Overview of MPages Localization

You can localize Cerner's standard MPages content to meet the specific needs of your organization and the users within each venue of care. The MPages architecture offers organizations the ability to define unique views of the information contained in their electronic medical record. This localization of Cerner developed standard content is achieved with a combination of build-specific tools and end-user customization features.

This guide will take you through some general concepts and the tools available for localizing Cerner's standard MPages content to meet the specific needs of your organization.

You can also use MPages as a development platform. Organizations that have development rights for MPages may further customize the solution by creating their own custom content. This guide does not include the information necessary for organizations that will be creating custom content. Technical Developers should use the uCern group, "MPage Technical Development," and the MPage Space under uDevelop for help in understanding the tools available for creating custom content.

Description

MPages is a Knowledge Solutions offering that provides a consolidated view of information contained throughout the electronic medical record and is accessible from within PowerChart, FirstNet, and SurgiNet.

Some of its features include:

- Interactive, visually rich views of real-time clinical information
- A standard library of components that are included as part of many Millennium solutions' licenses and are available to configure and organize into localized views and viewpoints
- Supports both multi-patient and single patient views and can be set up to meet the varied needs of specific roles, venues, and conditions at your location
- An MPages Development Toolkit is available for an additional license which allows you to develop your own content for use in customized components and views using Discern Explorer CCL and web-based HTML, *JavaScript*, and CSS standards

Clinicians' efficiency and satisfaction improve with the use of MPages, because:

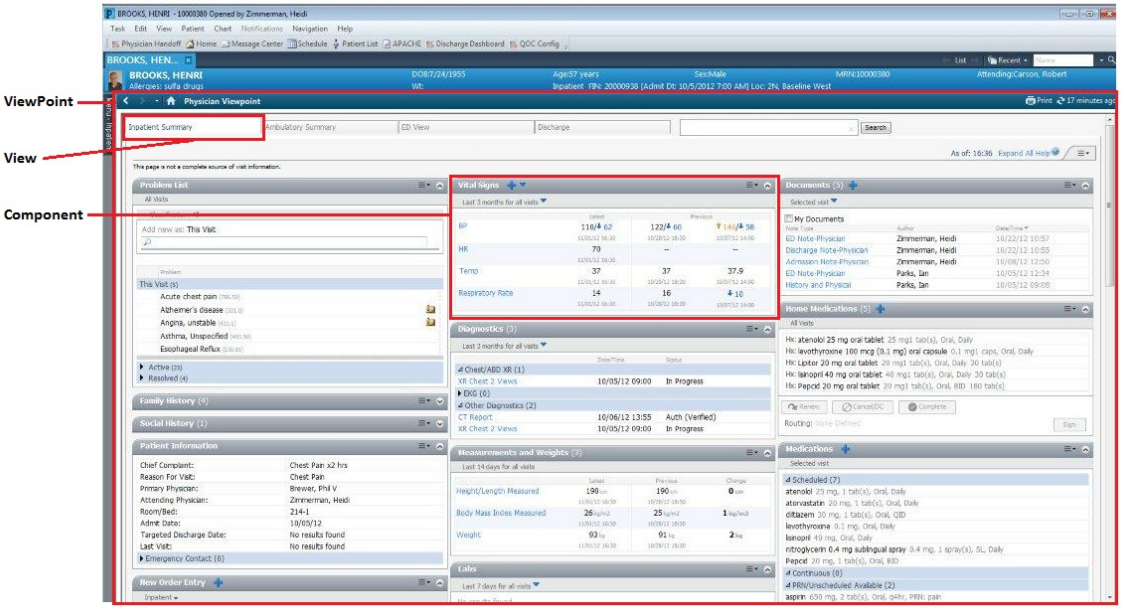
- the information a clinician needs to understand the patient's story is available in a single view, providing important context that can otherwise be missed when having to navigate to various portions of the electronic medical record
- many of the actions a clinician must take to deliver care may be initiated directly from the view decreasing clicks and reducing navigation barriers
- clinicians' can personalize their views so they are presented with the information at the point they need it during their natural workflow

