Proposal for Sysgem Customizations for Improvements to User Account Management in Centene

1. Background to Access Administration in Centene

   This proposal uses the following list of assumptions about the environment used by the Centene Access Administration team for managing user accounts on the OpenVMS clusters:

   a) Sysgem Enterprise Manager (SEM) is used for user account administration on six VMS clusters.
   b) Over 20 Access Admin staff are responsible for user account creation and management.
   c) There are over 60 Service Desk staff members with restricted access to SEM for password resets etc.
   d) There is an annual peak in activity during October with over 1000 VMS accounts created per month.
   e) VMS accounts are automatically disabled and eventually deleted if 'inactive' for three months.
   f) Existing templates are used for automatic selection/filling of field values during account creation.
   g) Most new accounts are needed on a single VMS cluster, but any cluster may require new accounts.
   h) A user who has an account on more than one cluster has a need for the same username on each.
   i) The SEM feature of 'Bulk Input' is used to reduce the effort required for creating new accounts.
   j) Centene's "Access" database is used to select new/reused account names linked to a CN reference.
   k) VMS accounts normally have a 3-character username.

2. Main Problem Areas

   We understand that the following list of issues currently exist for the OpenVMS user account administration by the Access Admin team.

   a) 'Access' DB (used to link CN ref to VMS username) has restricted access – by only one user at a time.
   b) The 'Access' DB is not necessarily reliable, regarding which usernames are in use.
   c) The 'Access' DB does not hold dates showing when VMS accounts were deleted.
   d) It is difficult to extract large numbers of 'unused' usernames from the 'Access' DB (for Bulk Input).
   e) A more reliable method of selecting the next available username is required.
   f) A more reliable method of linking VMS usernames to CN Ref numbers is required.
   g) An automated means of updating VMS account status is required for information currently held in the 'Access' DB.

3. Proposed Improvements

The Sysgem recommendations will improve the service to the Access Admin team in the following areas.

a) *Produce an "Access Admin" DB in SEM, making it available to all Access Admin staff for simultaneous access.*

Currently, there is contention for browsing the existing "Access" DB. There is only one person from the Access Admin team that can use the database at any one time. Since there are over 20 Access Admin members in the team, this must mean that the database is frequently locked by someone else when it is needed. The person locked out of the database then has to locate who has it open and ask for it to be released.

With the Sysgem proposal, the database can be simultaneously accessed by any number of users from within the same (SEM) application that will be used to create accounts and can have updates to the database taking place simultaneously.

b) *Automatically synchronize the "Access Admin" DB with accounts on VMS clusters by scanning the clusters for account modifications / deletions / creations.*

The proposed "Access Admin" database will be periodically, frequently, and automatically updated by keeping it in synch with the information held in the Accounts on the VMS clusters. As accounts are deleted by a separate and automated procedure on the VMS systems, so too are the database entries updated. A note of the date deleted (since the last synchronization run) will be made in the database, together with changes in the record status shown in the database. The same is true if a new account has appeared on the cluster or if an account has been modified, the database will always reflect the situation as of the last scan and synchronization.

c) *Hold information extracted from VMS clusters in the "Access Admin" DB (fields such as Rights IDs, Privs, last login, comment field, UIC, Def Dev, created/modified date) for current and historical cases.*

The Sysgem "Access Admin" database will hold details of specific content of the accounts on the VMS clusters and this information will remain in the database even after the VMS account has been deleted. So, information such as the comment field (that held the CN reference number), the last login date, the UIC value, etc. will all be held for posterity and for subsequent browsing.

d) *Increase the accuracy and consistency of the 'comment' field during account CREATE*

A customization will be added to the CREATE input form so that when the Access Admin team interactively create a new account, fields such as the 'comment' field will be filled automatically as a template is selected. This will not only validate typed information against any data held in the database but will also ensure that a consistent syntax is applied to this field across new accounts.

e) *Allow easy extraction of appropriate usernames for use with 'Bulk Input'.*

Sysgem understand that extracting bulk information from the current 'Access' database is not easy. Thomas Akers who is responsible for creating entries for the SEM bulk input procedures has said that he is currently restricted to extracting information for about 25 cases, when in fact he would like to have bulk input runs with up to ten times that number.

