Research, Applied Technology, Education and Service, Inc.

Sphinx extension to extract slide content embedded in narrative content for generating sphinx-revealjs presentations.

Project Deliverable ID Manual

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Approval Page

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CONTENTS

1 Converting Todo Extension 2

2 Refining SlideShow 3

3 Slide Title 4

4 References 5

5 Sphinx Slides 6

6 Indices and tables 7

A Glossary 8

Index 18

Table of Contents:

CHAPTER

ONE

CONVERTING TODO EXTENSION

- Copied todo.py
- Sustituted `todo` for `slide`
- Copied slidelist code to slideshow

CHAPTER

TWO

REFINING SLIDESHOW

- Removed `slide_ref`

CHAPTER

THREE

SLIDE TITLE

- Subsection of document

CHAPTER

FOUR

REFERENCES

- **`Sphinx Extension Tutorials`_**

CHAPTER

FIVE

SPHINX SLIDES

Converting Todo Extension:

- Copied todo.py
- Sustituted `todo` for `slide`
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Refining SlideShow:

- Removed `slide_ref`

Slide Title:

- Subsection of document

References:

- Sphinx Extension Tutorials

CHAPTER

SIX

INDICES AND TABLES

- genindex
- modindex
- search

APPENDIX

A

GLOSSARY

API
Application Programming Interface

API.RGVFlood.com
RGVFlood.com data assimilation service.

AU
Assessment Unit

AWS
Amazon Web Services

Azure
Microsoft's Cloud Computing Platform

Bernoulli
The Bernoulli equation is a simplification of the Navier-Stokes equations assuming inviscid fluid and steady (non-time-variant) flow.

BLE
Base Level Engineering

Celery
A task scheduling and messaging application used to maximize parallel task processing.

CentOS
A *Linux* distribution

CI
Cyberinfrastructure

CLI
Command-Line Interface

Clover
Cloud Virtual Water Model Executor

COP
Common Operating Picture

CPU
Centralized Processing Unit

Crowdsource
Data collection from open, relatively un-controlled, sources.

CUAHSI
Consortium of Universities for the Advancement of Hydrologic Science

Cyberinfrastructure
computing systems, data storage systems, advanced instruments and data repositories, visualization environments, and people, all linked by high speed networks

DEM
Digital Elevation Model

Deterministic
Approaches to describing processes that do not rely on randomness.

DFIRM
Digital Flood Insurance Rate Map

DHS
Department of Homeland Security

DIKW
Data, Information, Knowledge, Wisdom

Django
<https://www.djangoproject.com/>

DO
Dissolved Oxygen

Docker
Docker is a container deployment platform that allows for the rapid deployment of a applications in the cloud, independent of the physical infrastructure.

DRF
Django ReST Framework

DSS
Decision Support System

EC2
AWS Elastic Cloud Compute

Eeyore
URL: Eeyore.ratesresearch.org CPU: Dual Intel(R) Xeon(R) E-2124 CPU @ 3.30GHz Memory: 16GB HD: 4TB OS: Ubuntu Linux 20.04

FEMA
Federal Emergency Management Agency

FIF
Flood Infrastructure Fund

FOSS
Free and Open Source Software

GCE
Google Compute Engine

GCP
Google Cloud Platform

GCS
Google Cloud storage

GeoNode
<https://geonode.org/>

GeoNode/db
PostgreSQL with *PostGIS* extensions database server storing *GeoNode* *Django* and *GeoServer* data.

GeoServer
Open source server for sharing geospatial data.

GeoTIFF
A public domain metadata standard which has the georeferencing information embedded within the *TIFF* file.

GIS
Geospatial Information System

GKE
Google *Kubernetes* Engine

H&H
Hydrologic and Hydraulic

HAND
Height Above Nearest Drainage <http://handmodel.ccst.inpe.br/>

HEC
Hydrologic Engineering Center

HEC-DSS
HEC Data Storage System

HEC-HMS
Hydrologic Engineering Center Hydrologic Modeling System. <https://www.hec.usace.army.mil/software/hec-hms/>

HEC-RAS
: Hydrologic Engineering Center River Analysis System. <https://www.hec.usace.army.mil/software/hec-ras/>

HEC-RTS
: Hydrologic Engineering Center Real Time Simulation

HPC
: High Performace Computing

HPCC
: *HPC* cluster

HTML
: Hypertext Markup Language

HUC
: Hydrologic Unit Code

HWMD
: Hidalgo/Willacy Main Drain

IBWCNF
: *USIBWC* North Floodway

IDV
: Integrated Data Viewer from *UniData*

InfoWorks ICM
: <https://www.innovyze.com/en-us/products/infoworks-icm>

IT
: Information Technology

K8s
: *Kubernetes*

Kubernetes
: An orchestration system facilites the deployment and management of containerized applications, with a specific focus on scaling to increase demand for the provided services.

