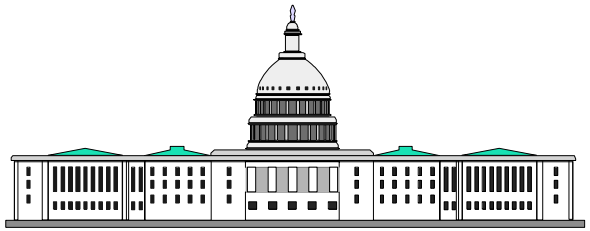
zSeries: Planning for Installation



John Hughes

IBM Washington Systems Center
Gaithersburg, Maryland. USA

Systems Assurance Product Review Guide (SAPR)

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- Stored on ResourceLink for IBM access
  - Not accessible by customers
    - SA Process and SAPR Guides considered "Value Add"
  - Can and should be given to customers in preparation for a zSeries installation
  - www.ibm.com/servers/resourcelink
- Official web site for SAPR Guides
  - w3.ibm.com/support/assure
  - z990 and z890 checklists stored in editable format
- SAPR Guides
  - Used for pre-installation planning
  - Reference for pre-Sales activities
  - Repository for issues that could impact a successful installation
    - Anticipated issues
    - Issues encountered in the field
- Notification of updates via the WSCBuddy list
  - contact John Hughes/Gaithersburg/IBM to get on the list

Designated Product List

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- Installations which require a review
  - http://w3-1.ibm.com/support/assure/assur30i.nsf/WebIndex/SA268
  - Or go to http://w3-1.ibm.com/support/assure and search on DPL
- Spirit of the law
  - If not required, there is no law that says an SA Review cannot be conducted anyway
  - No one likes a CRITSIT or bad install
  - Great cure for those nights you cannot sleep because you are worried about the install
- SME's are happy to share the stuff that made them "E's".
  - WSC Participation not a requirement for a review but happy to do so if requested and resource is available
    - TechRequest
    - e-mail to John Hughes/Gaithersburg/IBM

General Problems

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- Reviews rushed
  - Customer not seeing the process as a valuable planning tool
  - SA Review viewed as a "hurdle"
- Insufficient understanding of the zSeries product by:
  - Customer
  - IBM Account Team
  - Review leader
- SAPR Guide checklist viewed as the sole source of information
  - Need to review other sources of information
    - Must Reads
    - Announcement Letters
    - PSP Buckets
    - Redbooks
    - IMPP Manuals
    - etc
- Lack of recognition for the value of planning
  - A bad experience with an install makes the next sale more difficult

SAPR Guide Organization

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- Main Body
  - Composite of information pulled from multiple sources
- Appendix
  - Information relative to zSeries processors that may be beneficial and requires some amount of focus
- Checklists
  - Items intended to be brief and thought provoking at same time
  - Some items required by the SAPR Guide police
    - attempt to quietly over time delete some without getting caught
- Must Reads
  - Viewed too often as "avoid reading"
  - **NOT** "Tourist Information"
  - Each checklist item has a corresponding "Must Read" item to elaborate on the question being asked
  - If the checklist is edited, it will destroy the formatting relationship between the checklist and Must Reads.
  - Recommendation, never delete an item. Use N/A instead.

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A Stroll Through the Checklist
Items of concern

Customer Expectations-General

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The Must Reads Section of this guide has been carefully reviewed as part of the installation planning for the z990.

- Intended to point out that additional information can be found in the "Must Reads" Section
  - ➡ Trying to keep the questions short and simple
- Each item in the "Must Reads" directly corresponds to the checklist item
  - ➡ A checklist item in 5.1.1 #2 will have a Must Reads item in 6.1.1 #2
    - Unless the checklist has been modified
- The Must Reads is **NOT** tourist information!!!!!

Customer Expectations-General

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Customer's planned implementation and use of the 2084 Processor is understood by the IBM Account Team.