Sysgem will work with Thomas as part of this exercise to ensure that he would not be restricted in either the number of cases he requires, or the ease of which he would interact with the database to extract the required information.

f) *Integrate the proposed 'Access Admin' DB with SEM account CREATE window – e.g. automatically select next available VMS username (on request).*

Since the Sysgem "Access Admin" database is an integral part of the SEM system that is used to create VMS accounts, we have the opportunity to simplify (and automate) the filling of the VMS create form by picking information from the database and automatically applying it to the appropriate fields when a single VMS account is being created interactively by Access Admin team members.

g) *Reserve allocated usernames so that they are not reused by other Access Admin staff.*

3-character usernames that have been automatically allocated during a single VMS account create transaction, or as a bulk allocation for bulk input, will be automatically reserved in the database as having been allocated and therefore will not be available for subsequent (and accidental) re-allocation.

h) *Synchronize the proposed 'Access Admin' DB with other external information sources.*

Procedures will be written for the initial population of the Sysgem "Access Admin" database by taking data from other information sources. If needed, these procedures can be made available for the subsequent update of that data when the external information sources change. In this way, the accuracy, and the relevance of the information in the database will be maintained.

4. "Access Admin" Database Design

A new database will be produced and stored in SQL. Sysgem refers to this as the "Access Admin DB".

The primary key to the records in the database will be the 3-character username used for VMS user accounts. Normal format for these 3-character usernames will be:
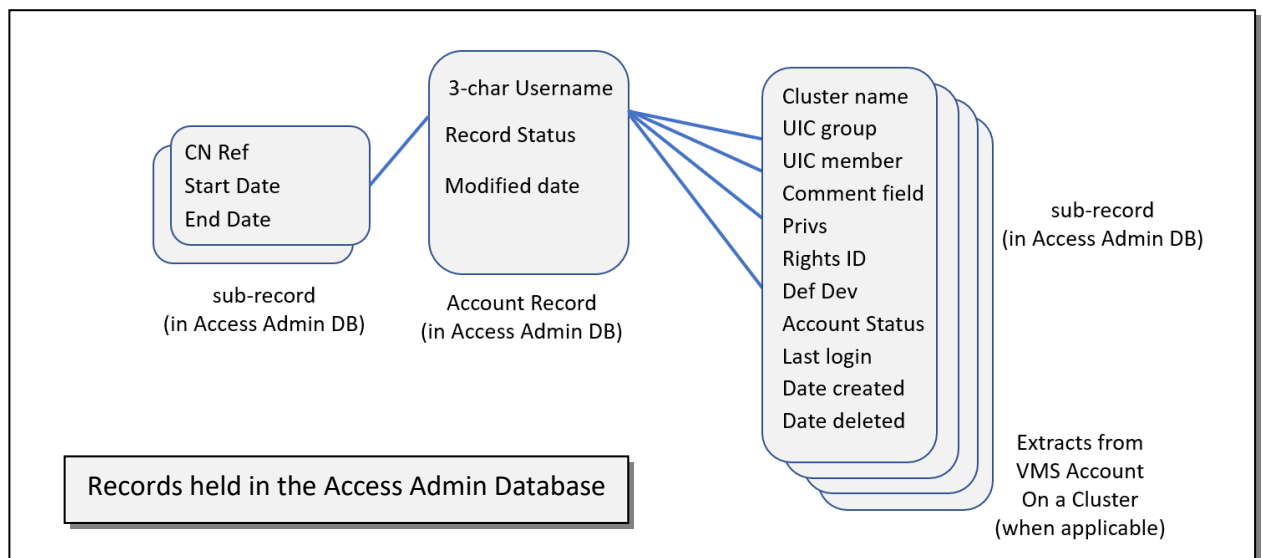
1st character: A-Z;
2nd character: 0-9, A-Z; (uppercase)
3nd character: 0-9, A-Z; (uppercase)

There will be exceptions to this rule since, for example, there are already 3-character usernames that begin with a digit. There will be approximately 34,000 records in the database in total.

A record-status field will indicate whether:

- the 3-character username is available for selection
- it is currently in use on at least one VMS cluster
- it has been used within the last 12 months (and should not yet be used again)
- it is not in use at the moment, but has been reserved for use in the near future
- it is unused but it is not known when it was last used and so will be used only after the other available usernames have been exhausted
- etc.

Centene "CN User Reference numbers" will also be stored in the database and linked to the three-character username records.

