Detailed User Interface Design:

Outage Scheduler

Version: Sample

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Introduction

The purpose of this document is to define detailed specifications for the Outage Scheduler user interface. The rules are generally organized by outage type, then by the life cycle of that outage.

1. Outage Categories and Types

1.1. Categories and Types

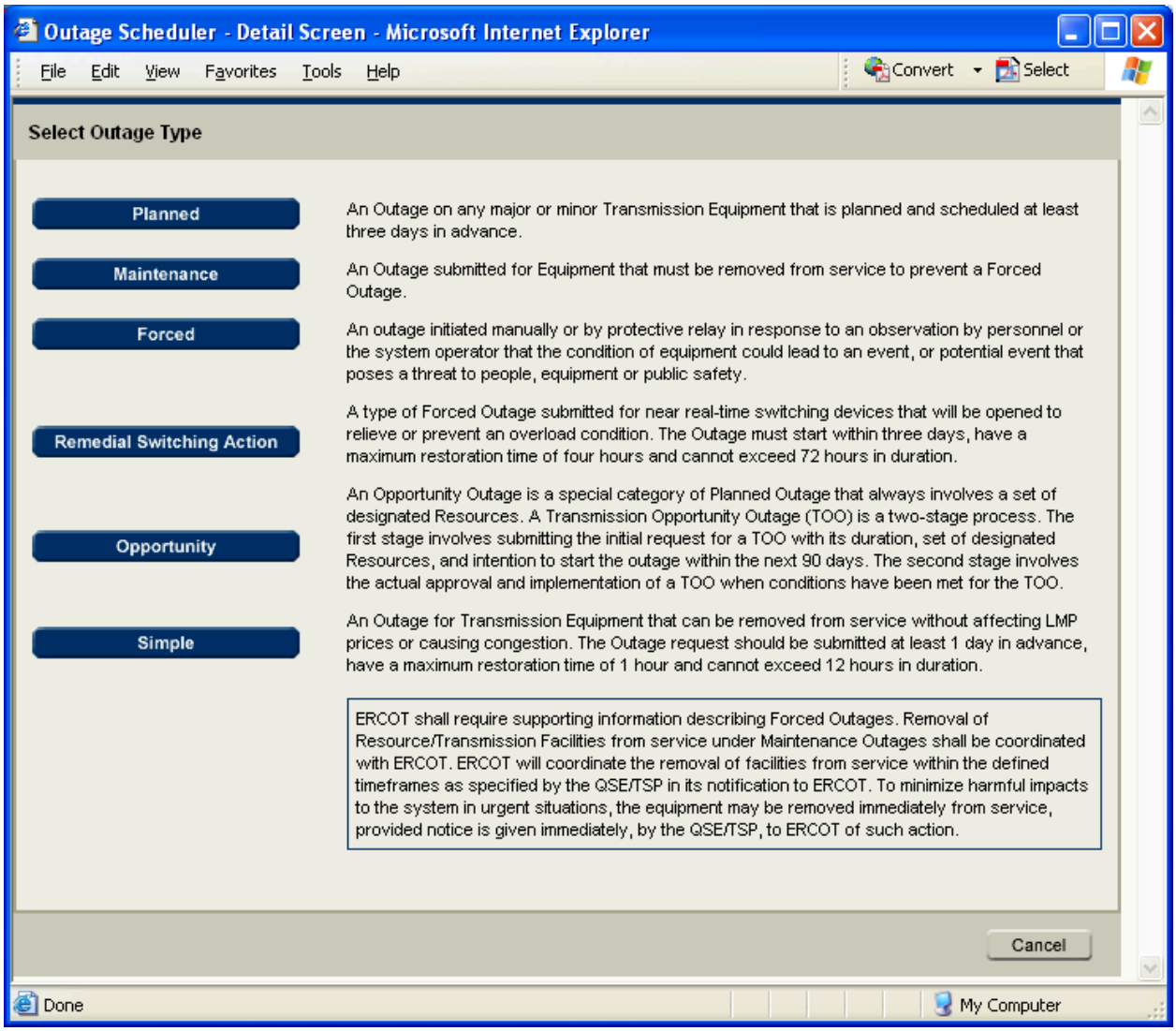
1.1.1. There are two outage categories: Transmission and Resource. Transmission Service Providers (TSPs) may only request transmission outage types. Qualified Scheduling Entities (QSEs) may only request resource outage types.

1.1.2. Transmission Outages

- Planned
- Maintenance*
- Forced
- Remedial Switching Action
- Opportunity
- Simple
- Forced Extension
- Unavoidable Extensions (<3 days from the Planned End Date/Time)

* Note: The Outage Type Selector only displays a choice for 'Maintenance'. The system determines whether the outage is Maintenance Level 1, 2 or 3, based on the Earliest Start date entered.