LaTeX
: A high-quality typesetting system including features designed for the production of technical and scientific documentation

LiDAR
: Light Detection and Ranging

Linux
: An open source operating system that is made up of the kernel, the base component of the OS, and the tools, apps, and services bundled along with it.

LLM
Lower Laguna Madre

LLM/BSC
Lower Laguna Madre/Brownsville Ship Channel watershed.

LRGV
Lower Rio Grande Valley

LRGVDC
Lower Rio Grande Valley Development Council

LSM
Land Surface Models focus on describing the processes driving the exchange of terrestrial water with atmospheric.

Mechanistic
Formulations describing physical, biological or chemical processes based on a theoretical understanding.

MIKE Urban+
<https://www.mikepoweredbydhi.com/download/mike-2019/mike-urban-plus?ref=%7B5399F5D6-40C6-4BB2-8311-37B615A652C6%7D>

MPI
Message Passing Interface

NAT
Network Address Translation

Navier-Stokes
The Navier-Stokes equations are mathematically representations of conservation of mass and momentum for simple fluids such as water.

NCAR
National Center for Atmospheric Research

NetCDF
NetCDF (Network Common Data Form) is a set of software libraries and machine-independent data formats that support the creation, access, and sharing of array-oriented scientific data. It is also a community standard for sharing scientific data. The Unidata Program Center supports and maintains netCDF programming interfaces for C, C++, Java, and Fortran. Programming interfaces are also available for Python, IDL, MATLAB, R, Ruby, and Perl. Reproduced from NetCDF.

NGINX
High performance web server.

NIC
Network interface controller

NLDAS
North American Land Data Assimilation System

NOAA
National Oceanic and Atmospheric Agency

NWC
National Water Center

NWM
National Water Model

NWS
National Weather Service

ODM
Observations Data Model

PostGIS
Spatial database extender for *PostgreSQL*

PostgreSQL
Open source object-relational database system, available with *PostGIS* extensions

Primo
Parallel raster inundation model

PWA
Progressive Web Application, an application format that allows installation as native applications onto mobile devices and desktop PCs directly from the web.

Python
<https://www.python.org/>

R
A language and environment for statistical computing and graphics

RabbitMQ
An open-source inter-process message broker

RATES
Research, Applied Technology, Education and Service, Inc., a non-profit technology-based company.

RBAC
Role Based Access Control

REON
River and Estuary Observation Network. A partnership of organizations, supported by cloud software, committed to furthering the Democratization of Water Intelligence by sharing water data, analytics and models for local and regional decision making.

REON.cc
Cloud-based cyber-infrastructure that supports *REON*'s goals.

REON/db
PostgreSQL with *PostGIS* extensions database server storing *REON* specific data for *RTHS*, *REON/WM* & *REON.cc* data.

REON/RGV
Instantiation of *REON* with specific application to the Lower Rio Grande Valley - this includes the collection of *RTHS* stations, the *REON* partners with a stake in the LRGV, and the application of the *REON/WM* to the *LRGV*.

REON/WM
REON Water Model

ReST
REpresentational State Transfer

RGVFlood
Instantiation of the *REON* Cyberinfrastructure specific to the *LRGV*.

RGVFlood.com
The domain name and *URL* for *RGVFlood*.

RTHS
Real Time Hydrologic System

RTHS.us
Cloud server of *RTHS* network data

RVD
Raymondville Drain

RWRAC
Regional Water Resources Advisory Committee

SA
Situational Awareness

SaaS
Software as a Service

SMT
Simultaneous Multi-Threading

SONAR
Sound Navigation Ranging, a technique for detecting and determining the distance and direction of underwater objects by acoustic means.

Sphinx
Documentation generator supporting multiple output formats

SPRNT
Simulation Program for River Networks

Spyce
Smartphone Python Computing Environment

Stochastic
Approaches to describing processes in statistical terms.

SWMM
Stormwater Management Model

SWTF
Stormwater Taskforce

Tastypie
a webservice *API* framework for *Django*

TGLO
Texas General Land Office

Tier I
Tier I Real-Time Regional Hydrologic Modeling Framework

Tier II
Tier II On-Demand Sub-Regional Hydraulic Modeling Framework

Tier III
Tier III Off-Line Urban Stormwater Modeling Framework

TIFF
Tag Image File Format, a computer file used to store raster graphics and image information.