CN Ref	3-char Username	Cluster name
Start Date	Record Status	UIC group
End Date	Modified date	UIC member
		Comment field
sub-record (in Access Admin DB)	Account Record (in Access Admin DB)	Privs
		Rights ID
		Def Dev
		Account Status
		Last login
		Date created
		Date deleted

sub-record (in Access Admin DB)

Extracts from VMS Account On a Cluster (when applicable)

Records held in the Access Admin Database

If a VMS user account currently exists or if it is known to have existed in the past, then a sub-record (indexed by the cluster name and three-character username) will also be stored in the database. This sub-record will indicate the status of the account on the VMS cluster (live / disabled / deleted); the date it was created and (if applicable) the date it was disabled / modified / deleted. It will hold significant fields from the VMS account, such as the comment field, UIC, Rights IDs, Default Device,

Privileges, Last login, etc. Once the cluster::username sub-record has been created in the database it will not be removed even after the VMS account has been deleted on the cluster so that the history of its use is retained in the database.

All Access Admin staff will be able to browse the database (simultaneously) in a SEM window, searching, filtering, sorting on any of the fields that it contains and if required to export sections in MS Word, Excel, HTML, text, etc.
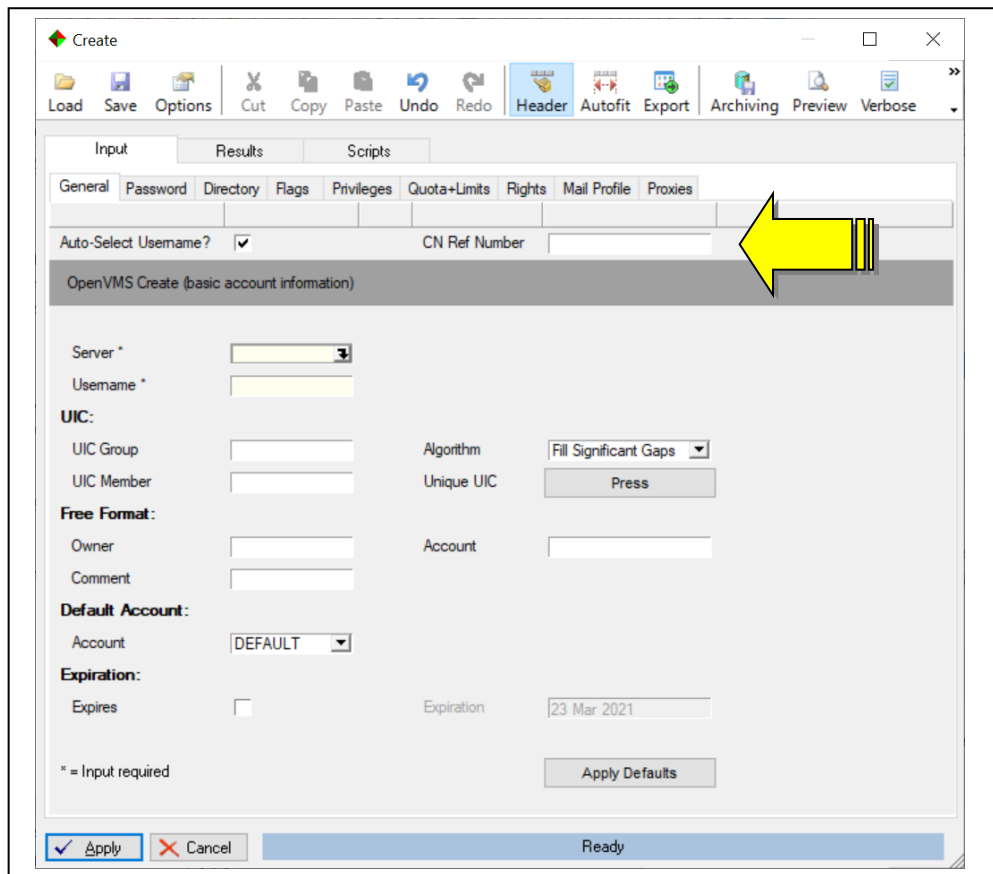
The records in the Centene Access Admin database will include, a minimum, of the following fields:

- Three-letter Username (The primary key to records in the database)
- CN reference (extracted from the existing Access database)   [is HN ref required?]
- Comment field from VMS accounts in each cluster (content might duplicate above field)
- Date the VMS Account was created (on each VMS cluster)
- Date the account was removed (from each VMS cluster)
- (If required) the date when the account was last disabled on each VMS cluster
- Record Status (used when automatically 'picking' a username), e.g. :
    o "X" – Username condemned (will not be auto-allocated)
    o "1" – Account in-use on VMS (will not be auto-allocated)
    o "2" – Allocation reserved (has already been selected in a 'Create' window, no longer available for auto-allocation)
    o "3" – Account does not exist on VMS but has been used within the last 12 months (will not be auto-allocated)
    o "4" – Account does not exist on VMS but in the absence of better information, there is a suspicion that it could have been used recently (it could be used for auto-allocation, but only after other options exhausted)
    o "A" – Available for auto-allocation
- Other fields taken from the VMS accounts (Account Field/UIC Grp-Mem/Rights IDs/Privs/Login Command File/ Def Dev). The cluster name from which they were collected will also be stored.