Figure 1: Select Outage Type Screen for Transmission Outages



1.1.3. Resource Outages

- Planned
- Maintenance *
- Forced
- Opportunity
- Forced Extensions
- Unavoidable Extensions (<3 days from the Planned End date/Time)

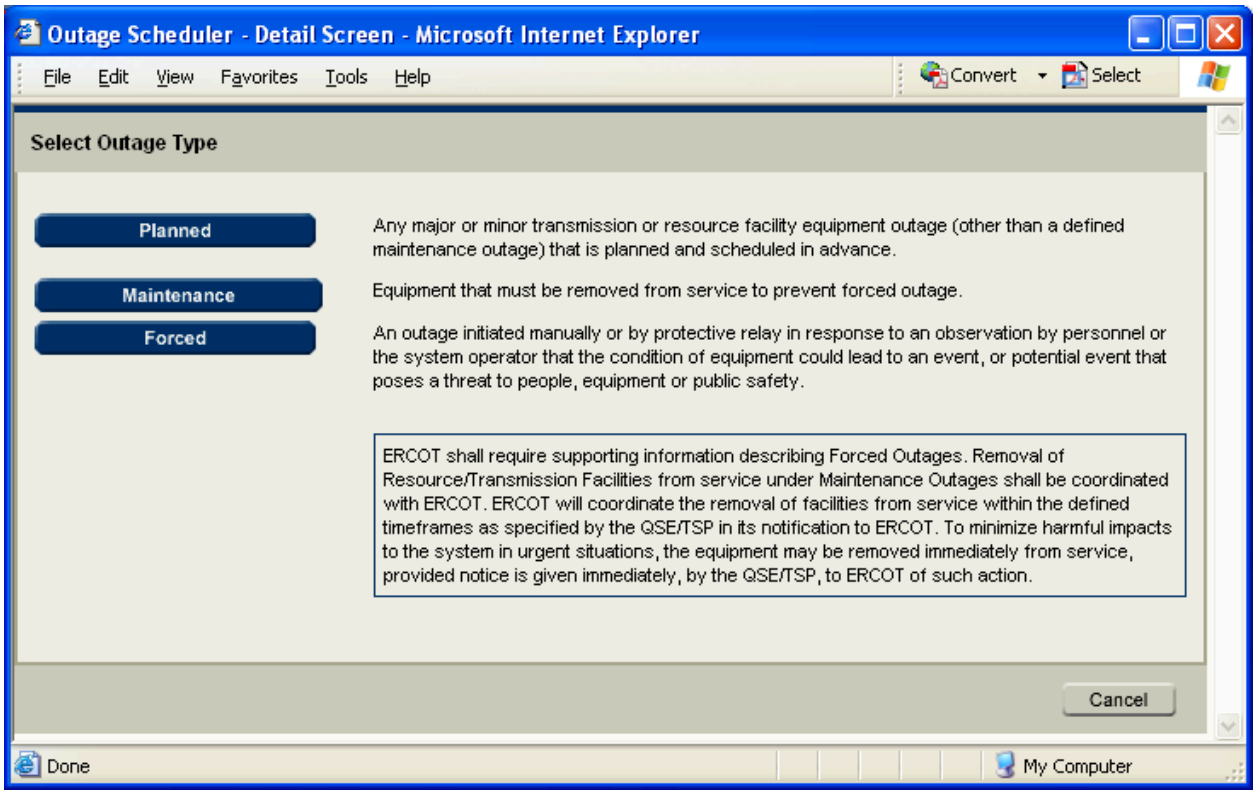
* Note: The Outage Type Selector only displays a choice for 'Maintenance'. The system determines whether the outage is Maintenance Level 1, 2 or 3, based on the Earliest Start date entered.

1.1.4. Even though some outage types are shared by transmission and resource, the business rules may vary between transmission and resource.

1.1.5. Active outages are those having a Planned Start of today or earlier and no Actual End value. If an outage has a Planned End date of yesterday or earlier, it is not considered active.

1.1.6. Forced and Unavoidable Extensions may not be created as new outages. They are created from an existing Forced, Planned or Maintenance outage only.

Figure 2: Select Outage Type Screen for Resource Outages



1.2. Transmission Outages

1.2.1. TSPs can view all transmission and resource outages.

1.2.2. A TSP may create a transmission outage for any operating company, station or equipment.

1.2.3. A TSP can't create a resource outage.

1.2.4. A TSP can't change the name of the requesting company. That is tied to the digital certificate, when the TSP logs in.

1.2.5. A TSP can't edit an outage created by another requesting company.

1.3. Resource Outages

1.3.1. Within the category of resource outages, there are two types of resources, or units:

- Non-contracted units – rules for these resources fall under the heading "Resources"
- Contracted units – rules for these resources fall under the heading "Reliability Resources". Reliability resources include:

- RMR units
- Black Start units
- Load Resources

1.3.2. QSEs may only view outages created by their company. They cannot view transmission outages and they can't view resource outages for other companies.

1.3.3. QSEs will have to log in separately for each resource entity in their portfolio (based on the RE's DUNS number).

2. Forced Outages

Definition: An outage initiated manually or by protective relay in response to an observation by personnel or the system operator that the condition of equipment could lead to an event, or potential event that poses a threat to people, equipment or public safety.