Definitions

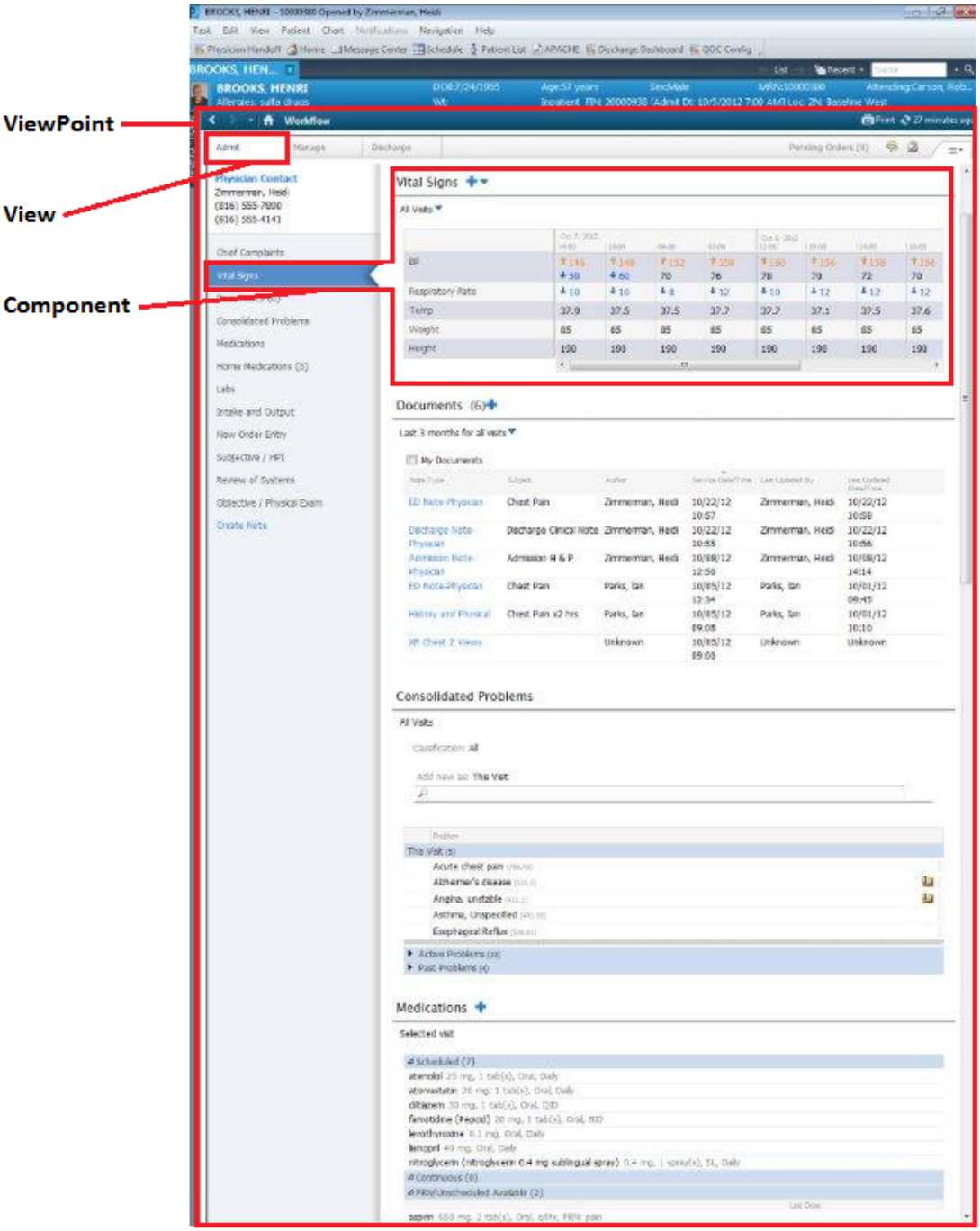
It is important to start with an understanding of some of the basic terms and concepts associated with Cerner-developed MPages content.

There are two primary MPage formats at the chart level; Summary and Workflow.

Summary View in ViewPoint



Workflow View in ViewPoint



- **Component** - A component contains a collection of data. Many components also support the clinician in taking specific actions as appropriate for the information it contains.
  - **Summary Component** - Summary components are specifically designed for use in Summary Views. Data display is often condensed due to the component being optimized for use in one to three column Summary Views.
  - **Workflow Component** - Workflow Components are specifically designed for use in Workflow Views. They can contain more data than a typical Summary Component. The clinician may be able to take similar actions from a Workflow Component as they can from a Summary Component, but the capabilities supported by individual components will differ.