- Each review should begin with a brief overview by the customer on the planned implementation
  - ➡ Sometimes there are surprises to the IBM account team
  - ➡ Sometimes there are surprises to the customers

Customer Expectations-General

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The machine configuration has been reviewed with the customer to ensure that all features required by the customer have been correctly ordered.

Note: Special attention should be given to channel types that provide both Longwave and Shortwave options.

- Many reviews result in order being changed since the order is not "correct"
  - ➡ Hard to understand how this could happen so late in the cycle
  - ➡ Could impact delivery or complicate installation
- A long wave channel can ONLY connect to a control unit that has a long wave adapter
  - ➡ There is no mode conditioning cable that will allow a long wave channel to connect to a short wave controller adapter
  - ➡ The strategic direction for FICON is long wave

Customer Expectations-Performance

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Appropriate sizing tools and methodologies have been used to determine the required processor model.

Note: This item is critical and must be accomplished in order to ensure the z990 meets the expected performance levels of the customer's workload and applications. The use of single number metrics (MIPS, MSU,etc) is not acceptable.

- Ignoring this warning can result in
  - ➡ Priced concessions from IBM to resolve CRITSIT
  - ➡ Unplanned additional software costs to customer
  - ➡ A very unhappy customer!!
  - ➡ A very bad day.....

Customer Expectations-CUoD and CIU

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The PR/SM Planning Guide (available on ResourceLink) has been reviewed to aid in the planning for future non-disruptive

- Normal response is "N/A" or "We don't plan to use CUoD" or "We did not order CUoD"
  - ➡ mute the phone, scream
- Need to plan for a future upgrade (even unplanned) since this is a standard function on the machines
  - ➡ Specify initial and reserved CPs on the Image Profiles
  - ➡ Will save a disruptive IPL to change the settings

Hardware Configuration-General

IBM Account Team must verify that the CCN being used for the CHPID Mapping Tool is the latest and reflects the configuration of the machine to be installed.

- If in doubt, contact
  - ➡ John Hughes/Gaithersburg/IBM
  - ➡ jjhughes@us.ibm.com
- Any change to a configuration will change the CCN
- CHPID Mapping Tool supports the use of a cfr file
  - ➡ Useful for initial planning or familiarization
  - ➡ Should not be used for final mapping

Hardware Configuration-General

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In a sysplex, the 2084 will only be connected to a G5 or later processor and there will be no G4 or earlier machines in the sysplex.

- The answer to this item should always be "OK"
  - ➡ but it is not!
- Any proposal should be based on an understanding of the intended use and the existing environment
- Do not take the "it should work, just not supported" path
  - ➡ If you do, you are on your own
  - ➡ .....don't even ask!

Hardware Configuration-Devices

Equipment that will connect to the 2084 (both IBM and OEM) has been verified to be supported and at the correct maintenance level for attachment.

- Question: If it worked on a z900, it will work on a z990?
  - ➡ True?
  - ➡ False?
- Answer: FALSE!!!
- Sources:
  - ➡ Driver Exception Letter (ResourceLink)
  - ➡ RETAIN Tips
  - ➡ OEM Vendor

Hardware Configuration-Consoles

If plans are in place to use the OSA-ICC capability, ensure that customer has ordered the OSA-Express 1000Base-T feature (FC 1366) and that the operating system is at a supported level.

- The OSA-ICC is only on the 1000BaseT card
  - ➡ Cannot define a GbE OSA as OSC
- The OSA-ICC is copper cable, not fiber

Hardware Configuration-Storage

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Ensure that sufficient storage has been ordered to support future concurrent storage upgrade requirements.

- Storage can be added concurrently ONLY if the enabled storage is less than the installed physical storage
  - ➡ need to be a storage value that will force out larger cards
  - ➡ may be more than the customer wants
  - ➡ no option to select actual card sizes

Hardware Configuration-Sysplex Timer

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Any 2084 which contains a Coupling Facility Partition with connectivity to external systems will require connection to a sysplex timer.