Forced outage rules are essentially the same for transmission and resource outages, except for some of the outage data and notes fields on the request and update screens, so they are combined into one section. Rules for reliability resources are the same as for non-reliability resources.

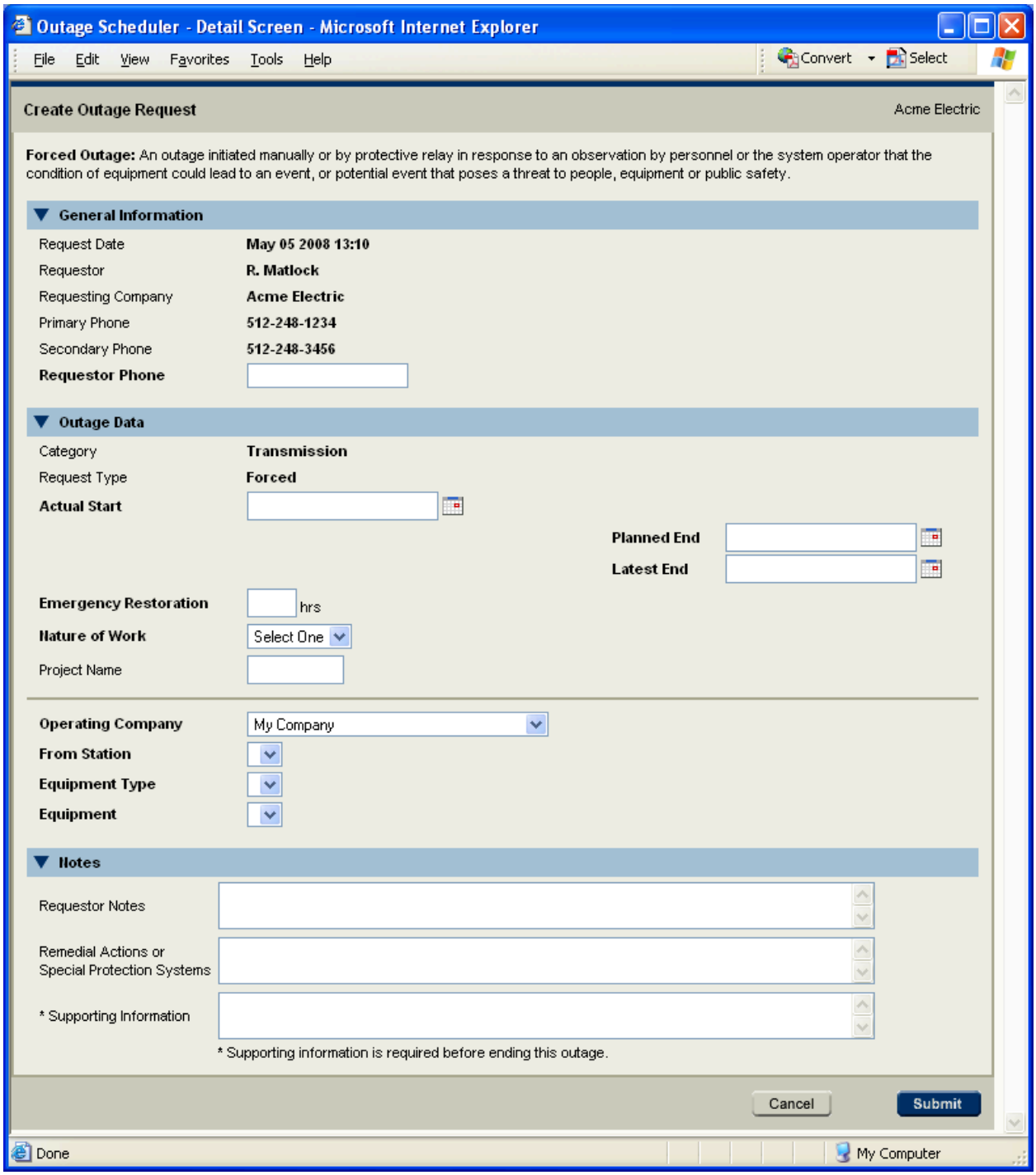
2.1. Submit Outage Request: Transmission

2.1.1. A transmission Forced outage request may be submitted by a TSP.

2.1.2. Forced outages are submitted after the outage has occurred.

2.1.3. Fields for a transmission Forced outage request (required fields in bold):

Figure 3: Forced Outages: Transmission Outage Request Screen



Field	Source/Type	Default Value	Rules/Comments
General Information			
Company Name	System - generated	Requesting company	Appears in title bar header
Request Date	System - generated	Today's date	
Requestor	System-generated	Requestor name	Based on certificate
Requesting Company	System-generated	Requesting company	Based on certificate.
Primary Phone	System-generated		
Secondary Phone	System-generated		
Requestor Phone	Text field	blank	Field for third phone number. This is editable.
Outage Data			
Category	System-generated	Transmission	Based on certificate
Request Type	System-generated	Forced	Based on selection made on previous screen.
Actual Start	Text field/ Calendar	See Date/Time Entry Rules for Forced outages	
Planned End	Text field/ Calendar		
Latest End	Text field/ Calendar		
Actual End	Text field/ Calendar		
Emergency Restoration	Text field	blank	Must enter an hour value.
Nature of Work	Drop-down list	Select One	See Appendix for values
Project Name	Text field	blank	
Operating Company	Drop-down list	Same company as DC	May choose another operating company
From Station	Drop-down list	See Select Equipment	
Equipment Type	Drop-down list		
Equipment	Drop-down list		
Normal	System	Blank,	If Eq. Type = CB or DSC