- **View** - A view is composed of a collection of components. It provides the clinician with a high-level view of information contained in the chart. Its aim is to help them quickly understand the status of the person or persons in their care while allowing them to complete a majority of self-directed actions from the view. This eliminates the need to navigate to multiple portions of the chart to gain that high-level understanding. When necessary, the view provides easy navigation to and from other areas of PowerChart to aid in the completion of actions which may not be supported in the view.
  - **Summary View** - Summary views support a one to three column view.
  - **Workflow View** - Workflow views display components in sequential order based on workflow and in a single column. It also contains a navigation pane so the clinician can navigate directly to a specific component in the view with a single click and maintain context for where they are within their workflow.

    - **Organizer View** - An organizer view contains information for multiple patients. The organizer view may allow the clinician to take actions from the view such as launching into the charts of specific patients or taking administrative actions such as assigning an alternate care team member or removing a patient from the view.

- **ViewPoint** - A ViewPoint presents the clinician with the specific information necessary to complete a defined set of actions as they undertake major activities common for their role and venue. It is composed of one or more chart level views. Summary and Workflow Views can both be included in a single ViewPoint.

End-User Personalization Capabilities

To enhance the clinician's experience utilizing these views, there are some additional features that are made available to them to customize the views specific to their workflow. Examples of features the clinician may personalize include:

- Component specific details such as component color, collapse/expand behavior upon on opening the view, look-back ranges, and show/hide behavior of each component
- The number of columns in a Summary View and component display order
- Default view and view tab order in a ViewPoint
- Sequence of components in the Workflow Views

Clinicians will define their personalized settings from the standard user interface. The settings are saved as user-level preferences. In general, end-user personalization is achieved either through drag and drop capabilities, menu options, or component options.

Design Considerations

As you begin to localize the Cerner developed standard MPages to your organization, it is helpful to start first by reviewing the needs you hope to meet with localized MPages views.

1. Identify the need.
    1. Consider the role that will use the view.
    2. Consider the venue in which they will use the view.
    3. Consider what your users will need to accomplish with the view.
2. Review the available Cerner provided templates and determine if any of them will meet or may be modified to meet the needs of your users.

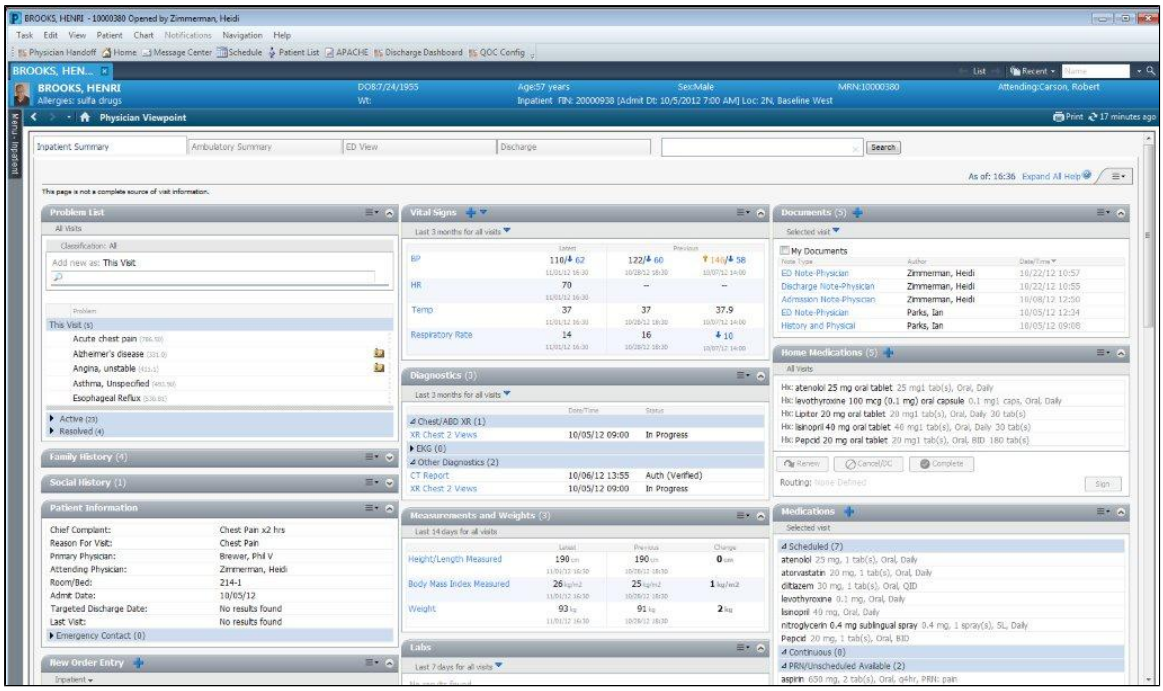
To illustrate this, evaluate an example scenario:
Your physicians have stated that they find it difficult to navigate to various sections of the patient's chart in order to gain an understanding of the status of those under their care during an inpatient episode.