- Note the "Any"
  - ➡ Includes a 2084 used as a standalone coupling facility
  - ➡ Includes a 2084 with a coupling facility partition
- Timer requirement is due to Message Time Ordering (MTO)
- Has nothing to do with CF Structure Duplexing
  - ➡ Actually stated on a Review
- This requirement goes back to the z900 Turbo machines

Hardware Configuration-Sysplex Timer

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Feature code 6154 (quantity 2) for the ETR is ordered if 2084 will attach to a sysplex timer.

- Timer ports are not standard on the z990 or z890
  - ➡ econfig will add by default if there are any coupling links ordered in the configuration
- If initial configuration does not have any links but there are plans to add them later
  - ➡ ORDER THE TIMER PORTS NOW!
    - Timer ports require an outage to add

Hardware Configuration-Crypto

Customer is aware of the changes in crypto features and functions on the z990.

- Refer to:
  - ➡ http://www-1.ibm.com/support/techdocs/atsmastr.nsf/Web/Techdocs
  - ➡ http://w3-1.ibm.com/support/techdocs/atsmastr.nsf/Web/Techdocs
- Definite work in progress
  - ➡ development involvement requested and obtained
- Crypto almost worth a separate SAPR guide

Software Configuration-General

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PSP Buckets have been obtained and carefully reviewed on a regular basis.
Note: This should be done for the initial install as well as for any future upgrades to the machine either by feature adds/removes, processor conversions, or upgrades to a newer driver level.

- Note the note
  - ➡ Initial install for sure
    - ■ but also consider upgrades or driver changes
- Not your father's PSP
  - ➡ Unique and different requirements for the z890 and z990

Software-IOCP and HCD

Definitions for a system being migrated to a z990 Logical Channel Subsystem will be modified if there are unsupported channels before migrating within HCD.

- Refer to :
  - ➡ www.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/WP100399
- Adding question more directed to how to do the migration from an earlier processor
  - ➡ Too many customers are not aware of the changes needed in HCD
- Channels not supported are parallel, OSA, etc.
  - ➡ Checklist item intended to avoid customer issues
    - Migration in HCD can take over an hour and then fail!

Software-IOCP and HCD

An evaluation has been made of any definitions that may need to be changed due to the LCSS structure such as CTCs (and the associated CUADDs) or coupling link connectivity.

- FICON CTC
  - ➡ CUADD = <cssid><mifid>
- ESCON CTC
  - ➡ CUADDD = mifid
- Depending on what and how many systems migrating to the z890 or z990, may have to modify the cuadd identifications
  - ➡ mifid changed
  - ➡ etc.
- Will need to reconnect coupling links in HCD

Software-Sysplex Considerations

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Ensure that in a sysplex configuration which contains a 2084, all participating images will be running supported levels of the SCP.
Note: z/OS 1.1 is not supported in a sysplex containing a 2084 processor at this time.

- z/OS 1.1 is not OS/390 2.10!!!!!
- No system running in a sysplex that has a z890 or z990 can be running z/OS 1.1
  - ➡ This includes the z890 or z990

Software-Sysplex Configurations

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Ensure that all link connectivity between the z990 and other G5 or later processors is a supported configuration.

- Reference-
  - ➡ www-1.ibm.com/support/techdocs/atsmastr.nsf/WebIndex/FLASH10271
- Easy to fall into a trap
  - ➡ Trap is migrating to z900's and then to z990's, carrying ICB-2's along the way
    - z990 to z990 does not allow ICB-2 connectivity
    - z890 to z890 does not allow ICB-2 connectivity
    - z890 to z990 does not allow ICB-2 connectivity
- A z990 or z890 can only use ICB-2 when connecting to a G5/G6

Software-Linux Considerations

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The Linux Installation checklist has been obtained and carefully reviewed.

- Reference-
  - ➡ http://w3-1.ibm.com/support/assure/assur30i.nsf/WebIndex/SA428
- Also, a definite work in progress

Installation Plans-General

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Plans are in place to account for any impact to other systems in the environment which may be affected by the installation of the z990.