Field	Source/Type	Default Value	Rules/Comments
State	generated	unless Eq. Type = CB or DSC, then default to values in Network Model	
*Outage State	Drop-down list		Required if Eq Type = CB or DSC The Outage State is always the opposite of the Normal State as defined for the device in the Network Model.
Notes			
Requestor Notes	Text field	blank	See Notes
Remedial Action/SPS	Text field	blank	See Notes
Supporting Information	Text field	blank	This is not required to submit the request, but is required before the outage may be completed. See Supporting Information.

Grey type indicates these fields are the same for all transmission outage types.

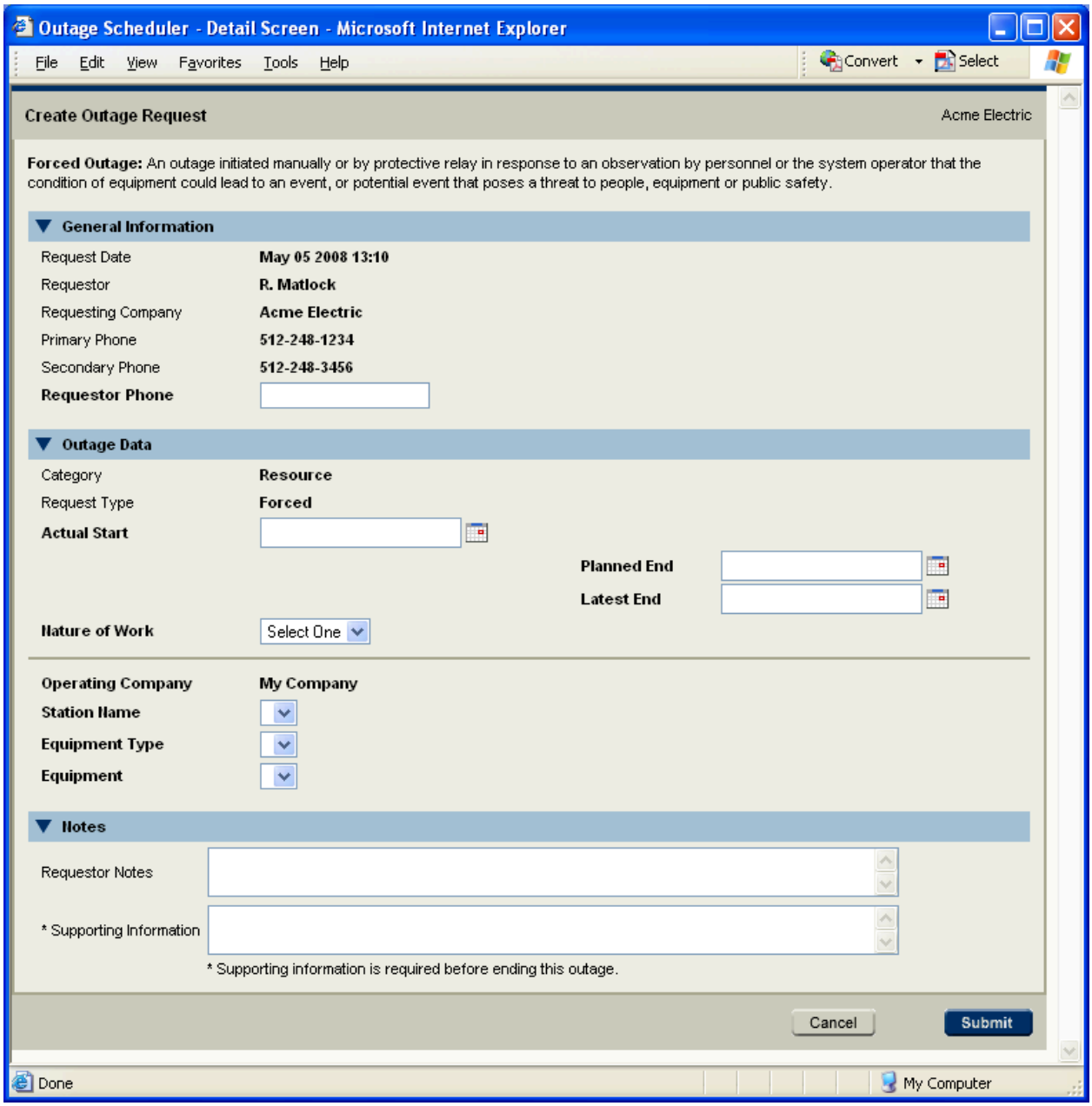
2.2. Submit Outage Request: Resource

2.2.1. A resource Forced outage request may be submitted by a QSE.

2.2.2. Forced outages are submitted after the outage has occurred.

2.2.3. Fields for a resource Forced outage request (required fields in bold):

Figure 4 Forced Outages: Resource Outage Request Screen



Field	Source/Type	Default Value	Rules/Comments
General Information			
Company Name	System - generated	Requesting company	Appears in title bar header
Request Date	System - generated	Today's date	
Requestor	System-generated	Requestor name	Based on certificate
Requesting Company	System-generated	Requesting company	Based on certificate.
Primary Phone	System-generated		
Secondary Phone	System-generated		
Requestor Phone	Text field	blank	Field for third phone number. This is editable.
Outage Data			
Category	System-generated	Resource	Based on certificate