In this scenario, you may want to consider creating a Inpatient Summary view for your physicians. Identify the data they review when assessing the current state of the person in their care. Once you have determined the data they need, review the available summary components that include the data your physicians are using. These are the components you will want to include in your view.

If the above scenario were restated to apply to physicians that care for people both in the inpatient venue and the clinic, you may decide to create multiple views based upon the venue in which they are currently practicing.

You may determine they need one view to use when they are in-house and a separate view for when they are caring for a patient in the clinic based on variations of the data needed in each venue. They may require a third view to bring to the forefront information critical to review at the time of discharge that also allows them to complete tasks necessary as they progress through discharging their patient. These views can all be placed in a single ViewPoint to help decrease navigation barriers for your users in this position.

Here is an example of how a ViewPoint might look:



General Recommendations

- ViewPoints should be used to limit the number of views on your PowerChart Table of Contents.
- Place all appropriate views for a single position or role in a single ViewPoint to ease navigation barriers.
- ViewPoints should be designed to meet role-venue needs.
- The recommended resolution for Workflow Views and the Physician Handoff is 1280X1024.
- Workflow Views are optimized when the monitor's orientation is portrait.
- All Workflow views must be built within a ViewPoint, even if they are a single view.

Additional recommendations exist that may aid in system performance. Please review the MPages Troubleshooting and Recommendations Guide to ensure you're settings conform where necessary.

Configure a Localized MPages View

Build Tools

Bedrock View Builder Wizard
The Bedrock View Builder Wizard allows you to build a localized view and define the standard components for use in the view. Once you have defined the view and the components for the view, you will access your localized view in the MPages Setup Wizard to define the component filters.

Bedrock MPage Setup Wizard
The MPage Setup Wizard allows you to define default settings or position-specific settings for a view. You will define how the view's included components are displayed to users, including the location and order the components appear in the view and what information is displayed in each component.

Bedrock ViewPoint Setup Wizard
After you have defined your views and set the filters for the components contained in your views, you can add the view to a ViewPoint using the Bedrock ViewPoint Setup Wizard or, you may add it directly to the PowerChart Table of Contents using the Preference Maintenance tool (prefmaint.exe.)

Preference Maintenance (prefmaint.exe)
The Preference Maintenance tool is used to configure supported preferences across solutions in the Win32 Cerner Millennium platform. For MPages specifically, you use the Preference Maintenance tool to add ViewPoints or Views to the PowerChart Table of Contents or PowerChart Toolbars.

Work Steps

1. Determine the view you need: workflow or summary.
2. Determine the components you need.

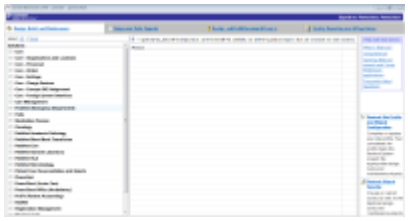
3. Ensure you have been granted Bedrock Security Access to the Bedrock View Builder Wizard, Bedrock MPage Setup Wizard, and the Bedrock ViewPoint Setup Wizard.
4. Build the view or views you need using the Bedrock View Builder Wizard.
5. Set the component filters for the view or views you created using the Bedrock MPage Setup Wizard.
6. Define the ViewPoint and add the appropriate views to the ViewPoint using the Bedrock ViewPoint Setup Wizard.
7. Grant the appropriate users access to the ViewPoint using prefmaint.exe.

Release Considerations
Beginning with MPages Content Package 60285 (MPages: MPages Component Library 4.3 (July 2012)) and its replacement, the functionality described below became available.

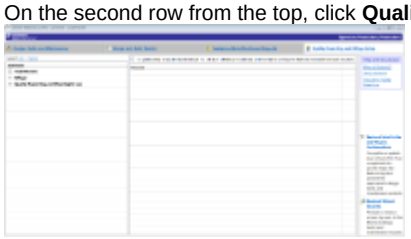
Create a View Using View Builder Wizard

1. Open the Bedrock Wizard (Bedrock.exe). The system displays the main window of the application.

   All images are thumbnails, please click the image to see an expanded view.

