	Replaced by VS/LAN Connect		
PCLANW-ULC	PC LAN VS Windows	Withdrawn	B R	N	Replaced by VS/LAN Connect		
PCLAN-ULC	PC LAN VS Access	Withdrawn	B R	N	Replaced by VS/LAN Connect		
VSACCESS-OS7-X	Precursor to IWSCORE (data exchange)	Withdrawn	B R	N	Replaced by VS iw score		

Direct Connection Software (requires WLOC Option Card or equivalent)							
NTLOC-SW-XX	NT LOC	Active	A	Y	1.03.00		1.03.00
WLOC-SW-m	WLOC (DOS Terminal Emulation)	Active	A	Y	2.50.09		2.50.09
WINLOC3-X	WLOC FOR WINDOWS	Active	A	Y	3.10.06		3.10.06
MCLOC-SW-X	WLOC for Micro Channel PC	Withdrawn	C	NT	1.00.05		
PC2-LIS-S/W-X	PC Local Integration Service for W3.1	Active	A	Y	2.30.01		2.30.01
W95-LIS-4	PCLIS For WFW & WIN95	Active	A	Y	2.40.00		2.40.00
VS LAN Connection Client							
VS/LC-CLW95	VS/LAN CONN WIN 95 CLIENT	Active	A	Y			
VS/LC-CLWFW	WFW LAN CLIENT	Active	A	Y			
TBD	Windows NT LAN CLIENT	Active	A	Y			
	Note on Clients: Version shipping with LAN Connection 4.0 will be the only certified Y2K release.						
Other VS related Desktop Software							
WPS-WINFO	WINDOWS INFOSHARER WIN 3.X	Active	A	Y	1.60.00		1.60.00
TBD	WINDOWS INFOSHARER WIN95 & WFW	Active	A	Y	1.70.00		1.70.00
Data Exchange	Client side for VS ACCESS	Withdrawn	B R	N	Replaced by PCLIS, VS/LAN		
PC2-IWS-S/W-E	INTELLIGENT WS API TOOLKIT	Limited	B	NT	1.70.00		
TBD	IWS API TOOLS (32 BIT)	New	A	Y	NEW		
CONN-CORE-m	Local Connection Host (4D)	Withdrawn	B	NT	1.00.00	1.10.03	N/A
PCVS-LOC-m	Local Connection Desktop (4D)	Withdrawn	B	NT	1.00.00	1.10.00	

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