Request Type	System-generated	Forced	Based on selection made on previous screen.
Actual Start	Text field/ Calendar	See Date/Time Entry Rules for Forced outages	
Planned End	Text field/ Calendar		
Latest End	Text field/ Calendar		
Actual End	Text field/ Calendar		
Nature of Work	Drop-down list	Select One	See Appendix for values
Operating Company	Drop-down list	Same company as DC	May choose another operating company
Station Name	Drop-down list	See Select Equipment	
Equipment Type	Drop-down list		
Equipment	Drop-down list		
HSL	Text field	Blank	To take a resource offline, HSL must be 0. These fields are displayed after a piece of equipment is selected.
LSL	Text field	Blank	
Notes			
Requestor Notes	Text field	blank	See Notes

Field	Source/Type	Default Value	Rules/Comments
Remedial Action/SPS	Text field	blank	See Notes
Supporting Information	Text field	blank	This is not required to submit the request, but is required before the outage may be completed. See Supporting Information.

Grey type indicates these fields are the same for all resource outage types.

2.3. Successful Submission

2.3.1. When the user submits the outage, the system validates the information. See System Validates Outage Request.

2.3.2. When the outage is successfully submitted, the system displays the outage detail screen with a message stating the outage request was successfully submitted.

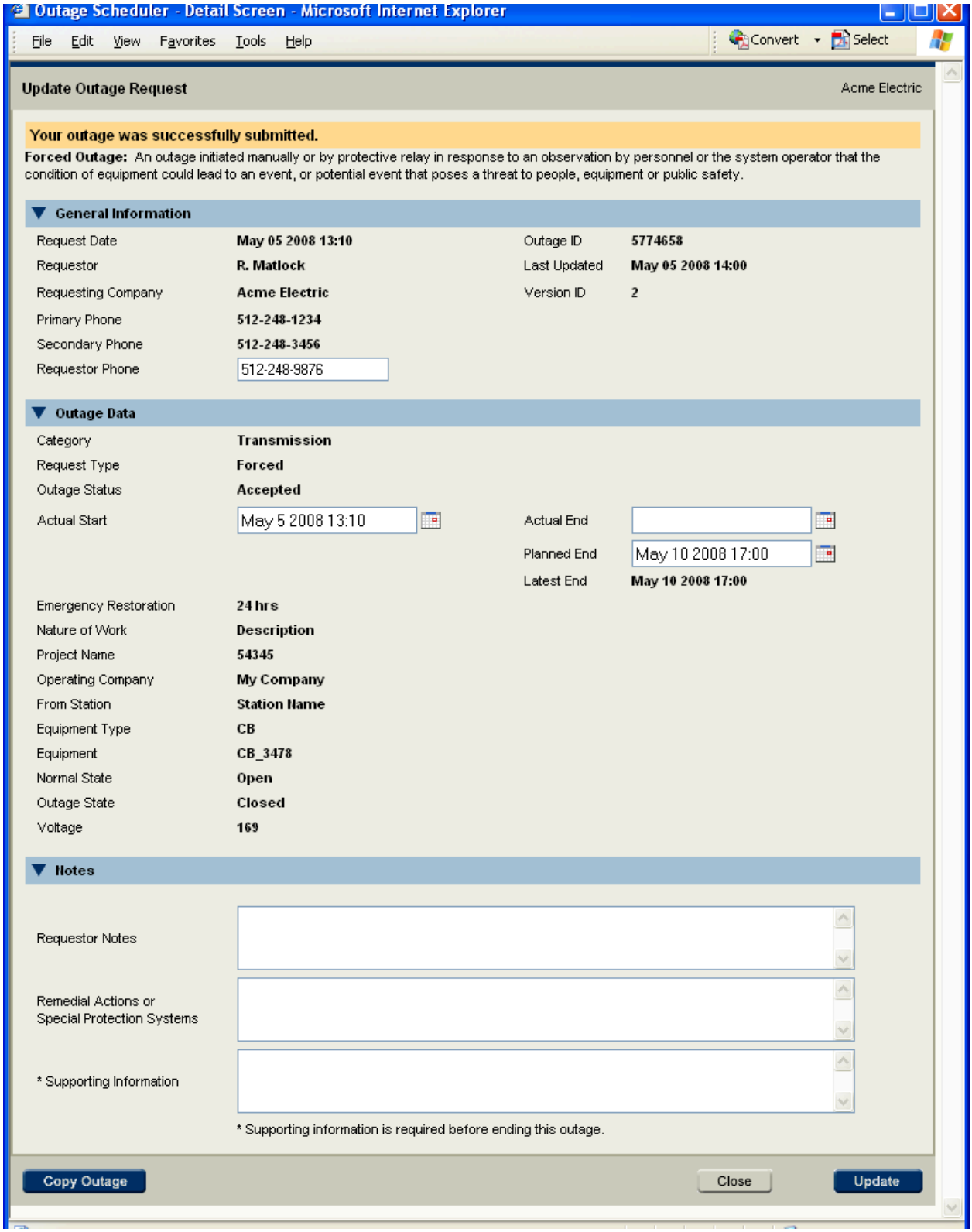
2.3.3. When a Forced outage is successfully submitted, the system automatically assigns it a status of Accepted.