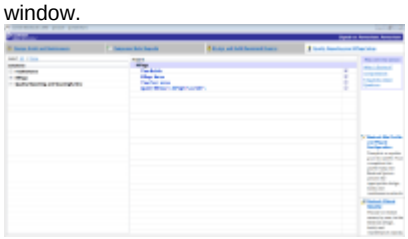


2. On the second row from the top, click **Quality Reporting** and **MPage Setup**. The system opens the available solutions on the left pane of the window.



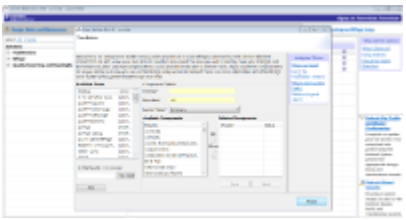
   Note
   If the Quality Reporting and MPage Setup option is not available, you do not have the correct privileges to access the MPages wizards. Use Bedrock Security to grant access to the MPages Wizards.

3. Select the **MPage** solution from the left pane or column of the window. The system displays the available MPages wizards in the right pane of the window.

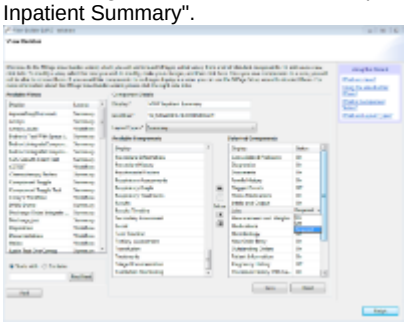


4. To create a new view, click **View Builder** in the right pane of the Bedrock window. The system displays the main View Builder window for the View Builder Wizard.

5. Click **Add** to create a new view. The system opens input boxes in the Component Details section of the View Builder window.



6. Enter the Display Name in the box provided.
7. Enter the Identifier Name in the box provided.
8. Select either **Summary** or **Workflow** for the Layout Type.
9. Select the component or components you want to include in the view you are defining from the Available Components list.
10. Click the **right arrow** to move the component or components to the Selected Components list. Below is an example of a defined view titled "MVW Inpatient Summary".



11. Update the component statuses as necessary.

> **Note**
> Once you have selected the components for your view, you can define (at the facility level) what the default state will be for each component. The following 3 statuses are available for each component and define whether or not the end user is able to show or hide components from their view:
>
> 1. **Required** – this component is included in the view, defaulted on, and the end user is unable to remove the component from their view.
> 2. **On** – this component is included in the view, defaulted on, and the end user is able to remove the component from their view.
> 3. **Off** – this component is included in the view, defaulted off, and the end user is able to add the component to their view.

12. When you have completed making your component selections, click **Finish**.

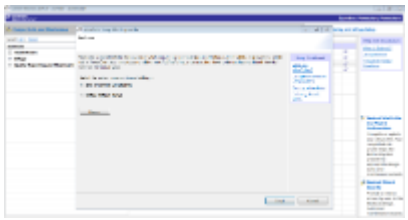
Define the Settings for a View using MPages Setup Wizard

1. Navigate to the Bedrock MPages Wizards as above.
2. Begin the Bedrock MPages Setup Wizard.
3. Select the view you wish to setup from the list of available topics.
4. Proceed through the wizard, using the component filters to define your component settings.
5. When you are finished defining the component filters, click **Finish**.

Create a ViewPoint Using ViewPoint Wizard

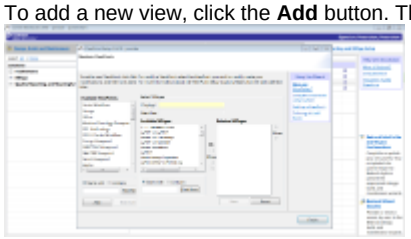
> **Workflow Views are required to be built in ViewPoints**
> All Workflow views must be built within a ViewPoint, even if they are a single view.

1. Navigate to the Bedrock MPages Wizards as above.
2. Begin the Bedrock ViewPoint Wizard.
3. To create a new ViewPoint, click **ViewPoint Setup** in the right pane of the Bedrock window. The system displays the Welcome window for the ViewPoint Setup Wizard.

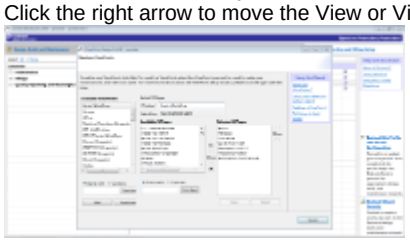


4. To add a new ViewPoint, select the option for **Add or Modify ViewPoints**.
5. Click **Begin**. The system displays the Maintain ViewPoints window.