- The problem with common sense is that it does not appear to be very common
  - ➡ Some questions in the checklist, like this one, may seem obvious
  - ➡ This item was put into the guide due to a customer sat incident
    - Customer disconnected a channel cable from the processor that was being upgraded. Other end of the cable was attached to a running system and the channel was active
    - Other items of a similar nature.....

Installation Plans-General

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For an upgrade from a z900 machine which will reuse existing channel cards, the 2084 cannot be powered on until the cards have been moved to the new 2084.

- Product Engineering requirement
- Ignoring this requirement can extend an outage
  - ➡ Install instructions are compiled assuming all cards will be moved as indicated
  - ➡ Support center will need to devote additional effort in problem determination since procedures have been circumvented

Installation Plans-General

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The z990 will not be unpacked until ready to power up.

- Item will be deleted from the checklist along with any other items having to do with the temperature and humidity restrictions
  - ➡ Tests in Manufacturing indicate that the z990 is not as sensitive to temperature and humidity as previously assumed
  - ➡ Systems should soon stop shipping with protective wrap and sensors
  - ➡ Treat per the IMPP specifications

Installation Plans-CHPID Mapping Tool

The preferred option for using the CHPID Mapping Tool is the Availability Option. However, it is imperative that regardless of what option is used to map the 2084, an analysis has been made to determine the impacts to the cabling infrastructure.

- Preferred?
  - ➡ Customer does not need to change existing IOCP defs
  - ➡ Customer does not need to change in-house documentation
  - ➡ Customer does not need to understand the underlying availability structure of the machine
- One size does not fit all
  - ➡ Customer has a choice

Installation Plans-Activation Profiles

An IFL processor is managed by PR/SM as an ICF. A zAAP is also managed by PR/SM from the same pool. Ensure that the processing weights for all coupling facility partitions sharing ICFs in conjunction with Linux only partitions which share IFLs as well as partitions using zAAPs have been set correctly.

- New/Updated Checklist Item
  - ➡ zAAPs, shared ICFs, and shared IFLs are managed by PR/SM as a single pool
  - ➡ zAAPs will inherit the weight of the partition
- Dedicated ICFs and Dedicated IFLs will not be impacted
- Reference:
  - ➡ WP100417:z/OS Performance: Capacity Planning Considerations for zAAP Processors

Please define "correctly"

Base System-no zAAPs

Hardware	Partition	4 CPs, 1 ICF
CP Pool	MVSA	750
	MVSB	250 **CP pool =1000**
ICF Pool	CF1	95
	CF2	5
	--	-- **ICF Pool=100**
LPAR Weights	MVSA	75%
	MVSB	25%
	CF1	95%
	CF2	5%
	--	--

Please define "correctly"

Add zAAP to MVSA.....bummer!

Hardware	Partition	4 CPs, 1 ICF
CP Pool	MVSA	750
	MVSB	250 **CP pool =1000**
ICF Pool	CF1	95
	CF2	5
	MVSA zAAP	750 **ICF Pool=850**
LPAR Weights	MVSA	75%
	MVSB	25%
	CF1	22% **(was 95%)**
	CF2	1% **(was 5%)**
	MVSA zAAP	176% **(Really 100%)**

Please define "correctly"

Change weights to account for zAAP

Hardware	Partition	4 CPs, 1 ICF
CP Pool	MVSA	750
	MVSB	250 **CP pool =1000**
ICF Pool	CF1	712
	CF2	38
	MVSA zAAP	750 **ICF Pool=1500**
LPAR Weights	MVSA	75%
	MVSB	25%
	CF1	95% **(was 95%)**
	CF2	5% **(was 5%)**
	MVSA zAAP	100%

Please define "correctly"

Even without the zAAP

Hardware	Partition	4 CPs, 1 ICF
CP Pool	MVSA	750
	MVSB	250 **CP pool =1000**
ICF Pool	CF1	712
	CF2	38
		ICF Pool=750
LPAR Weights	MVSA	75%
	MVSB	25%
	CF1	95% **(was 95%)**
	CF2	5% **(was 5%)**
	--	--

Installation Plans-Activation Profiles

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Reserved storage is allocated to partitions that will utilize the concurrent memory upgrade capability.