2.3.4. Because Forced outages are immediately active, the system displays the outage on the Summary screen. The outage will continue to display on the Summary screen as long as it is active.

2.4. View/Edit Outage Information: Transmission

When a Forced outage is successfully submitted, the detailed information about the outage is displayed as a row on the Outage Summary screen and on the Outage Detail screen, which may be accessed by double-clicking on the row on the Summary screen.

Figure 5: Forced Outages: Transmission Outage Detail Screen



2.4.1. Users have different views and editing privileges on this screen, depending on role and outage type. QSEs cannot view transmission outages. The following table shows the fields displayed on this screen and read/write privileges:

Field	Requesting TSP	TSPs	QSEs	Comments
General Information				
Company Name	RO	RO		Appears in title bar header
Request Date	RO	RO		
Requestor	RO	RO		
Requesting Company	RO	RO		
Primary Phone	RO	RO		
Secondary Phone	RO	RO		
Requestor Phone	RW	RO		
Outage ID	RO	RO		
Last Updated	RO	RO		
Version ID	RO	RO		
Outage Data				
Category	RO	RO		
Request Type	RO	RO		Forced
Request Status	RO	RO		Accepted
Actual Start	RO	RO		See Date/Time Entry Rules for Forced outages
Planned End	RW	RO		
Latest End	RO	RO		
Actual End	RW	RO		
Nature of Work	RO	RO		
Project Name	RO	RO		
Operating Company	RO	RO		
From Station	RO	RO		
To Station	RO	RO		This displays only when equipment type = LN
Equipment Type	RO	RO		
Equipment	RO	RO		
Normal State	RO	RO		This displays, when Eq. Type =

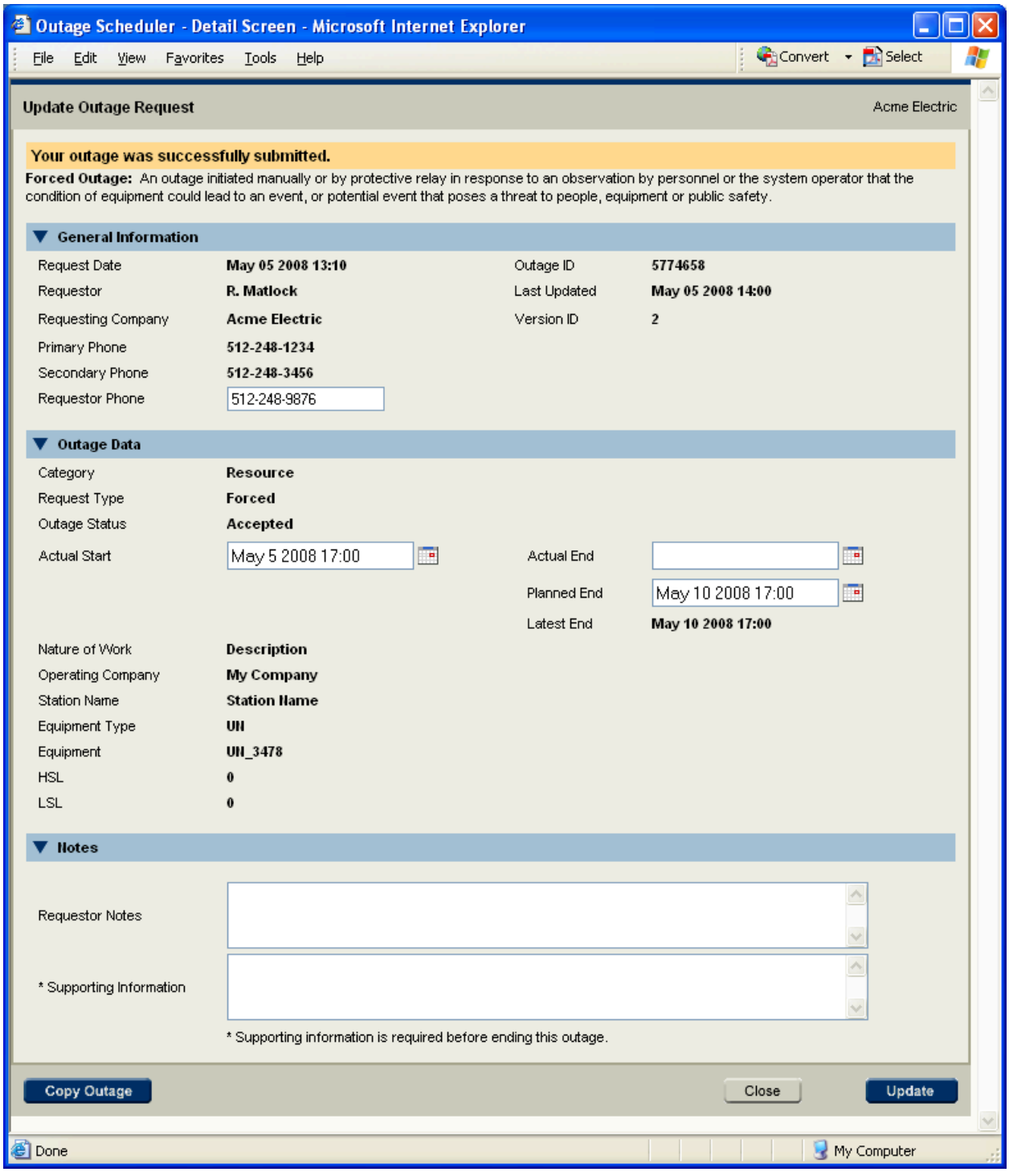
Field	Requesting TSP	TSPs	QSEs	Comments
				CB or DSC
Outage State	RO	RO		This displays, when Eq. Type = CB or DSC
Voltage level	RO	RO		System-generated, based on equipment
Notes				
Requestor Notes	RW	RO		See Notes
Supporting Information	RW	RO		See Supporting Information
Remedial Action/SPS	RW	RO		See Notes
Reviewer Notes	RO	RO		See Notes
Reviewer Name	RO	RO		The system populates these fields when review notes are added or modified. The system uses the name and date of the latest revision.
Review Date	RO	RO		