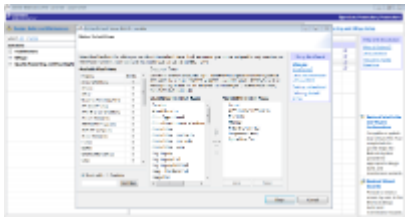
6. To add a new view, click the **Add** button. The system opens some blank input boxes in the center of the Maintain ViewPoints window.



7. Enter the Display Name in the box provided.
8. Enter the Identifier Name in the box provided.
9. Select the view or views you want to include in the ViewPoint you are defining from the Available MPages list.
10. Click the right arrow to move the View or Views to the Selected MPages list. Below is an example of a defined ViewPoint titled "Acute Workflow".



11. When you have completed making your view selections, click **Finish**.
12. If you selected the option for **Define Default Views**, the following window is displayed where you can define the encounter types you wish to have open for the view.



Grant Users Access to the Views & ViewPoints using Preference Maintenance

Note
The Preference Maintenance configuration described below applies to Chart-level MPages accessed from PowerChart, FirstNet, or SurgiNet only. As an example, it does not apply to the MPages mobile solutions or organizer views. Please see the applicable All About guides for preference information associated with these types of MPages.

After completing the MPages
Bedrock Wizards, you need to define the MPages tab in PowerChart (or FirstNet and SurgiNet) with Preference Maintenance Tool (PrefMaint.exe). Tabs are defined at the position level, not at the application or user level.

Add the Discern Report tab at the Chart level.

1. Select PowerChart (or FirstNet and SurgiNet) from the Application list.
2. Select the applicable position from the Position list.
3. Expand PowerChart.
4. Right-click the Chart item, and click **Add Tab** (or click **Chart**, and then click **Add Tab**)

5. Select * Discern Report* from the Available Tabs box, and move it to the Existing Tabs box. Click **Apply**, and then click **OK**.
6. On the first level of the Discern Report tab, define the display name of the tab (PVC_NAME - VIEW_CAPTION). This is the name that is displayed in the PowerChart Table of Contents.
7. Expand the Discern Report tab, so you can see the second level, and define the following two parameters using the appropriate value from the Preference Values section of this guide.
    1. Report Name (PVC_NAME = REPORT_NAME)
    2. Report Param (PVC_NAME = REPORT_PARAM)
8. Click **Apply**, and click **OK** to save the setup parameters.

Preference Values - Version 4 & Workflow 1

Note
The attributes of your view or viewpoint determine which preference values you must use.

ViewPoints can contain only Summary views or they can contain both Workflow and Summary views. If your viewpoint contains only summary views, use the preference values found under the, Preference Values for a ViewPoint Containing Only Summary Views section of this guide. However, if your viewpoint is made up of both summary and workflow views, use the preference values found under the Preference Values for a ViewPoint Containing Both Summary and Workflow Views section.

While we generally recommend including all views within a viewpoint, even if the viewpoint contains only one view, you may find it necessary to add a view directly to the PowerChart Table of Contents. This configuration is only possible with summary formatted views. Workflow views must always be contained in a viewpoint. If you need to add a summary view directly to the PowerChart Table of Contents, use the Preference Values found under the Preference Values for Adding a Stand-alone Summary View to the PowerChart Table of Contents section of this guide.

Please use the specific Preference Maintenance Tool (PrefMaint.exe) configuration detailed below based on the format of the View or ViewPoint you wish to deploy.

Preference Values for Adding a Stand-alone Summary View to the PowerChart Table of Contents

If you are adding a view to the PowerChart Table of Contents (a stand-alone Summary view), use the following values:

PVC_NAME	VALUE
REPORT_NAME	mp_driver
REPORT_PARAM	"MINE", $PAT_PERSONID$, $VIS_ENCNTRID$, $USR_PERSONID$, $USR_PositionCd$, $PAT_PPRCode$, "$APP_AppName$", "$DEV_Location$", "<static_content_location: replace these carats and all the text between them with the static content location specific to your domain>", "<View Identifier: replace these carats and all the text between them with the View Identifier value you set (if a Custom View) or already set for you in the View Builder Wizard and/or the MPages Setup Wizard>"