During the initial creation of the database, an entry will be made for each combination of the three-letter names using the algorithm shown above, whether or not an OpenVMS account already exists for each name. Other information such as CN Reference numbers will be loaded from other information sources such as the current "Access" database or the ABS report used by Access Admin.

5. SEM Customizations

The VMS Create window in SEM will have an additional checkbox that will allow the next available 3-character username to be selected from the Access Admin database. The username will be selected and displayed in the form when the "Apply Defaults" button is pressed. Note that the Apply Defaults button is automatically selected when a Centene template is selected, so the procedure would be to set the checkbox and then select and load a template. After the template has been loaded the selected username will automatically appear in the form in both the "Username" field and the "Default Directory" field.

In addition to the form having a checkbox, a script customization to the "Apply Defaults" button will complete the action required for the automatic selection of the next available 3-character username, and the name will then also be reserved in the database.

If the checkbox is not selected, then the form will behave in an identical fashion to the way it works currently.

A text field "CN Ref Number" has also been added to the top of the form in this customization. When the "Apply Defaults" button is automatically applied from the template selection, the CN ref number value will be taken and applied to the comment field. The CN ref number will also be used in the lookup of the Access Admin database when selecting the next available 3-character username. If an entry is found for that particular ref number, and a 3-character username is associated with the number in the database, then that 3-character username (possibly from an earlier use of the account

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name on this cluster or from the use of the account name for this user on a different cluster) will be chosen for the username field. If the account name were actually in use (currently on the selected cluster) then an error would be displayed.

The comment field will be defaulted (using a format specified by Centene) when the template is selected. We can add other input fields at the top of Create form such as "Full name" for filling before the template is selected so that by the time the template is applied there should be no further fields on the Create form to be entered. Having these fields filled automatically will ensure that a standard syntax is used throughout all new accounts.

If required, it would also be possible to default other fields such as the UIC group and member fields, from the details held in the Access Admin database, for example when an earlier incarnation of the account had been detected, or when the same user had the same named user account on a different cluster.

Customizations will be implemented in such a way that a future update of the standard Sysgem software will preserve the modification without any further consideration during the update.

6. ***Weekly Scan-and-Update:***

A new SEM display will be created that may be run either interactively by a SEM user, or, automatically in background mode as a 'SEM Service Display'. The purpose of this display is to connect to each of the OpenVMS clusters to extract a summary of the current user accounts and then to compare that list with the items in the database. Accounts that no longer exist in VMS, new accounts that have appeared, or accounts that have different stored field values, will be updated in the database by the Scan-and-Update display.

We have assumed that a weekly scan of the VMS clusters will be sufficient to keep the Centene Access Admin Database fresh, but there is no reason why it could not be run more frequently. The frequency can, anyway, be changed very easily as part of the start-up sequence when running the Service Display.

6. Project Plan and Costs

If you agree to us starting the work, we will develop and test the new features on our own systems before making them available to you. We will help with the installation and testing on your systems and support you with training when you are introducing the new features.

We would need to clearly understand the structure of the existing Centene "Access" database and we would need to agree with you exactly which fields of information should be taken over from there into the Sysgem "Access Admin" database.

At the outset of the project on the Centene systems we would need to:

- Verify the design with your requirements
- Verify the suitability of the data in the current "Access" DB
- Capture information from the Access database into the Access Admin DB (and possibly also from the ABS report)
- Agree on how and how often we would take updates from these other sources of information.

We will set up the automatic scanning of the VMS clusters (as SEM Service Displays) when we install the new features, and agree with you on how often the scan should take place (we recommend weekly over the weekend).

We would only need to update files on the Authorization Server (CNCPWSYGM1001). There would be no changes to the SEM agents on VMS and no changes to the SEM Client (GUI) on the workstations or Citrix Servers. For the Authorization Server, we would not be re-installing any existing SEM components, but we would need to import the new displays for the database, and we would need to modify a couple of existing text files for the customizations. We would also need a new (empty) database to be created on the SQL servers and for ODBC setting to be set up on CNCPWSYGM1001 to point to it. It would therefore need to be conducted under change control disciplines.

<Shoshana to contribute a paragraph on costs and a paragraph on next steps.>