Grey type indicates these fields are the same for all transmission outage types.

2.5. View/Edit Outage Information: Resource

When a Forced outage is successfully submitted, the detailed information about the outage is displayed as a row on the Outage Summary screen and on the Outage Detail screen, which may be accessed by double-clicking on the row on the Summary screen.

Figure 6: Forced Outages: Resource Outage Detail Screen



2.5.1. Users have different views and editing privileges on this screen, depending on role and outage type. The following table shows the fields displayed on this screen and read/write privileges:

Field	Requesting QSE	TSPs	Comments
General Information			
Company Name	RO	RO	Appears in title bar header
Request Date	RO	RO	
Requestor	RO	RO	
Requesting Company	RO	RO	
Primary Phone	RO	RO	
Secondary Phone	RO	RO	
Requestor Phone	RW	RO	
Outage ID	RO	RO	
Last Updated	RO	RO	
Version ID	RO	RO	
Outage Data			
Category	RO	RO	
Request Type	RO	RO	Forced
Outage Status	RO	RO	Accepted
Actual Start	RW	RO	See Date/Time Entry Rules for Forced Outages
Planned End	RW	RO	
Latest End	RO	RO	
Actual End	RW	RO	
Nature of Work	RO	RO	See Appendix for values
Operating Company	RO	RO	
Station Name	RO	RO	
Equipment Type	RO	RO	
Equipment	RO	RO	
HSL	RO	RO	
LSL	RO	RO	
Notes			

Field	Requesting QSE	TSPs	Comments
Requestor Notes	RW	RO	See Notes
Supporting Information	RW	RO	See Supporting Information
Reviewer Notes	RO	RO	See Notes
Reviewer Name	RO	RO	The system populates these fields when review notes are added or modified. The system uses the name and date of the latest revision.
Review Date	RO	RO	

Grey type indicates these fields are the same for all resource outage types.

2.6. Interaction Controls

The TSP/QSE who created the outage can perform the following actions:

- Copy Outage
- Close button – Clicking this closes the window without saving changes.
- Update – Clicking the update button causes the system to validate changes and display a confirmation or error message.

2.7. Ending a Forced Outage

2.7.1. To successfully end a forced outage, the TSP/QSE must provide:

- Supporting Information
- Actual End Date/Time

2.7.2. Forced outages display on the Summary screen as long as they are active.

2.8. Date/Time Entry Rules for Forced Outages

In these tables, “>” means later than or after, and “<” means earlier than or before.