- Replace the **<static_content_location>** with the fileshare location in which the static content (JS/CSS) resides for the MPages view.
- The **<View Identifier>** is defined in the Bedrock View Builder Wizard for Custom Views, and is defined in the Bedrock MPages Setup Wizard for standard views, and must be the exact view identifier value you defined (Custom View) or defined for you (standard Views) for the view.
    - For example, the following report_param reflects a domain where the fileshare is named "tahoe," the install domain is named "Integr8" (please note that the backslashes must be escaped in the REPORT_PARAM string which is why they are doubled,) and the View being added to the PowerChart Table of Contents has the identifier AMBULATORYSUMMARY in the View Builder Wizard:

```
REPORT_PARAM="MINE", $PAT_PERSONID$, $VIS_ENCNTRID$, $USR_PERSONID$, $USR_PositionCd$, $PAT_PPRCode$,
"$APP_AppName$", "$DEV_Location$", "\\\\tahoe\\Integr8\\winintel\\static_content\\MasterSummary_V4",
"AMBULATORYSUMMARY"
```

Preference Values for a ViewPoint Containing Only Summary Views

If you are adding a ViewPoint to the PowerChart Table of Contents that will display only Summary views within the ViewPoint, you will use the following values:

PVC_NAME	VALUE
REPORT_NAME	mp_viewpoint_driver

REPORT_PARAM	"MINE", $PAT_PERSONID$, $VIS_ENCNTRID$, $USR_PERSONID$, $USR_PositionCd$, $PAT_PPRCode$, "$APP_AppName$", "<static_content_location: replace these carats and all the text between them with the static content location specific to your domain>", "<ViewPoint Identifier: replace these carats and all the text between them with the ViewPoint Identifier value you set in the ViewPoint Wizard>"

- Replace the **<static_content_location>** with the fileshare location in which the static content (JS/CSS) resides for the MPages view.
- The **<ViewPoint Identifier>** is defined in the Bedrock ViewPoint Wizard and must be the exact viewpoint identifier value you defined for the ViewPoint.
    - For example, the following report_param reflects a domain where the fileshare is named "tahoe," the install domain is named "Integr8" (please note that the backslashes must be escaped in the REPORT_PARAM string which is why they are doubled,) and the ViewPoint being added to the PowerChart Table of Contents has the identifier PHYSICIANVIEWPOINT in the ViewPoint Wizard:

```
REPORT_PARAM="MINE", $PAT_PERSONID$, $VIS_ENCNTRID$, $USR_PERSONID$, $USR_PositionCd$, $PAT_PPRCode$,
"$APP_AppName$", "\\\\tahoe\\Integr8\\winintel\\static_content\\MasterSummary_V4", "PHYSICIANVIEWPOINT"
```

Preference Values for a ViewPoint Containing Both Summary and Workflow Views

If you are adding a ViewPoint to the PowerChart Table of Contents that displays both the Workflow and Summary views within the ViewPoint, you will use the following values:

PVC_NAME	VALUE
REPORT_NAME	mp_workflow_driver
REPORT_PARAM	"MINE", $PAT_PERSONID$, $VIS_ENCNTRID$, $USR_PERSONID$, $USR_PositionCd$, $PAT_PPRCode$, "$APP_AppName$", "<static_content_location: replace these carats and all the text between them with the static content location specific to your domain>", "<ViewPoint Identifier: replace these carats and all the text between them with the ViewPoint Identifier value you set in the ViewPoint Wizard>"

- Replace the **<static_content_location>** with the fileshare location in which the static content (JS/CSS) resides for the MPagesview.
- The **<ViewPoint Identifier>** is defined in the BedrockViewPoint Wizard and must be the exact viewpoint identifier value you defined for the ViewPoint.
    - For example, the following report_param reflects a domain where the fileshare is named "tahoe," the install domain is named "Integr8" (please note that the backslashes must be escaped in the REPORT_PARAM string which is why they are doubled,) and the ViewPoint being added to the PowerChart Table of Contents has the identifier HOSPITALISTWORKFLOW in the ViewPoint Wizard:

```
REPORT_PARAM="MINE", $PAT_PERSONID$, $VIS_ENCNTRID$, $USR_PERSONID$, $USR_PositionCd$, $PAT_PPRCode$,
"$APP_AppName$", "\\\\tahoe\\Integr8\\winintel\\static_content\\MasterWorkflow", "HOSPITALISTWORKFLOW"
```

Preference Values - Version 5.0 (Summary & Workflow)

Release Considerations
Beginning with MPages Content Package 68443 (MPages: MPages Component Library 5.0 (September 2013)) and its replacement, the functionality described below became available.

Note
With the 5.0 Release, the attributes of your view or viewpoint no longer determine which preference values you must use.