- Concurrent Memory Upgrade
  - ➡ Only possible if total storage installed greater than storage activated
- econfig will not allow forcing of larger card sizes

Physical Site-Cabling

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Customer is aware of the services provided as part of installation as defined in the 2084 IMPP manual and in Appendix D, “z990 Installation Practices and Policies” on page 211.

- SSRs are restricted to what they can charge time against
  - ➡ Costing issue

Other stuff

- Incorrect Use of CHPID Mapping Tool
  - Availability option chosen but no priorities defined
- Failure of customers to keep up with MCLs on the machine
  - Outage when you least expect it
- Failure to understand cryptographic use/configuration on old machine causes failure to order the right configuration on the new.
  - Failure to order web deliverables for ICSF crypto support on z990.
- Failure to review HCD doc on z890/z990 to understand MANDATORY changes
- Failure to review PR/SM doc on z890/z990 and configure correctly
- Failure to specify IFLs correctly in Linux partitions
  - Should be dedicated, managed as an ICF by PR/SM if shared
- No reserved storage, no reserved processors in image profiles - disruptive to change.

Other stuff *(continued)*

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- No 'extra' LPARs defined - POR to change.
- Failure to plan for new or upgraded LIC on old, supported HMCs
- Failure to rework old RSU parameters for storage reconfiguration on machines with new storage granularity
  - Granularity virtualized on z890 and z990
- Failure to plan CF LPAR weights, logical CPs etc.
- Failure to arrange for machine fiber optic cables, properly label cables, etc.
- zAAPs can be predefined to an image before the zAAPs are physically installed
  - 0 initial, x reserved

SAPR Guide Updates

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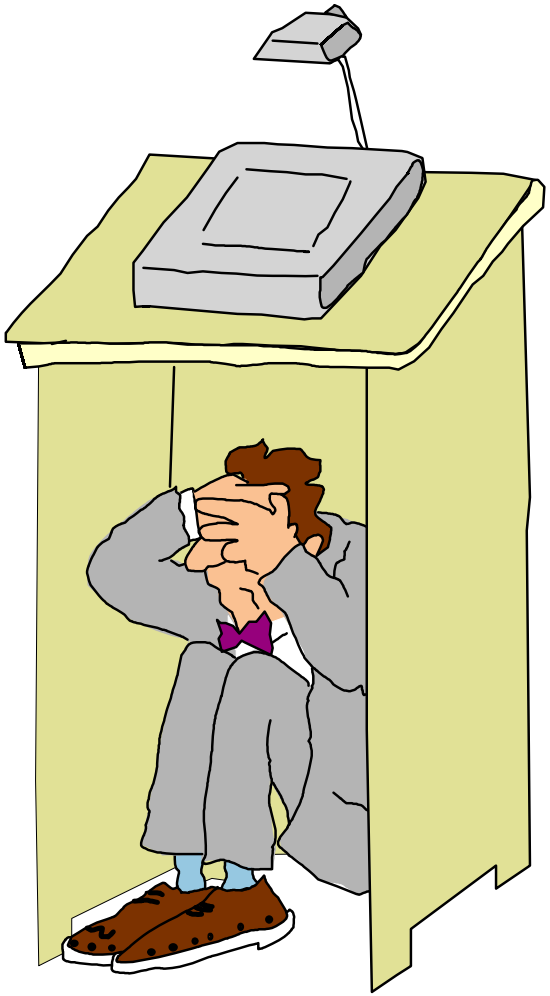
- Always looking for issues that could be captured in SAPR Guide
  - Proactive primarily
    - Paranoia can be a wonderful thing...
  - But.....stuff happens
- Highly recommend attendees at an SA planning session review the SAPR Guide and checklists prior to a review
  - Makes for a more productive review
- Highly recommend SAPR Guide and checklists be reviewed prior to a failed installation, not afterwards
- The only dumb question is the one you don't ask when you should have
  - If it's confusing, give us a call! Please!

Questions?



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