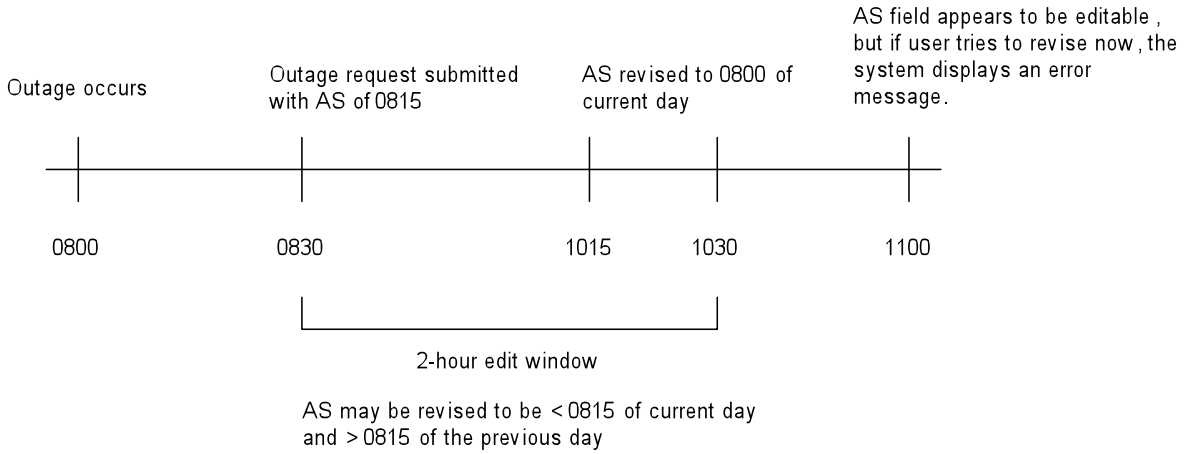
Date Field	Default Value	Acceptable Values	When can this date be entered?	Can requestor modify?
Actual Start	Current date/hour	Must be ≥ current time minus 24 hours and ≤ current time	Must be entered when outage request is submitted.	Yes (See below)
Planned End	Current date/hour. When Actual Start is entered, this field auto-fills with that value. Can be	Must be > Planned Start and < Planned Start plus 1 year.	Must be entered when outage request is submitted.	May shorten duration

	overwritten.			
Latest End	Current date/hour. When Actual Start is entered, this field auto-fills with that value. When Planned End is entered, this field auto-fills with that value. Can be overwritten.	Must be ≥ Planned End	Must be entered when outage request is submitted.	No
Actual End	Current date/hour	Must be > Actual Start, ≤ current time, and < Planned End plus 2 hours.	Must be after Actual Start is entered	Yes (See below)

2.8.1. An Actual Start Date/Time may be revised as follows:

- This value is editable for two hours after the time it was submitted.
- The new Actual Start must be earlier than the old Actual Start.
- The new Actual Start may be revised to an earlier time up to 24 hours before the old Actual Start.
- When the two-hour window expires, the Actual Start field will appear to be editable. If the user tries to update it, the system will display an error message.
- When the user enters an Actual End Date/Time, the Actual Start field changes to read-only. This happens even if the two-hour editing window for AS is still open.

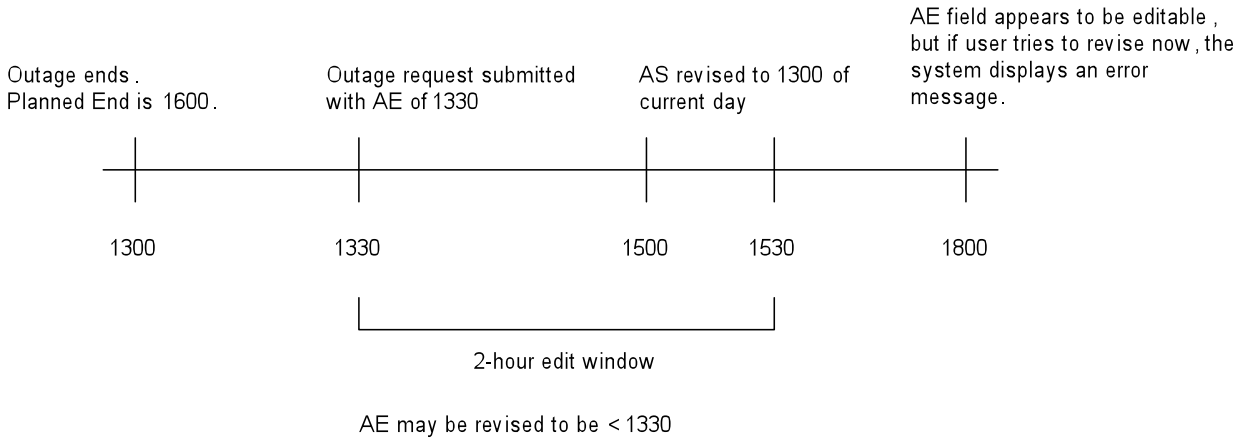
Figure 7: Timeline for Editing Actual Start for Forced Outage



2.8.2. An Actual End Date/Time may be revised as follows:

- This value is editable for two hours after the time it was submitted.
- The new Actual End must be earlier than the old Actual End.
- The Actual End field will appear to be editable after the two-hour window expires. If the user tries to update it, the system will display an error message. The Actual End field will never display as read-only.
- If the Actual End Date/Time is deleted (by ERCOT only) and entered again later, the two-hour editing period begins again.

Figure 8: Timeline for Editing Actual End for Forced Outage



2.9. Status Rules for Forced Outages

Type	Category	System-Assigned Upon Submission	Revisions to Status
Forced	Transmission	Accepted	No
Forced	Resource	Accepted	No