- ViewPoints can contain only Summary views or they can contain both Workflow and Summary views.
- You should include all views within a ViewPoint, even if the ViewPoint contains only one view.
- Use the specific Preference Maintenance Tool (PrefMaint.exe) configuration detailed below based on the format of the view or ViewPoint you wish to deploy.

Preference Values for Adding a Stand-alone Summary View to the PowerChart Table of Contents

If you are adding a view to the PowerChart Table of Contents (a stand-alone Summary view), use the following values:

PVC_NAME	VALUE
REPORT_NAME	mp_unified_driver
REPORT_PARAM	"MINE", $PAT_PERSONID$, $VIS_ENCNTRID$, $USR_PERSONID$, $USR_PositionCd$, $PAT_PPRCode$, "$APP_AppName$", "$DEV_Location$", "<static_content_location: replace these carats and all the text between them with the static content location specific to your domain>", "<View Identifier: replace these carats and all the text between them with the View Identifier value you set (if a Custom View) or already set for you in the View Builder Wizard and/or the MPages Setup Wizard>"

- Replace the **<static_content_location>** with the fileshare location in which the static content (JS/CSS) resides for the MPages view.
- The **<View Identifier>** is defined in the Bedrock View Builder Wizard for custom views, and it is defined in the Bedrock MPages Setup Wizard for standard views. It must be the exact same view identifier value you defined for the custom view or a standard view.
    - For example, the following report_param reflects a domain where the fileshare is named "tahoe," the install domain is named "Integr8" (please note that the backslashes must be escaped in the REPORT_PARAM string which is why they are doubled) and the view being added to the PowerChart Table of Contents has the identifier AMBULATORYSUMMARY in the View Builder Wizard:

```
REPORT_PARAM="MINE", $PAT_PERSONID$, $VIS_ENCNTRID$, $USR_PERSONID$, $USR_PositionCd$, $PAT_PPRCode$,
"$APP_AppName$", "$DEV_Location$", "\\\\tahoe\\Integr8\\winintel\\static_content\\MasterSummary_V4",
"AMBULATORYSUMMARY"
```

General Notes Concerning MPages Preferences

Note
Ensure the static content (js/css/images) is located on a high availability share drive. The default location upon package installation is the %WININTEL% Static_Content directory. If your site has moved this content, please check with the team who is responsible for loading packages for the correct location.

Note
All Summary only views (both Standard and Custom for both stand-alone and ViewPoints) will access the MASTERSUMMARY_V4 static content file folder. All Workflow ViewPoints (could contain both Summary and Workflow views) will access the MASTERWORKFLOW static content file folder.

Note
When setting up the MPages pointing to the static content location, using a logical mapping is preferred over a UNC path:

- UNC Path: \\tahoe\winintel\static_content\
- Logical Path (recommended): I:\static_content

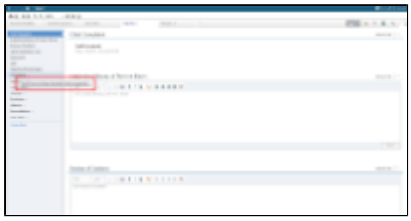
Use MPages

Release Considerations
Begining with MPages Content Package 71895 (MPages: MPages 5.2 Component Library (March 2014)) and its replacement, the functionality described below became available.

In all Workflow MPages views, upon page load (either initial page load or page refresh) the MPages architecture determines the minimum number of components to load in order to fill the height of the viewing pane. This enhancement allows the views to load components on an as needed basis instead of attempting to load every component at one time, which results in overall performance improvement.

A visual indicator displays in the Navigator next to all components that have not yet been loaded in the view. The indicator that is displayed is an ellipsis (...),

and when you position your pointer over any non-loaded component, a tool tip displays with the text, **Results have not been retrieved for this component**.



As you scroll up or down, the next components to be displayed within the view are loaded, and the ellipsis is removed from the loading components in the Navigator. When you select a non-loaded component in the Navigator, the system loads the selected components and any below it in the Navigator, until the height of the viewing pane is filled. If a component is selected towards the bottom of the Navigator, components above the selected component in the Navigator are loaded until enough components are loaded to fill the viewing pane.

Maintain MPages

What do I do if I would like to make a component unavailable on a Cernerstandard view to display on the said Cernerstandard view?
In this situation, you should create a view of your own using View Builder, which replicates all of the components on the Cernerstandard view. Then, you can add any available components from the component library. Be sure to provide your users with the newly created view only and not the Cernerstandard view, as they do not need both views.