Tigger
URL: Tigger.water-wizard.org CPU: Dual Intel(R) Xeon(R) CPU E3-1245 v3 @ 3.40GHz Memory: 16GB HD: 4TB OS: Ubuntu Linux 20.04

TIN
Triangular Irregular Networks are a form of vector-based digital geographic data and are constructed by triangulating a set of vertices.

TWDB
Texas Water Development Board

TWDB/FIF
The Texas Water Development Board Flood Infrastructure Fund.

Ubuntu
A *Linux* distribution

UCAR
University Corporation for Atmospheric Research

UI
User Interface

UniData
A *UCAR* community program focused on sharing geoscience data and the tools to access and visualize that data.

URL
Uniform Resource Locator

USACE
United States Army Corps of Engineers

USGS
United States Geological Survey

USIBWC
United States International Boundary Water Commission

UTRGV
University of Texas Rio Grande Valley

vCPU
Virtual *CPU*

VIC
Variable Infiltration Capacity (VIC) Macroscale Hydrologic Model. <https://vic.readthedocs.io/en/master/>

VM
Virtual Machine

Water Wizard
A suite of decision support tools designed for regional decision makers.

Wizard.RGVFlood.com
A web, mobile and desktop client-side application that, working with the server-side components at *RGVFlood.com*, provides the end-user with the up-to-date analytics, visualization and decision support services from the core *REON.cc CI*.

WPP
Watershed Protection Plan

WPS
WRF Preprocessing System

WRDA
Water Resources Development Act

WRF
Weather Research and Forecasting Model

WRF-Hydro

WRF Hydrological modeling system. <https://ral. .edu/projects/wrf_hydro/overview>

INDEX

A

API, 8
API.RGVFlood.com, 8
AU, 8
AWS, 8
Azure, 8

B

Bernoulli, 8
BLE, 8

C

Celery, 8
CentOS, 8
CI, 8
CLI, 8
Clover, 8
COP, 8
CPU, 9
Crowdsource, 9
CUAHSI, 9
Cyberinfrastructure, 9

D

DEM, 9
Deterministic, 9
DFIRM, 9
DHS, 9
DIKW, 9
Django, 9
DO, 9
Docker, 9
DRF, 9
DSS, 9

E

EC2, 9
Eeyore, 9

F

FEMA, 9
FIF, 10
FOSS, 10

G

GCE, 10
GCP, 10
GCS, 10
GeoNode, 10
GeoNode/db, 10
GeoServer, 10
GeoTIFF, 10
GIS, 10
GKE, 10

H

H&H, 10
HAND, 10
HEC, 10
HEC-DSS, 10
HEC-HMS, 10
HEC-RAS, 11
HEC-RTS, 11
HPC, 11
HPCC, 11
HTML, 11
HUC, 11
HWMD, 11

I

IBWCNF, 11

IDV, 11
InfoWorks ICM, 11
IT, 11

K

K8s, 11
Kubernetes, 11

L

LaTeX, 11
LiDAR, 11
Linux, 11
LLM, 12
LLM/BSC, 12
LRGV, 12
LRGVDC, 12
LSM, 12

M

Mechanistic, 12
MIKE Urban+, 12
MPI, 12

N

NAT, 12
Navier-Stokes, 12
NCAR, 12
NetCDF, 12
NGINX, 12
NIC, 12
NLDAS, 13
NOAA, 13
NWC, 13
NWM, 13
NWS, 13

O

ODM, 13

P

PostGIS, 13
PostgreSQL, 13
Primo, 13
PWA, 13
Python, 13

R

R, 13
RabbitMQ, 13
RATES, 13
RBAC, 13
REON, 13
REON.cc, 14
REON/db, 14
REON/RGV, 14
REON/WM, 14
ReST, 14
RGVFlood, 14
RGVFlood.com, 14
RTHS, 14
RTHS.us, 14
RVD, 14
RWRAC, 14

S

SA, 14
SaaS, 14
SMT, 14
SONAR, 14
Sphinx, 14
SPRNT, 15
Spyce, 15
Stochastic, 15
SWMM, 15
SWTF, 15

T

Tastypie, 15
TGLO, 15
Tier I, 15
Tier II, 15
Tier III, 15
TIFF, 15
Tigger, 15
TIN, 15
TWDB, 15
TWDB/FIF, 15

U

Ubuntu, 15
UCAR, 15

UI, 16
UniData, 16
URL, 16
USACE, 16
USGS, 16
USIBWC, 16
UTRGV, 16

V

vCPU, 16
VIC, 16
VM, 16

W

Water Wizard, 16
Wizard.RGVFlood.com, 16
WPP, 16
WPS, 16
WRDA, 16
WRF, 16
WRF-Hydro, 17